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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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LaSalle County Station, Units 1 and 2
Facility Operating License Nos. NPF-11 and NPF-18
NRC Docket Nos. 50-373 and 50-374

Subject: Request for Amendment to Technical Specifications Associated With Direct Current Electrical Power

References:
(1) Institute of Electrical and Electronics Engineers (IEEE) Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," dated January 24, 1995

(2) Technical Specifications Task Force (TSTF) Traveler TSTF-360, Revision 1, "DC Electrical Rewrite"

(3) Letter from W. D. Becker (U. S. NRC) to A. R. Pietrangelo (Nuclear Energy Institute), dated December 18, 2000

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) requests an amendment to Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. The proposed changes modify Technical Specifications (TS) Sections 3.8.4, "DC Sources - Operating," 3.8.5, "DC Sources - Shutdown," 3.8.6, "Battery Cell Parameters," and 5.5, "Programs and Manuals." The proposed changes request new actions for an inoperable battery charger and alternate battery charger testing criteria for Limiting Condition for Operation (LCO) 3.8.4 and 3.8.5. The proposed changes also include the relocation of a number of Surveillance Requirements (SRs) in TS Section 3.8.4 that perform preventive maintenance on the safety related batteries to a licensee-controlled program. It is proposed that TS Table 3.8.6-1, "Battery Cell Parameter Requirements," be relocated to a licensee-controlled program, and specific actions with associated completion times for out-of-limits conditions for battery cell voltage, electrolyte level, and electrolyte temperature be added to TS Section 3.8.6. In addition, specific SRs are being proposed for verification of these parameters.

A new program is being proposed for the maintenance and monitoring of station batteries based on the recommendations of Institute of Electrical and Electronics Engineers (IEEE) Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications" (i.e., Reference 1). The items proposed to be relocated will be contained within this new program.

The proposed changes will allow additional time for maintenance and testing of the normal 250 volts direct current (VDC) and 125 VDC divisional battery chargers. In addition, relocation of the preventive maintenance SRs and battery cell parameter requirements to a licensee-controlled program will continue to provide an adequate level of control of these requirements, assure the batteries are maintained at current levels of performance, allow flexibility to monitor and control these limits at values directly related to the batteries' ability to perform their assumed function, and allow the TS to focus on parameter value degradations that approach levels that may impact battery operability.

These proposed changes are consistent with Reference 2, which was approved by the NRC in Reference 3. There are some differences between the proposed changes and Reference 2 due to plant-specific design features and ease of use considerations.

This request is subdivided as follows.

- Attachment 1 provides an evaluation supporting the proposed TS changes.
- Attachment 2 contains the marked-up TS pages with the proposed changes indicated.
- Attachment 3 provides the marked-up TS Bases pages with the proposed changes indicated. The TS Bases pages are provided for information only, and do not require NRC approval.
- Attachment 4 provides revised TS pages with the proposed changes incorporated.

The proposed changes have been reviewed by the LSCS Plant Operations Review Committee and approved by the Nuclear Safety Review Board in accordance with the requirements of the EGC Quality Assurance Program. EGC requests approval of these changes prior to December 30, 2005. Once approved, the amendment shall be implemented within 60 days. This implementation period will provide adequate time for station documents to be revised using the appropriate change control mechanisms.

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

If you have any questions or require additional information, please contact Ms. Alison Mackellar at (630) 657-2817.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 9th day of December 2004.

Respectfully,

Keith R. Jury
Director – Licensing and Regulatory Affairs

Attachments:

Attachment 1: Evaluation of Proposed Changes
Attachment 2: Markup of Technical Specification Pages
Attachment 3: Markup of Technical Specification Bases Pages
Attachment 4: Retyped Technical Specification Pages

ATTACHMENT 1
Evaluation of Proposed Changes

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Evaluation of Proposed Changes

1.0 DESCRIPTION

In accordance with 10 CFR 50.90, "Application for amendment of license or construction permit," Exelon Generation Company, LLC (EGC) requests an amendment to Facility Operating License Nos. NPF-11 and NPF-18 for LaSalle County Station (LSCS), Units 1 and 2. The proposed changes modify Technical Specifications (TS) Sections 3.8.4, "DC Sources - Operating," 3.8.5, "DC Sources - Shutdown," 3.8.6, "Battery Cell Parameters," and 5.5, "Programs and Manuals." The proposed changes request new actions for an inoperable battery charger and alternate battery charger testing criteria for Limiting Condition for Operation (LCO) 3.8.4 and 3.8.5. The proposed changes also include the relocation of a number of Surveillance Requirements (SRs) in TS Section 3.8.4 that perform preventive maintenance on the safety related batteries to a licensee-controlled program. It is proposed that TS Table 3.8.6-1, "Battery Cell Parameter Requirements," be relocated to a licensee-controlled program, and specific actions with associated completion times for out-of-limits conditions for battery cell voltage, electrolyte level, and electrolyte temperature be added to TS Section 3.8.6. In addition, specific SRs are being proposed for verification of these parameters.

A new program is being proposed for the maintenance and monitoring of station batteries based on the recommendations of Institute of Electrical and Electronics Engineers (IEEE) Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications" (i.e., Reference 1). The items proposed to be relocated will be contained within this new program.

These proposed changes are consistent with Reference 2, which was approved by the NRC in Reference 3. There are some differences between the proposed changes and Reference 2 due to plant-specific design features and ease of use considerations. These differences are explained below.

2.0 PROPOSED CHANGES

The proposed changes revise TS 3.8.4, TS 3.8.5, TS 3.8.6, and TS Section 5.5 to be consistent with Reference 2. Each related change is grouped and discussed in detail below. These groupings follow the general presentation found in Reference 2. Section 4.0, "Technical Analysis," presents subsections that are organized following the below lettered summary of proposed changes.

To account for the LSCS plant design and current licensing basis and for ease of use considerations, some differences from the Reference 2 proposed changes are necessary. These differences are numbered from 1 through 6 and discussed at the end of this section. These numbered differences are also indicated on the proposed TS markups in Attachment 2 and in Section 4.0 for ease of reference.

A. Provide Specific Actions and an Increased Completion Time for an Inoperable Battery Charger

   TS 3.8.4 is being revised to add new Condition A to address the condition in which a required Division 1, 2, or 3 125 VDC battery charger on one division becomes inoperable. Condition A also addresses the condition in which one required Division 2 or

opposite unit Division 2 battery charger or one required Division 1 250 V battery chargers is inoperable. Required Actions are proposed that provide a tiered response that focuses on returning the battery to the fully charged state and restoring a charger to operable status in a reasonable time. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within two hours. Required Action A.2 requires verification that the battery float current be less than or equal to two amps once per 12 hours. Required Action A.3 limits the restoration time for the required inoperable battery charger to seven days.

Existing TS 3.8.4 Conditions A, B, C, D, and E are re-designated to reflect the addition of new Condition A.

Existing TS 3.8.5 Condition A is deleted and replaced with new Condition A which specifies required actions and associated completion times for one required battery charger on one division operable with the redundant required division battery and charger operable. The Required Actions and Completion are the same as new Condition A for TS 3.8.4 described above.

TS 3.8.5 Condition B is revised to adopt wording consistent with TSTF-360 and to address the situation in which the Required Actions and associated Completion Times of revised Condition A are not met.

B. Relocate Preventive Maintenance SRs to Licensee-controlled Programs

Existing SR 3.8.4.2, SR 3.8.4.3, SR 3.8.4.4, and SR 3.8.4.5 are being deleted from the LSCS TS and relocated to a licensee-controlled program. These SRs are also listed in SR 3.8.5.1 and will be deleted from SR 3.8.5.1. This requires renumbering of SR 3.8.4.6 as SR 3.8.4.2, SR 3.8.4.7 as SR 3.8.4.3, and SR 3.8.4.9 as SR 3.8.4.4.

C. Provide Alternative Testing Criteria for Battery Charger Testing

SR 3.8.4.1 is being revised to require verification that battery terminal voltage is greater than or equal to the minimum established float voltage, which will be established in a licensee-controlled program.

SR 3.8.4.6 (re-designated as SR 3.8.4.2) is being revised to permit alternative battery charger testing criteria. The revised SR 3.8.4.2 removes the value for the minimum charger output voltage and allows this value to be the minimum established float voltage specified in the licensee-controlled program. An alternative criterion is specified to allow demonstration that the battery charger can recharge the battery to the fully charged state within 24 hours while supplying the various continuous steady state loads.

SR 3.8.4.7 (re-designated as SR 3.8.4.3) is revised to modify specific LSCS wording to be consistent with TSTF-360 wording.

Note 1 for current SR 3.8.4.7 (re-designated as SR 3.8.4.3) is modified from the current TS wording to match the TSTF-360 wording. The statements, "the service test in" and "provided the modified performance discharge test completely envelops the service test"

are removed from the current TS to match the TSTF-360 wording. The reference to the relocated SR 3.8.4.8 is also revised.

D. Relocate SR 3.8.4.8 to SR 3.8.6.6

SR 3.8.4.8 is being relocated to TS Section 3.8.6 as SR 3.8.6.6. This SR is also listed in SR 3.8.5.1 and SR 3.8.4.7.

The references to section 3.8.4 SRs in current SR 3.8.5.1 are renumbered based on renumbering and relocation of the SRs in section 3.8.4.

E. Replace Battery Specific Gravity Monitoring with Float Current Monitoring

The specific gravity limits of Table 3.8.6-1 and associated footnotes (b) and (c) are being deleted. Currently, verification of battery cell specific gravity is required by existing SR 3.8.6.1 and SR 3.8.6.2. Under the proposed changes, specific gravity monitoring will be replaced with float current monitoring. New SR 3.8.6.1 requires verification that each battery float current is less than or equal to two amps when battery terminal voltage is greater than or equal to the minimum established float voltage of SR 3.8.4.1. The Frequency of new SR 3.8.6.1 is seven days.

F. Relocate Limiting Values for Battery Cell Float Voltage and Electrolyte Level to a Licensee-Controlled Program

The proposed changes delete Condition A of TS 3.8.6, SR 3.8.6.1, SR 3.8.6.2, SR 3.8.6.3, and the remainder of Table 3.8.6-1 (i.e., the portion not discussed in Section E above) from TS Section 3.8.6. These requirements are being relocated to the licensee-controlled program described in proposed TS Section 5.5.14, with the exception that battery specific gravity monitoring is being replaced with float current monitoring, as described above.

In addition, the title of TS Section 3.8.6 is being revised to "Battery Parameters" and the LCO is being revised to read: "Battery parameters for the Division 1,2, and 3 and opposite unit Division 2 station batteries shall be within limits." A corresponding change to the TS Table of Contents is being made to be consistent with the revised TS Section 3.8.6 title.

G. Create an Administrative Program Under TS Section 5.5.14 to Reference Actions for Cell Voltage and Electrolyte Level

A new program is being added to TS Section 5.5. Specifically, TS Section 5.5.14, "Battery Monitoring and Maintenance Program," is added to provide for restoration and maintenance actions for station batteries based on the recommendations of Reference 1.

H. Provide Specific Actions with Increased Completion Times for Out-of-limits Conditions for Cell Voltage, Electrolyte Level, and Electrolyte Temperature

Five new Conditions are being added to TS 3.8.6. These Conditions with their associated Required Actions provide compensatory actions for a specific abnormal battery condition.

- Condition A addresses the situation in which one or more batteries have one or more battery cells with a float voltage less than 2.07 V.
- Condition B addresses the situation in which one or more batteries are found with a float current greater than two amps.
- Condition C addresses the situation in which one or more batteries have one or more battery cells with electrolyte level less than the minimum established design limits.
- Condition D addresses the situation in which one or more batteries are found with pilot cell electrolyte temperature less than minimum established design limits.
- Condition E addresses the situation in which two or more batteries in redundant divisions are found with battery parameters not within limits.

As a result of the new conditions, existing Condition B is being re-designated as Condition F to account for the added conditions. This Condition is also revised to address the situation in which one or more batteries have one or more cells with float voltage less than 2.07 volts and float current greater than two amps.

The following new SRs are being added to TS 3.8.6, in addition to new SR 3.8.6.1 discussed above.

- SR 3.8.6.2 requires verification that each battery pilot cell voltage is greater than or equal to 2.07 V every 31 days.
- SR 3.8.6.3 requires verification that each battery connected cell electrolyte level is greater than or equal to minimum established design limits every 31 days.
- SR 3.8.6.4 requires verification that each battery pilot cell temperature is greater than or equal to minimum established design limits every 31 days.
- SR 3.8.6.5 requires verification that each battery connected cell voltage is greater than or equal to 2.07 V every 92 days.

Differences from TSTF-360 proposed changes

1. Add additional conditions to TSTF-360 TS 3.8.4 Condition A to reflect plant-specific equipment.
   TSTF-360 TS 3.8.4 new Condition A is modified as follows.
   - The wording "One or two battery chargers ..." is revised to state, "One required Division 1,2, or 3 125 VDC battery charger... ."
   - Condition A is revised to include the situation in which one required Division 2 or opposite unit Division 2 battery charger on one division is inoperable.
   - Condition A is revised to include the situation in which one required Division 1 250 VDC battery charger is inoperable.

In addition, the word "required" is added to the Condition statement and Required Action A.3.

2. Eliminate bracketed information that is not applicable.
   TSTF-360 TS 3.8.4 Condition B, which is bracketed in TSTF-360, is not used in the proposed changes.
3. Provide appropriate Conditions and end states consistent with current licensing basis.
   Existing TS 3.8.4 Conditions B, C, D, and E are revised to provide the appropriate Conditions and end state for situations in which the Required Actions and associated Completion Times for Condition A are not met.
4. Incorporate TS conventional wording to acknowledge the condition in which only some equipment may be required.
   For TS 3.8.5 Condition A, the word "required" is added to the TSTF-360 Condition A statement.
5. Reflect additional non-redundant divisions of batteries in the LSCS design to avoid inappropriate entry into LCO 3.0.3.
   The wording in TS 3.8.6 new Conditions A through D and F is revised from the TSTF-360 wording to state "one or more" batteries versus "one or two batteries." The words "on one division" are removed. The wording in Condition E is revised from the TSTF-360 wording to state, "two or more redundant division batteries" versus "one or more batteries in redundant divisions."
6. Incorporate surveillance note for consistency with current licensing basis.
   Existing SR 3.8.4.8 (relocated as SR 3.8.6.6) is revised to incorporate a note that specifies that the SR is not required to be performed in Modes 4 or 5, or during movement of irradiated fuel in the secondary containment. This note is currently contained in SR 3.8.4.9 and SR 3.8.5.1.

A markup of the affected TS pages is provided in Attachment 2. Attachment 3 provides a markup of the affected TS Bases pages. Information contained in Attachment 3 is provided for information only, and does not require NRC approval.

2.1 Need for Revision of the Requirements

The current TS completion time for an inoperable battery charger is the same time as for an inoperable battery or a completely de-energized DC distribution subsystem. The proposed changes will allow additional time for maintenance and testing of the 250 VDC and 125 VDC divisional battery chargers. In addition, relocation of the preventive maintenance SRs and battery cell parameter requirements to a licensee-controlled program will continue to provide an adequate level of control of these requirements, assure the batteries are maintained at current levels of performance, allow flexibility to monitor and control these limits at values directly related to the batteries' ability to perform their assumed function, and allow the TS to focus on parameter value degradations that approach levels that may impact battery operability.

2.2 Impact on Previous Submittals

EGC has reviewed the proposed changes for impact on previous submittals awaiting NRC approval for LSCS, and has determined that there is no technical impact. However, Reference 4 transmitted a request for license amendment that also added a program to TS Section 5.5.

The section numbering of the proposed program in this amendment request (i.e., Section 5.5.14) would need to be altered if the Reference 4 request is approved prior to this request.

3.0 BACKGROUND

The LSCS DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment. As required by 10 CFR 50, Appendix A, General Design Criterion 17, the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure.

The 125 VDC electrical power system consists of three independent Class 1E DC electrical power subsystems, Divisions 1, 2, and 3. The 250 VDC electric power system consists of one Class 1E DC electrical power subsystem, Division 1. Each subsystem consists of a battery, associated battery charger, and all the associated control equipment and interconnecting cabling. The Division 1 and 2 125 VDC subsystems each also have an additional full-capacity 125 VDC battery charger.

During normal operation, the DC loads are powered from the battery chargers with the batteries floating on the system. In case of loss of normal power to the battery charger, the DC loads are automatically powered from the batteries.

The Division 1 125 VDC power source provides the control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers and control power for non-Class 1E loads. Also, the 125 VDC power sources provide DC power to the emergency lighting system, diesel generator (DG) auxiliaries, and the DC control power for the Engineered Safety Feature (ESF) and non-ESF systems. The 250 VDC power source supplies power to the Reactor Core Isolation Cooling (RCIC) System, and RCIC primary containment isolation valves (PCIVs). It also supplies power to the main turbine emergency bearing oil pumps, main generator emergency seal oil pumps, and the process computer; however, these are not Technical Specification related loads.

The Division 2 safety related 125 VDC power source provides the control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers and control power for non-Class 1E loads. Also, this 125 V battery provides DC power to the emergency lighting system, diesel generator (DG) auxiliaries, and the DC control power for ESF and non-ESF systems.

The Division 3 safety related 125 VDC power source provides power for the High Pressure Core Spray (HPCS) DG field flashing control logic and switching function of 4.16 kV Division 3 breakers. It also provides power for the HPCS System logic, HPCS DG control and protection, and Division 3 related controls.

The opposite unit Division 2 safety related DC power source consists of a 125 VDC battery bank and associated full capacity charger. This 125 V battery provides the control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers and control power for non-Class 1E loads. Also, this division provides DC power to the opposite unit's emergency lighting system, diesel generator (DG) auxiliaries, and DC control power for

the ESF and non-ESF systems. The opposite unit Division 2 also has an additional full capacity charger.

Each Division 1, 2, and 3 battery has adequate storage capacity to carry the required loads continuously for at least four hours as discussed in the UFSAR, Section 8.3.2.

Each Division 1, 2, and 3 DC electrical power subsystem battery charger has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger has sufficient capacity to restore the battery bank from the design minimum charge to its fully charged state within 24 hours while supplying normal steady state loads.

4.0 TECHNICAL ANALYSIS

Technical justification for the proposed changes is presented below. The justifications presented are consistent with the justifications presented in Reference 2. Justifications for the differences from the TSTF-360 changes (i.e., the differences numbered 1 through 6 in Section 2.0 above) are presented at the end of this section.

A. Provide Specific Actions and an Increased Completion Time for an Inoperable Battery Charger

Current TS 3.8.4 Condition A requires restoration of the Division 1 or 2 125 VDC battery charger operability within two hours. Condition B and C require immediate actions to declare supported equipment inoperable with a battery charger inoperable. These are the same Completion Times specified for an inoperable battery or a completely de-energized DC distribution subsystem.

A new Condition, with associated Required Action and Completion Time is being added to TS 3.8.4 to separately address battery charger inoperability. This Condition addresses the situation in which one required battery charger becomes inoperable. A proposed Completion Time of seven days focuses on a tiered approach to assure adequate battery capability is maintained.

The first priority with an inoperable battery charger is to minimize the battery discharge. Required Action A.1 assures the discharge is terminated by requiring that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within two hours. This time provides for returning the inoperable charger to operable status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. This provides assurance that the battery will be restored to its fully charged condition from any discharge that might have occurred due to the charger inoperability. A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion of its recharging cycle. There is no comparable limitation in the current LSCS TS. As such, including this action provides for continued safe plant operation.

The second tiered action (i.e., Required Action A.2) requires that once per 12 hours, battery float current be verified to be less than or equal to two amps. This indicates that, if the battery had been discharged as the result of the inoperable battery charger, it has now been fully charged. If at the expiration of the 12-hour period the battery float current is not less than or equal to two amps, there may be additional battery problems and the battery must be declared inoperable. This verification provides assurance that the battery has sufficient capacity to perform its assumed duty cycle.

Given that the DC bus remains energized, any battery discharge is terminated (i.e., Required Action A.1), and the battery is fully recharged (i.e., Required Action A.2), there is reasonable basis for extending the restoration time for an inoperable charger beyond the existing two-hour limit to seven days (i.e., Required Action A.3).

The revised actions are acceptable because they focus efforts on retaining battery capabilities, retaining the requirement for charger operability, and applying a reasonable restoration time for an inoperable battery charger to avoid an unnecessary plant shutdown transient.

Similar changes and justification are proposed for TS 3.8.5 Condition A and associated Required Actions and Completion Times.

B. Relocate Preventive Maintenance SRs to Licensee-controlled Programs

In accordance with SR 3.0.1, when any SR is not met, the LCO is not met. This is based on the premise that SRs represent the minimum acceptable requirements for operability of the required equipment. However, for existing SR 3.8.4.2, SR 3.8.4.3, SR 3.8.4.4, and SR 3.8.4.5, failure to meet the SR does not necessarily mean that the equipment is incapable of performing its safety function, and the corrective action is generally a routine or preventive maintenance-type activity. For example, SR 3.8.4.2 requires visual inspection to detect corrosion of the battery cells and connections to provide an indication of physical damage or abnormal deterioration that could potentially degrade battery performance. This action is not required for the battery to perform its safety function, but reflects ongoing preventive maintenance activities. These activities are inappropriate for operability SRs and are better controlled under the maintenance programs for batteries.

The proposed changes relocate preventive maintenance SRs to a licensee-controlled program addressed in proposed TS Section 5.5.14. These activities will be included in the LSCS Technical Requirements Manual (TRM) and will continue to be performed consistent with the recommendations in Reference 1. Changes to the TRM are evaluated under the provisions of 10 CFR 50.59, "Changes, tests, and experiments," to determine if the proposed changes require prior NRC review and approval. In addition, changes implemented which do not require prior NRC review and approval will be reported to the NRC in accordance with 10 CFR 50.71, "Maintenance of records, making of reports," paragraph (e). Based on the above, the proposed changes provide adequate assurance of system operability commensurate with the safety significance since the relocated SRs will continue to be performed, and any changes will be evaluated in accordance with 10 CFR 50.59.

Similar changes and justification are proposed for TS 3.8.5 SRs.

C. Provide Alternative Testing Criteria for Battery Charger Testing

Revised SR 3.8.4.1 requires verification that battery terminal voltage is within limits. This provides assurance that the battery will be restored to its fully charged condition from any discharge that might have occurred due to charger inoperability. The proposed changes relocate the specific terminal voltage values to the licensee-controlled program addressed in proposed TS Section 5.5.14.

Current SR 3.8.4.6, which is being re-designated as SR 3.8.4.2, requires specific parameters for battery charger performance testing. This test is intended to confirm the charger design capacity. The specified value for the required battery charger output voltage is replaced with a reference to the minimum established float voltage, which will be contained in the licensee-controlled program added as proposed TS 5.5.14. Alternate acceptance criteria are proposed that would allow an actual in service demonstration that the charger can recharge the battery to the fully charged state within 24 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. This accomplishes the objective of the existing test and allows for normal in-place demonstration of the charger capability thereby minimizing the time when the charger would be disconnected from the DC bus.

D. Relocate SR 3.8.4.8 to SR 3.8.6.6

The relocation of SR 3.8.4.8 to SR 3.8.6.6 and associated renumbering is editorial. This SR demonstrates the operability of the battery and is therefore proposed to be included in TS Section 3.8.6 related to battery operability.

E. Replace Battery Specific Gravity Monitoring with Float Current Monitoring

Existing SR 3.8.6.1 and SR 3.8.6.2, in conjunction with Table 3.8.6-1, require monitoring of individual cell specific gravity. However, the provision of Table 3.8.6-1, Footnote (c), allows the use of a battery charging current less than two amps when on float charge to be used to satisfy specific gravity requirements.

New SR 3.8.6.1 requires verification that each battery float current is less than or equal to two amps every seven days. This will replace the existing requirements for specific gravity monitoring. Use of float current to determine the state of charge of the battery is consistent with Section 4.5 of Reference 1. Therefore, deleting the requirement for specific gravity measurements will not have a significant impact on safety or the ability to accurately determine the operability of the batteries. Reference 2 provides further detailed generic technical support, which the NRC found acceptable in Reference 3 for this change.

F. Relocate Limiting Values for Battery Cell Float Voltage and Electrolyte Level to a Licensee-controlled Program

The proposed changes relocate TS 3.8.6 Condition A, SR 3.8.6.1, SR 3.8.6.2, SR 3.8.6.3, and Table 3.8.6-1 (including footnote (a)) to the licensee-controlled program described in proposed TS Section 5.5.14, with the exception that battery specific gravity monitoring is being replaced with float current monitoring, as described above.

TS Table 3.8.6-1 contains various levels (i.e., Categories) of limitations on battery cell voltage, electrolyte level, and specific gravity parameters. The Category A and B limits reflect nominal fully charged battery parameter values which provide significant margin above that required for declaration of an operable battery. These Category A and B values represent appropriate monitoring levels and appropriate preventive maintenance levels for long-term battery quality and extended battery life. These limits, however, do not reflect the 10 CFR 50.36, "Technical specifications," criteria for LCOs of the lowest functional capability or performance levels of equipment required for the safe operation of the facility. It is proposed that these values and the actions associated with restoration be relocated to a licensee-controlled program being added as proposed TS Section 5.5.14 that is under the control of 10 CFR 50.59. Required actions associated with Category C limits in TS Table 3.8.6-1 are retained in the TS as discussed in changes lettered E and H.

The proposed changes provide adequate assurance of system operability commensurate with the safety significance since the relocated SRs will continue to be performed, and any changes will be evaluated in accordance with 10 CFR 50.59.

The proposed changes to delete the word "cell" from the title of TS Section 3.8.6 and to revise the wording of the LCO are editorial changes.

G. Create an Administrative Program Under TS Section 5.5.14 to Reference Actions for Cell Voltage and Electrolyte Level

The proposed changes create an administrative program for maintenance, monitoring, and restoration actions for batteries by adding TS Section 5.5.14. This program will be based on the recommendations of Reference 1 and will contain the elements relocated from the affected TS LCOs. The parameter values will continue to be controlled, and any corrective actions will be implemented in accordance with the EGC Corrective Action Program. Furthermore, preventive maintenance and monitoring of batteries are in part governed by the regulatory requirements of 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants." The relocation of the elements from TS will not compromise the current levels of battery performance, and focuses the TS on parameter value degradations that approach values that may impact battery operability.

The program will require actions to restore battery cells with float voltage less than 2.13 V and actions to equalize and test battery cells that have been discovered with

electrolyte level below the minimum established design limits. Corrective actions for these conditions will be based on Annex D of Reference 1.

The items proposed to be relocated will be contained in the TRM, which is incorporated by reference in the LSCS Updated Final Safety Analysis Report (UFSAR). Thus, changes to the program will be subject to review under 10 CFR 50.59 to determine if the proposed changes require prior NRC review and approval. In addition, changes will be reported to the NRC in accordance with 10 CFR 50.71, "Maintenance of records, making of reports," paragraph (e).

Based on the above, the proposed battery monitoring and maintenance program will contain the necessary elements to ensure that the batteries continue to be maintained in a highly reliable condition.

H. Provide Specific Actions with Increased Completion Times for Out-of-limits Conditions for Cell Voltage, Electrolyte Level, and Electrolyte Temperature

Specific Required Actions are proposed for parameters that have a unique impact on the battery and its continued operability. The proposed changes to TS Section 3.8.6 provide specific Required Actions and increased Completion Times for out-of-limit conditions for cell voltage, electrolyte level, and electrolyte temperature. These Completion Times recognize the margins available, the minimal impact on battery capacity and the capability to perform its intended function, and the likelihood of effecting restoration in a timely fashion avoiding an unnecessary plant shutdown. In addition, SRs are proposed to verify that the batteries are maintained within the established limitations. The bases for the specific actions and SRs are as follows.

- Condition A addresses the situation in which a battery has one or more cells with a float voltage of less than 2.07 V. With a float voltage of less than 2.07 V, the battery cell must be considered degraded. Within two hours, verification of the required battery charger operability is made by monitoring the battery terminal voltage (i.e., performance of SR 3.8.4.1), and determining the overall state of charge by monitoring the battery float current (i.e., performance of SR 3.8.6.1). These actions assure that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in one or more batteries being less than 2.07 V, and continued operation is permitted for a limited period up to 24 hours. This is considered a reasonable time to restore the out-of-limit condition.

- Condition B represents the situation in which a battery is found with float current greater than two amps, and indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of the battery charger, or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within two hours, verification of the required battery charger operability is made by monitoring the battery terminal voltage (i.e., performance of SR 3.8.4.1). If the terminal voltage is found to be less than the minimum established float voltage, there are two possibilities: the battery charger is inoperable or is operating in the current limit mode. Condition A of LCO 3.8.4 addresses charger inoperability. If the charger is operating in the current limit mode after two hours, this

indicates that the battery has been substantially discharged and likely cannot perform its required design function. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within 12 hours (Required Action B.2). In this condition, the battery must be declared inoperable.

If the float voltage of the battery is found to be satisfactory but there are one or more battery cells with float voltage less than 2.07 V, Condition F is applicable and the battery must be declared inoperable immediately. If float voltage is satisfactory and there are no cells less than 2.07 V, there is assurance that, within 12 hours, the battery will be restored to its fully charged condition (Required Action B.2) from any discharge that might have occurred due to a temporary loss of the battery charger. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus, there is assurance of fully recharging the battery within 12 hours, avoiding a premature unit shutdown with its own attendant risk.

If the condition is due to one or more cells in a low voltage condition but still greater than 2.07 V, and float voltage is found to be satisfactory, this is not indication of a substantially discharged battery and 12 hours is a reasonable time prior to declaring the battery inoperable.

- Condition C addresses the situation in which a battery is found with the electrolyte level in one or more cells less than minimum established design limits. With the electrolyte level in one or more cells above the top of the plates, but below the minimum established design limits, the battery still retains sufficient capacity to perform its intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level. Within 31 days, the minimum established design limits for electrolyte level must be restored.

  With electrolyte level below the top of the plates, there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential as well as provisions in TS Section 5.5.14. These actions are only applicable if electrolyte level was below the top of the plates. Within 8 hours, level is required to be restored to above the top of the plates. The Required Action C.2 to verify that there is no leakage by visual inspection and the Specification 5.5.14, Item b, to initiate action to equalize and test in accordance with manufacturer's recommendation are taken from Annex D of Reference 1. They are performed following the restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing, the battery may have to be declared inoperable and the affected cell(s) replaced.

- Condition D addresses the situation in which a battery is found with a pilot cell temperature less than the minimum established design limits. A low electrolyte temperature limits the current and power available from the battery. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform its intended function. Therefore, the affected battery is not required

to be considered inoperable solely as a result of the pilot cell temperature, and the 12 hour Completion Time provides a reasonable time to restore the temperature within established limits.

- Condition E addresses the situation in which two or more batteries in redundant divisions have battery parameters not within limits. Given this condition, there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries can still perform their required function, given that redundant batteries are involved. This potentially could result in a total loss of function on multiple systems that rely upon the batteries. The longer completion times specified for battery parameters not within limits on non-redundant batteries are therefore not appropriate, and the parameters must be restored to within limits on at least one division within two hours.

- Condition F specifies actions to take when the Required Action and associated Completion Times are not met. When any battery parameter is outside the allowances of the Required Actions for Condition A, B, C, D, or E, sufficient capacity to supply the maximum expected load requirement is not ensured and the corresponding battery must be declared inoperable. The battery must therefore be declared inoperable immediately.

  Condition F also specifies actions to take when one or more batteries with one or more battery cells is found with float voltage less than 2.07 V and float current greater than two amps. Discovering a battery with one or more battery cells float voltage less than 2.07 V and float current greater than two amps indicates that the battery capacity may not be sufficient to perform the intended functions. The battery must therefore be declared inoperable immediately.

- SR 3.8.6.1 requires verification that each battery float current is less than or equal to two amps. Verifying battery float current while on float charge is used to determine the state of charge of the battery. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a charged state. The float current requirements are based on the float current indicative of a charged battery. Use of float current to determine the state of charge of the battery and the seven-day Frequency is consistent with Reference 1.

- SR 3.8.6.2 and SR 3.8.6.5 verify that the cell voltage of either pilot cells or each connected cell are equal to or greater than the short-term absolute minimum voltage, representing the point where battery operability is in question. Optimal long-term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the battery manufacturer, which corresponds to 255.2 V at the 250 VDC battery terminals and 127.6 V at the 125 VDC battery terminals, or 2.2 volts per cell (Vpc). This provides adequate over-potential, which limits the formation of lead sulfate and self-discharge, which could eventually render the battery inoperable. Float voltage in this range or less, but greater than 2.07 Vpc, is addressed in new TS Section 5.5.14. The Frequencies for pilot cell voltage verification every 31 days and 92 days for each connected cell are consistent with Reference 1.

- SR 3.8.6.3 requires verification that each battery connected cell electrolyte level is greater than or equal to the minimum established design limit. The limit specified for electrolyte level ensures that the plates suffer no physical damage and that the cell maintains adequate electron transfer capability. The Frequency of 31 days is consistent with Reference 1.

- SR 3.8.6.4 requires verification that each battery pilot cell temperature is greater than or equal to the minimum established design limit. Pilot cell electrolyte temperature is maintained above this temperature to assure the battery can provide the required current and voltage to meet design requirements. Temperatures lower than assumed in battery sizing calculations act to inhibit or reduce battery capacity. The Frequency of 31 days is consistent with Reference 1.

Justification for differences from the TSTF-360 markups

The LSCS design (BWR/5) differs from that of the typical BWR/6 design that forms the bases of the BWR/6 Improved Standard Technical Specifications (ISTS) and TSTF-360. The current LSCS DC Power TS and the proposed changes to adopt TSTF-360 incorporate these differences. Like a BWR/6, LSCS has two redundant ESF buses designated Division 1 and Division 2. In addition, a third division designated Division 3 contains the High Pressure Core Spray (HPCS) System, which is redundant to Divisions 1 and 2 for the Emergency Core Cooling System (ECCS) function. LSCS also has a Reactor Core Isolation Cooling (RCIC) System; however, unlike the BWR/6 ISTS, the 250 VDC power system that supports the operation of RCIC is incorporated into the LCO requirements for DC power. Another difference is that Division 2 contains ESF equipment that is shared between the units. Each Division 2 bus contains one train of the Standby Gas Treatment, Control Room Emergency Filtration and Air Conditioning, and Hydrogen Recombiner Systems. Thus, by design, Divisions 1, 2, and 3 are redundant to each other and each unit's Division 2 is redundant to the opposite unit Division 2. The opposite unit's Division 2 is not redundant to Division 1 or Division 3. Each division is provided with cross-ties to its identical Division DC bus on the opposite unit; however, these cross ties are for maintenance purposes only and cannot be used to support operability of a DC electrical power division.

The discussion below is numbered to correspond to the numbered descriptions of the differences from the TSTF-360 markups.

1. This difference adds additional conditions to TSTF-360 TS 3.8.4 Condition A to reflect additional plant-specific equipment. The purpose of LCO 3.8.4 Condition A of TSTF-360 is to allow additional outage time if one DC electrical division is degraded due to the inoperability of its qualified battery charger provided the associated battery is maintained operable. The restriction to one division is intended to ensure that no more than one redundant ESF division is degraded at any one time since the remaining fully operable redundant divisions ensure that the associated ESF functions will be accomplished in the event of an accident. Because the BWR/6 ISTS is constructed to describe the actions for two or three redundant divisions, the TSTF-360 markup does not address plant configurations in which LCO 3.8.4 requires other non-redundant DC electrical divisions to be operable. Therefore, to meet the purpose of TSTF-360, the first Condition statement was modified and two additional Condition statements were added to describe the actions to be

taken when these non-redundant division battery chargers become inoperable. The first statement in Condition A reflects the redundancy between Divisions 1, 2, and 3, the second statement reflects the redundancy between Division 2 and the opposite unit Division 2, and the third statement describes the RCIC DC subsystem which is not an ESF and has no redundant component. These changes to TSTF-360 allow for non-redundant DC battery chargers to be inoperable simultaneously while preventing redundant division chargers from being simultaneously inoperable. This modification to the TSTF-360 markup is conservative (i.e., more restrictive) since the maximum amount of time the non-redundant chargers can be simultaneously inoperable will be limited to seven days because separate condition entry is not allowed. The station's current licensing basis allows for multiple non-redundant DC electrical divisions to be simultaneously inoperable for as long as 14 days depending on the affected divisions. Thus, the proposed Condition A is an additional restriction to plant operation. By presenting the Condition in this manner, the purpose of TSTF is assured in that no more than one redundant ESF DC electrical division will be allowed to be degraded at any one time. The proposed LSCS Bases were also modified to adequately describe the basis of the proposed Condition A.

The word "required" was added to the Condition Statement and Actions to describe the fact that some of the DC electrical subsystems have two 100% capacity qualified chargers. In accordance with Section 4.1.3.b of NEI 01-03, "Writers Guide for the Improved Standard Technical Specifications," the term "required" is to be used in cases where the LCO only requires some of all possible components that can be used to satisfy the LCO requirement.

2. This difference eliminates bracketed information that is not applicable to LSCS. Condition B of LCO 3.8.4 of TSTF-360 is used to describe the actions to be taken in the event that a divisional battery becomes inoperable. As shown on the TSTF-360 markup (BWR/6, page 3.8-27), the use of Condition B is bracketed and may be omitted allowing the actions for an inoperable battery to remain the same as the current TS requirements (e.g., restore within two hours, declare HPCS inoperable immediately). LSCS has chosen this option. The actions for an inoperable division battery will be governed by Conditions B, C, D, and E, consistent with TSTF-360 and the LSCS current licensing basis.

3. This difference provides appropriate Conditions and end states consistent with current licensing basis. The purpose of LCO 3.8.4 Condition A of TSTF-360 is to allow additional outage time if one DC electrical division is degraded due to the inoperability of its qualified battery charger, provided the associated battery is maintained operable. If the battery cannot be maintained operable or the battery charger cannot be restored within the seven day Completion Time, the subsequent action would be to progress to the appropriate end state for an inoperable DC electrical power subsystem consistent with the actions that would be required if the battery was determined to be inoperable.

   For Division 1 or 2, the end state progression of the BWR/6 ISTS following the two-hour Completion Time of ISTS Condition A is the shutdown action of Condition C. Thus, TSTF-360 was constructed to transition to the shutdown end state following the expiration of the Completion Times of the revised Condition A. However, besides the Division 1 and Division 2 subsystems, LSCS has other subsystems specified in LCO 3.8.4 whose end states are not shutdown actions. Because the Division 3 125 VDC and Division 1 250 VDC subsystems, respectively, support HPCS and RCIC exclusively, the appropriate end state for an inoperability of their DC electric power subsystems is to declare the supported system

inoperable and follow the actions required by their associated LCOs.

In addition, the opposite unit Division 2 DC electrical power subsystem supports a limited number of non-ECCS ESF systems and the LSCS current licensing basis allows for a seven-day period of time for a completely inoperable subsystem (e.g., inoperable battery and chargers). This delay period is needed to allow for the performance of required subsystem maintenance and surveillance tests while the opposite unit is in a refueling outage. The allowed outage time for opposite unit Division 2 electrical equipment specified in LSCS LCOs, 3.8.1, 3.8.4, and 3.8.7 is seven days (14 days for the Diesel Generator) and is based on the shortest restoration time allowed for the systems affected by the inoperable DC subsystem in the respective system specifications. Because of this difference between LSCS and the BWR/6 ISTS, the Condition Statements for these different subsystem end states (proposed Conditions C, D, E, and F) have been modified with a statement to provide the appropriate direction in the event that the subsystem's battery cannot be maintained operable or the charger cannot be restored within the required time. The proposed Condition Statements, "Required Action and associated Completion Time of Condition A not met for the [stated division] electrical power subsystems," results in the following actions upon the expiration of Condition A:

- For Division 1 and Division 2 125 VDC– Mode 3 in 12 hours, Mode 4 in 36 hours.
- For Division 3 125 VDC – Immediately declare HPCS inoperable.
- For Division 1 250 VDC - Immediately declare associated supported features (e.g., RCIC) inoperable.
- For the opposite unit Division 2 125VDC – Restore in seven days or Mode 3 in 12 hours, Mode 4 in 36 hours.

These modifications are required to account for the LSCS design and, as described above, are consistent with the purpose of TSTF-360 and the LSCS current licensing basis for inoperable batteries. The proposed LSCS TS Bases were also modified to adequately describe the basis of the proposed Condition Statements.

4. This difference incorporates TS conventional wording to acknowledge the condition in which only some equipment may be required. LSCS LCO 3.8.5 specifies four DC electrical power subsystems that are applicable to the Specification. Depending on the plant conditions and operational activities in progress, as few as one and as many as three of these subsystems may be required to be operable by LCO 3.8.5. The word "required" was added to the Condition Statement and Actions to describe these possible configuration requirements. In accordance with Section 4.1.3.b of NEI 01-03, the term "required" is to be used in cases where the LCO only requires some of all possible components that can be used to satisfy the LCO requirement.

5. This difference is necessary to reflect the additional non-redundant divisions of batteries in the LSCS design in order to avoid inappropriate entry into LCO 3.0.3. The purpose of TS LCO 3.8.6 Conditions A through F of TSTF-360 is to provide the appropriate actions for a battery having out-of-limit parameters and to limit this level of degradation to one battery on one of the redundant divisions. It is also intended that even if redundant division batteries become degraded, that the applicable actions of Conditions A through F be applied to each battery as indicated by the Separate Condition Entry Note, such that if one of the two redundant division batteries is restored to within limits within the two hour Completion Time

of Condition E, the remaining degraded battery would be governed by the compensatory actions specified in Conditions A through D, or F, as applicable. The manner in which TSTF-360 presents these options in Conditions A through F is to address the assumed ISTS plant configuration of two redundant divisions. Thus, Conditions A through D and F represent the condition of one of the two divisions being degraded and Condition E represents the additional degradation of the redundant division.

Because the LSCS design and corresponding LCO requirements specify other non-redundant divisions of batteries, the wording presented in TSTF-360 could result in a conflict with LCO 3.0.3. Specifically, the Bases for LCO 3.0.3 states:

> LCO 3.0.3 establishes the actions that must be implemented when an LCO is not met and:
>
> a. .....
>
> b. The condition of the unit is not specifically addressed by the associated ACTIONS. This means that no combination of Conditions stated in the ACTIONS can be made that exactly corresponds to the actual condition of the unit.

The language in TSTF-360 that states, "One battery on one division with [specified battery parameter not within limits]" could result in an unnecessary entry into LCO 3.0.3 based on the LSCS design and the Bases statement above. The following example illustrates this point. If the Division 1 125 VDC battery were discovered with a cell float voltage < 2.07 V, Condition A would be entered. If the Division 1 250 VDC battery were subsequently discovered to have the same condition, Condition A would be entered again (separate condition entry allowed); however, the current condition of the unit is two batteries on two non-redundant divisions with battery parameters not within limits. Because no combination of Conditions describes the actual condition of the unit, LCO 3.0.3 would be entered, albeit inappropriately based on the purpose of TSTF-360 as discussed in the TSTF-360 Bases for Condition E.

To alleviate this conflict, Condition Statements A through D and F have been reworded to state "One or more batteries with [specified battery parameter not within limits]". The presentation of "One or more [components]……", is standard language used extensively within the ISTS for LCOs which utilize a Separate Condition Entry allowance to prevent potential LCO 3.0.3 conflicts (see BWR/6 ISTS LCOs, 3.1.5, 3.1.8, various 3.3. instrument LCOs, and LCOs 3.4.6, 3.6.1.2, 3.6.1.3, 3.6.4.2, 3.10.3, etc.).

Additionally, Condition E was modified to state "Two or more redundant division batteries with battery parameters not within limits" to be consistent with the structure of the proposed Condition A, B, C, D, and F statements and to reflect the fact that the LSCS design does not have redundant divisions being served by a single battery. Thus, one battery on redundant divisions is not a possible plant configuration; two batteries must be inoperable in order to affect redundant divisions.

These modifications are required to account for the LSCS design, are consistent with the purpose of TSTF-360 as described above and eliminate any potential conflict with the ISTS

LCO 3.0.3 Bases. The proposed LSCS TS Bases for LCO 3.8.6 were also modified to adequately describe the basis of the proposed Condition Statements.

6. This difference incorporates an existing surveillance note for consistency with current licensing basis. TSTF-360 relocates the battery performance and modified performance tests from SR 3.8.4.8 to SR 3.8.6.6. The purpose of TSTF-360 is only to relocate and not to modify the requirements of the test. This is indicated in the Specification and Bases markups for proposed SR 3.8.6.6. In the LSCS Technical Specifications, SR 3.8.4.8 is also required to be performed by SR 3.8.4.9 for the opposite unit Division 2 battery while the given unit is operating and SR 3.8.5.1 for all required batteries while shutdown.

   Because proposed SR 3.8.6.6 is applicable in all Modes (i.e., Applicability is "When associated DC electrical power subsystems are required to be OPERABLE") and the requirements for SR 3.8.4.8 are currently separately specified in separate operating and shutdown LCOs, the performance Notes for both operating and shutdown conditions must be relocated to maintain the current test requirements. Therefore, the Notes associated with LSCS SRs 3.8.4.9 and 3.8.5.1 have been incorporated as Note 2 to the proposed SR 3.8.6.6.

   The purpose of the Notes in current SRs 3.8.4.9 and 3.8.5.1 is to ensure that SRs cannot require making the DC electrical power subsystem inoperable while relying on these subsystems to support equipment required to be operable under the existing plant conditions. For example, under certain unit shutdown conditions, LCO 3.8.5 only requires one division of DC electrical power to be operable. It would be non-conservative to require the performance of a surveillance test that results in the only operable DC power subsystem being rendered inoperable. As stated in the proposed TS Bases, the Note only allows for the SR to not be performed; the SR is still expected to be met in accordance with Section 1.4 of the TS. The inclusion of Note 2 enhances the safety of the plant by not requiring operable DC batteries to be rendered inoperable solely for the performance of surveillance testing under conditions when these batteries are necessary to ensure required safety equipment can perform their specified safety functions.

   This modification to TSTF-360 is consistent with the LSCS current licensing basis for SR 3.8.4.8 for ensuring that safety related equipment is maintained operable during shutdown periods and is also consistent with the purpose of TSTF-360 to relocate the requirements associated with SR 3.8.4.8 to SR 3.8.6.6. The proposed LSCS Bases were also modified to adequately describe the basis of the proposed Note.

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

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 amendment 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.

The proposed changes are to Technical Specifications (TS) Section 3.8.4, "DC Sources – Operating," Section 3.8.5, "DC Sources – Shutdown," Section 3.8.6, "Battery Cell Parameters," and Section 5.5, "Programs and Manuals." The proposed changes request new actions for an inoperable battery charger and alternate battery charger testing criteria for limiting condition for operation (LCO) 3.8.4 and LCO 3.8.5. The proposed changes also include the relocation of a number of surveillance requirements (SRs) in TS Section 3.8.4 that perform preventive maintenance on the safety related batteries, to a licensee-controlled program. It is proposed that TS Table 3.8.6-1, "Battery Cell Parameter Requirements," be relocated to a licensee-controlled program, and specific Required Actions with associated Completion Times for out-of-limits conditions for battery cell voltage, electrolyte level, and electrolyte temperature be added to TS Section 3.8.6. In addition, specific SRs are being proposed for verification of these parameters.

A new program is being proposed for the maintenance and monitoring of station batteries based on the recommendations of Institute of Electrical and Electronics Engineers (IEEE) Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications." This program will be described in new TS Section 5.5.14, "Battery Monitoring and Maintenance Program." The items proposed to be relocated will be contained within this new program.

Exelon Generation Company, LLC (EGC) has evaluated the proposed changes to the TS for LSCS, Units 1 and 2, using the criteria in 10 CFR 50.92, and has determined that the proposed changes do not involve a significant hazards consideration. The following information is provided to support a finding of no significant hazards consideration.

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

Response: No

The proposed changes restructure the Technical Specifications (TS) for the direct current (DC) electrical power system. The proposed changes add actions to specifically address battery charger inoperability. The DC electrical power system, including associated battery chargers, is not an initiator of any accident sequence analyzed in the Updated Final Safety Analysis Report (UFSAR). Operation in accordance with the proposed TS ensures that the DC electrical power system is capable of performing its function as described in the UFSAR. Therefore, the mitigative functions supported by the DC electrical power system will continue to provide the protection assumed by the analysis.

The relocation of preventive maintenance surveillances, and certain operating limits and actions, to a newly-created licensee-controlled Battery Monitoring and Maintenance Program will not challenge the ability of the DC electrical power system to perform its design function. Appropriate monitoring and maintenance, consistent with industry

standards, will continue to be performed. In addition, the DC electrical power system is within the scope of 10 CFR 50.65, "Requirements for monitoring the effectiveness of maintenance at nuclear power plants," which will ensure the control of maintenance activities associated with the DC electrical power system.

The integrity of fission product barriers, plant configuration, and operating procedures as described in the UFSAR will not be affected by the proposed changes. Therefore, the consequences of previously analyzed accidents will not increase by implementing these changes.

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

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

Response: No

The proposed changes involve restructuring the TS for the DC electrical power system. The DC electrical power system, including associated battery chargers, is not an initiator to any accident sequence analyzed in the UFSAR. Rather, the DC electrical power system is used to supply equipment used to mitigate an accident.

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

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

Response: No

The margin of safety is established through equipment design, operating parameters, and the setpoints at which automatic actions are initiated. The proposed changes will not adversely affect operation of plant equipment. These changes will not result in a change to the setpoints at which protective actions are initiated. Sufficient DC capacity to support operation of mitigation equipment is ensured. The changes associated with the new battery maintenance and monitoring program will ensure that the station batteries are maintained in a highly reliable manner. The equipment fed by the DC electrical sources will continue to provide adequate power to safety related loads in accordance with analysis assumptions.

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

Based upon the above, EGC concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c). Accordingly, a finding of no significant hazards consideration is justified.

5.2 Applicable Regulatory Requirements/Criteria

10 CFR 50.36, "Technical specifications," provides the regulatory requirements for the content required in a licensee's TS. Criterion 3 of 10 CFR 50.36(c)(2)(ii) requires a limiting condition for operation to be established for a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier. The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

Portions of the proposed license amendment request result in relocating certain surveillances, surveillance acceptance criteria, and Required Actions that do not meet the criteria of 10 CFR 50.36(c)(2)(ii). Existing TS Table 3.8.6-1 limits reflect nominal fully charged battery parameter values, with margin above that required for declaration of an operable battery. These limits represent appropriate monitoring levels and appropriate preventive maintenance criteria for long-term battery quality and extended battery life. As such, they do not reflect the 10 CFR 50.36 criteria for LCOs of the lowest functional capability or performance levels of equipment required for safe operation of the facility. The proposed changes relocate these values and actions associated with restoration to a licensee-controlled program under the control of 10 CFR 50.59, "Changes, tests, and experiments."

The proposed items to be relocated to a licensee-controlled program will have changes subject to review under 10 CFR 50.59 to determine if the proposed changes will require prior NRC review and approval, and will require reporting of all changes to the NRC in accordance with 10 CFR 50.71(e). This provides sufficient control of the requirements to assure the batteries are maintained in a highly reliable condition.

The increased restoration times and revised criteria for monitoring the capacity of the batteries and battery chargers to perform their intended functions, are reasonable and consistent with approved standards, guidance, and regulations. The revised testing criteria ensure that full functionality is maintained and that Criterion 3 of 10 CFR 50.36(c)(2)(ii) is met.

In 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.

The NRC has granted similar license amendments for Clinton Power Station, Unit 1, in Reference 5, Limerick Generating Station, Units 1 and 2, in Reference 6, Dresden Nuclear Power Station in Reference 7, and Byron and Braidwood Stations in Reference 8.

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, "Standards for Protection Against Radiation," 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, "Criterion for categorical exclusion; identification of licensing and regulatory actions eligible for categorical exclusion or otherwise not requiring environmental review," paragraph (c)(9). Therefore, pursuant to 10 CFR 51.22, paragraph (b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

7.0 REFERENCES

1. Institute of Electrical and Electronics Engineers (IEEE) Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," dated January 24, 1995

2. Technical Specifications Task Force (TSTF) Traveler TSTF-360, Revision 1, "DC Electrical Rewrite"

3. Letter from W. D. Becker (U. S. NRC) to A. R. Pietrangelo (Nuclear Energy Institute), dated December 18, 2000

4 Letter from J. A. Benjamin (Exelon Generation Company, LLC) to U. S. NRC, "Exelon/AmerGen Request for Amendment to Technical Specifications Administrative Controls to Incorporate Requirement for Control Room Envelope Integrity Program," dated November 29, 2004

5. Letter from J. B. Hopkins (U. S. NRC) to O. D. Kingsley (Exelon Generation Company, LLC), "Clinton Power Station, Unit 1 – Issuance of Amendment (TAC No. MB3071)," dated February 15, 2002

6. Letter from S. P. Wall (U. S. NRC) to J. L. Skolds (Exelon Generation Company, LLC), "Limerick Generating Station, Units 1 and 2 – Issuance of Amendment Re: DC Electrical Power Sources Based on TSTF-360 (TAC Nos. MB5257 and MB5258)," dated January 29, 2003

7. Letter from U. S. NRC to C. M. Crane (Exelon Generation Company, LLC), Issuance of Amendments – Dresden Nuclear Power Station, Units 2 and 3, Request for Amendment to Technical Specifications Associated with Direct Current Electrical Power," dated June 8, 2004

8. Letter from U. S. NRC to J. L. Skolds (Exelon Generation Company, LLC), "Byron Station, Units 1 and 2, and Braidwood Station, Units 1 and 2 – Issuance of Amendments," dated September 19, 2002

ATTACHMENT 2
Markup of Technical Specification Pages

LASALLE COUNTY STATION, UNITS 1 AND 2

FACILITY OPERATING LICENSE NOS. NPF-11 AND NPF-18

Request for Amendment to Technical Specifications Associated With Direct Current Electrical Power

REVISED TECHNICAL SPECIFICATIONS PAGES

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3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources–Operating

LCO 3.8.4 The Division 1 125 VDC and 250 VDC, Division 2 125 VDC, Division 3 125 VDC, and the opposite unit Division 2 125 VDC electrical power subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

Insert 3.8.4 Actions

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B A. Division 1 or 2 125 VDC electrical power subsystem inoperable for reasons other than Condition A	B A.1 Restore Division 1 and 2 125 VDC electrical power subsystems to OPERABLE status.	2 hours
OR B C. Division 3 DC electrical power subsystem inoperable for reasons other than Condition A	B C.1 Declare High Pressure Core Spray System inoperable.	Immediately
OR C D. Division 1 250 VDC electrical power subsystem inoperable for reasons other than Condition A	C D.1 Declare associated supported features inoperable.	Immediately
OR D E. Opposite unit Division 2 DC electrical power subsystem inoperable for reasons other than Condition A	D E.1 Restore opposite unit Division 2 DC electrical power subsystem to OPERABLE status.	7 days

(continued)

Required Action and associated Completion Time of Condition A not met for the opposite unit Division 2 electrical power subsystem.

Required Action and associated Completion Time of Condition A not met for the Division 1 250 VDC electrical power subsystem

Required Action and associated Completion Time of Condition A not met for the Division 3 DC electrical power subsystem

3

of Condition A

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time not met for the Division 1 or 2 125 VDC electrical power subsystem. OR	F.1 Be in MODE 3. AND	12 hours
	F.2 Be in MODE 4.	36 hours

3

Required Action and associated Completion Time of Condition B OR E not met.

SURVEILLANCE REQUIREMENTS

---------- NOTES ----------

1. SR 3.8.4.1 through SR 3.8.4.3 are applicable only to the given unit's DC electrical power sources.

2. SR 3.8.4.4 is applicable only to the opposite unit DC electrical power source.

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage on float charge is greater than or equal to the minimum established float voltage. a. ≥ 128 V for the 125 V batteries; and b. ≥ 256 V for the 250 V battery.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance is ≤ 1.5E-4 ohm for inter-cell connections, and ≤ 1.5E-4 ohm for terminal connections.	92 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration that could degrade battery performance.	24 months
SR 3.8.4.4	Remove visible corrosion and verify battery cell to cell and terminal connections are coated with anti-corrosion material.	24 months
SR 3.8.4.5	Verify battery connection resistance is ≤ 1.5E-4 ohm for inter-cell connections, and ≤ 1.5E-4 ohm for terminal connections.	24 months
SR 3.8.4.6 (2)	Verify each required battery charger supplies: a. ≥ 200 amps at ~~130~~ V for ≥ 4 hours for the Division 1 and 2 125 V battery chargers; b. ≥ 50 amps at ~~130~~ V for ≥ 4 hours for the Division 3 125 V battery charger; and c. ≥ 200 amps at ~~260~~ V for ≥ 4 hours for the 250 V battery charger.	24 months

(continued)

greater than or equal to the minimum established float voltage

INSERT CHARGER SR

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.7	
----------NOTES----------	
1. The modified performance discharge test in SR 3.8.4.8 may be performed in lieu of the service test in SR 3.8.4.7 provided the modified performance discharge test completely envelops the service test.	
2. This Surveillance shall not normally be performed in MODE 1 or 2 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR.	

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.	24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.~~4.8~~ 6.6 ----------NOTES 5---------- 1. This Surveillance shall not normally be performed in MODE 1 or 2 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ----------	
Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months AND 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

2. Not required to be performed when the opposite unit is in Modes 4 or 5, or during movement of irradiated fuel in the secondary containment. (6)

Move to 3.8.6 as SR 3.8.6.6

Relocated from SR 3.8.4.9 and SR 3.8.5.1

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.~~8~~ 4 ----------NOTE---------- When the opposite unit is in MODE 4 or 5, or moving irradiated fuel in the secondary containment, the following opposite unit SRs are not required to be performed: SR 3.8.4.~~8~~ 2, SR 3.8.4.~~9~~ 3, and SR 3.8.4.8. ---------- For the opposite unit Division 2 DC electrical power subsystem, the SRs of the opposite unit Specification 3.8.4 are applicable.	In accordance with applicable SRs

NOTE Relocated and incorporated into SR 3.8.6.6

INSERT: 3.8.4 ACTIONS

ACTIONS

required Division 1, 2, or 3 125 V

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One ~~[or two]~~ battery charger[s] on one ~~{PWR: train BWR: division}~~ inoperable. OR One required Division 2 OR opposite unit Division 2 battery charger on one division inoperable. OR One required Division 1 250 V battery charger inoperable	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. AND A.2 Verify battery float current ≤ ~~128~~ amps. AND A.3 Restore battery charger(s) to OPERABLE status.	2 hours Once per ~~[12]~~ hours 7 days
~~[B. One [or two] batter[y][ies] on one {PWR: train BWR: division}] inoperable.~~	~~B.1 Restore batter[y][ies] to OPERABLE status.~~	~~[2] hours]~~

1

2

INSERT: Charger SR

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.2	... OR Verify each battery charger can recharge the battery to the fully charged state within ~~[24]~~ 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.	...

ACTIONS

----------NOTE----------
LCO 3.0.3 is not applicable.

Insert 3.8.5 ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ---------NOTE--------- Not applicable when the opposite unit is in MODE 1, 2, or 3. --- One or more required Division 1, 2, and 3 DC electrical power subsystems inoperable.	A.1 Verify associated DC electrical power distribution subsystem is energized by OPERABLE opposite unit DC electrical power subsystem. AND A.2 Restore required Division 1, 2, and 3 DC electrical power subsystem to OPERABLE status.	1 hour 72 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR Required opposite unit Division 2 DC electrical power subsystem inoperable. OR --------NOTE-------- Only applicable when the opposite unit is in MODE 1, 2, or 3. ----------	B.1 Declare affected required feature(s) inoperable. OR B.2.1 Suspend CORE ALTERATIONS. AND B.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND	Immediately Immediately Immediately
One or more required Division 1, 2, and 3 DC electrical power subsystems inoperable (X) for reasons other than Condition A. OR Required Action and Completion Time of Condition A not met.	B.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. AND B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.5.1	----------NOTE---------- The following SRs are not required to be performed: SR 3.8.4.1, SR 3.8.4.2, and SR 3.8.4.3. ---------- For DC electrical power subsystems required to be OPERABLE the following SRs are applicable: SR 3.8.4.1, SR 3.8.4.2, SR 3.8.4.3, and SR 3.8.4.4, ~~SR 3.8.4.5, SR 3.8.4.6, SR 3.8.4.7, SR 3.8.4.8, and SR 3.8.4.9~~	In accordance with applicable SRs

NOTE relocated and incorporated into SR 3.8.6.6

INSERT: 3.8.5 ACTIONS

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
[A. One [or two] battery charger[s] on one [PWR: train/BWR: division] inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
AND	AND	required 4
The redundant [PWR: train/BWR: division] battery and charger[s] OPERABLE.	A.2 Verify battery float current ≤ [2] amps.	Once per [12] hours
	AND	
	A.3 Restore battery charger[s] to OPERABLE status.	7 days [

INSERT: IEEE-450 Reviewers Note

REVIEWER'S NOTE

Licensee's must implement a program, as specified in Specification 5.5.[X], to monitor battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice For Maintenance, Testing, And Replacement Of Vented Lead-Acid Batteries For Stationary Applications."

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the Division 1, 2, and 3 and opposite unit Division 2 batteries shall be within limits.

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

ACTIONS — Insert 3.8.6 Actions

NOTE
Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category A or B limits.	A.1 Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits. AND	1 hour
	A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits. AND	24 hours AND Once per 7 days thereafter
	A.3 Restore battery cell parameters to Table 3.8.6-1 Category A and B limits.	31 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time ~~of Condition A~~ not met. OR One or more batteries with average electrolyte temperature of the representative cells < 60°F for 125 V batteries, or < 65°F for 250 V battery. OR One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category C limits.	B.1 Declare associated battery inoperable.	Immediately

Insert 3.8.6 F 2nd condition

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	7 days
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	92 days AND Once within 7 days after battery discharge < 110 V for 125 V batteries and < 220 V for the 250 V battery AND Once within 7 days after battery overcharge > 150 V for 125 V batteries and > 300 V for the 250 V battery
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 60°F for 125 V batteries, and ≥ 65°F for the 250 V battery.	92 days

INSERT 3.8.6 SRs

move SR 3.8.6.6 from SR 3.8.4.8

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameter Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark[a]	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity[b][c]	≥ 1.200	≥ 1.195 AND Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells AND Average of all connected cells ≥ 1.195

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum level during and, for a limited time, following equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level.

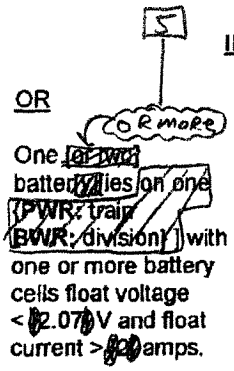
(c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

INSERT: 3.8.6 ACTIONS

ACTIONS

NOTE
Separate Condition entry is allowed for each battery.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One [or two] batteries on one [PWR: train BWR: division] with one or more battery cells float voltage < [2.07] V.	A.1 Perform SR 3.8.4.1. AND A.2 Perform SR 3.8.6.1. AND A.3 Restore affected cell voltage ≥ [2.07] V.	2 hours 2 hours 24 hours
B. One [or two] batteries on one [PWR: train BWR: division] with float current > [2] amps.	B.1 Perform SR 3.8.4.1. AND B.2 Restore battery float current to ≤ [2] amps.	2 hours [12] hours
NOTE Required Action C.2 shall be completed if electrolyte level was below the top of plates.	NOTE Required Actions C.1 and C.2 are only applicable if electrolyte level was below the top of plates.	
C. One [or two] batteries on one [PWR: train BWR: division] with one or more cells electrolyte level less than minimum established design limits.	C.1 Restore electrolyte level to above top of plates. AND C.2 Verify no evidence of leakage. AND C.3 Restore electrolyte level to greater than or equal to minimum established design limits.	8 hours 12 hours 31 days
D. One [or two] batteries on one [PWR: train BWR: division] 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 [PWR: trains BWR: divisions] with battery parameters not within limits.	E.1 Restore battery parameters for batteries in one [PWR: train BWR: division] to within limits.	2 hours



INSERT 3.8.6 F (2nd Condition)

INSERT: 3.8.6 SRs

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
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. ----------	
	Verify each battery float current is ≤ [2] amps.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is ≥ [2.07] V.	31 days
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.5	Verify each battery connected cell voltage is ≥ [2.07] V.	92 days

5.5 Programs and Manuals

5.5.13 Primary Containment Leakage Rate Testing Program (continued)

2. NEI 94-01 - 1995, Section 9.2.3: The first Unit 2 Type A test performed after December 8, 1993 Type A test shall be performed no later than December 7, 2008.

b. The peak calculated primary containment internal pressure for the design basis loss of coolant accident, P_a, is 39.9 psig.

c. The maximum allowable primary containment leakage rate, L_a, at P_a, is 0.635% of primary containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Primary containment overall leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the combined Type B and Type C tests, and $\leq 0.75\ L_a$ for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$.

b) For each door, the seal leakage rate is ≤ 5 scf per hour when the gap between the door seals is pressurized to ≥ 10 psig.

e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

Insert 5.5.14 program

5.5.14

INSERT ~~5.5.[X]~~ PROGRAM

~~5.5.17 (PWRS), 5.5.14 (BWR)~~

5.5.x

5.5.14

Battery Monitoring and Maintenance Program

This Program provides for restoration and maintenance , based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing , and Replacement of Vented Lead-Acid Batteries For Stationary Applications," ~~or of the battery manufacturer~~ of the following:

a. Actions to restore battery cells with float voltage < 2.13 V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.

ATTACHMENT 3
Markup of Technical Specification Bases Pages

LASALLE COUNTY STATION, UNITS 1 AND 2

FACILITY OPERATING LICENSE NOS. NPF-11 AND NPF-18

Request for Amendment to Technical Specifications Associated With Direct Current Electrical Power

REVISED TECHNICAL SPECIFICATIONS BASES PAGES

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B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.4 DC Sources—Operating

BASES

BACKGROUND

The station DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment. As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also conforms to the requirements of Regulatory Guide 1.6 (Ref. 2) and IEEE-308 (Ref. 3).

The 125 VDC electrical power system consists of three independent Class 1E DC electrical power subsystems, Divisions 1, 2, and 3. The 250 VDC electric power system consists of one Class 1E DC electrical power subsystem, Division 1. Each subsystem consists of a battery, associated battery charger, and all the associated control equipment and interconnecting cabling.

During normal operation, the DC loads are powered from the battery chargers with the batteries floating on the system. In case of loss of normal power to the battery charger, the DC loads are automatically powered from the batteries.

The Division 1 safety related DC power source consists of one 58 cell, 125 V and one 116 cell, 250 V battery bank and associated full capacity battery charger(s). The Division 1 125 VDC power source provides the control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers and control power for non-Class 1E loads. Also, the 125 VDC power sources provide DC power to the emergency lighting system, diesel generator (DG) auxiliaries, and the DC control power for the Engineered Safety Feature (ESF) and non-ESF systems. The 250 VDC power source supplies power to the Reactor Core Isolation Cooling (RCIC) System, and RCIC primary containment isolation valves (PCIVs). It also supplies power to the main turbine emergency bearing oil pumps, main generator emergency seal oil pumps, and the process computer, however, these are not Technical Specification related loads.

(continued)

BASES

BACKGROUND (continued)

The Division 2 safety related DC power source consists of a 58 cell, 125 V battery bank and associated full capacity chargers. This 125 V battery provides the control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers and control power for non-Class 1E loads. Also, this 125 V battery provides DC power to the emergency lighting system, diesel generator (DG) auxiliaries, and the DC control power for ESF and non-ESF systems.

The Division 3 safety related DC power source consists of a 58 cell, 125 V battery bank and associated full capacity charger, and provides power for the High Pressure Core Spray (HPCS) DG field flashing control logic and switching function of 4.16 kV Division 3 breakers. It also provides power for the HPCS System logic, HPCS DG control and protection, and Division 3 related controls.

The opposite unit Division 2 safety related DC power source consists of a 58 cell, 125 V battery bank and associated full capacity chargers. This 125 V battery provides the control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers and control power for non-Class 1E loads. Also, this 125 V battery provides DC power to the opposite unit's emergency lighting system, diesel generator (DG) auxiliaries, and DC control power for the ESF and non-ESF systems.

The DC power distribution system is described in more detail in the Bases for LCO 3.8.7, "Distribution Systems-Operating," and LCO 3.8.8, "Distribution Systems-Shutdown."

Each DC battery subsystem is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is located in an area separated physically and electrically from the other subsystems to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing

(continued)

BASES

BACKGROUND (continued)

between redundant Class 1E subsystems such as batteries, battery chargers, or distribution panels.

Each Division 1, 2, and 3 battery has adequate storage capacity to meet the duty cycle(s) discussed in the UFSAR, Section 8.3.2 (Ref. 4). The battery is designed with additional capacity above that required by the design duty cycle to allow for temperature variations and other factors.

The batteries for a DC electrical power subsystem are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. The minimum design voltage limit is 105/210 V.

The battery cells are of flooded lead acid construction with a nominal specific gravity of 1.215. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for a 58 cell battery and 240 V for a 116 cell battery (i.e., cell voltage of 2.065 volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage $\geq$ 2.065 Vpc, the battery will maintain its capacity for 30 days without further charging per manufacturers instructions. Optimal long term performance however, is obtained by maintaining a float voltage 2.20 to 2.25 Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge. The nominal float voltage of 2.25 Vpc corresponds to a total float voltage output of 130.5 V for a 58 cell battery and 261 V for a 116 cell battery as discussed in the UFSAR, Section 8.3.2 (Ref. 4).

Each Division 1, 2, and 3 DC electrical power subsystem battery charger has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger has sufficient capacity to restore the battery bank from the design minimum charge to its fully charged state within 24 hours while supplying normal steady state loads (Ref. 4).

The battery charger is normally in the float-charge mode. Float-charge is the condition in which the charger is supplying the connected loads and the battery cells are receiving adequate current to optimally charge the battery.

(continued)

BASES

BACKGROUND (continued)

This assures the internal losses of the battery are overcome and the battery is maintained in a fully charged state.

When desired, the charger can be placed in the equalize mode. The equalize mode is at a higher voltage than the float mode. The battery charger is operated in the equalize mode after a battery discharge or for routine maintenance. Following a battery discharge, the battery recharge characteristic accepts current at the current limit of the battery charger (if the discharge was significant, e.g., following a battery service test) until the battery terminal voltage approaches the charger voltage setpoint. Charging current then reduces exponentially during the remainder of the recharge cycle. Lead-calcium batteries have recharge efficiencies of greater than 95%, so once at least 105% of the ampere-hours discharged have been returned, the battery capacity would be restored to the same condition as it was prior to the discharge. This can be monitored by direct observation of the exponentially decaying charging current or by evaluating the amp-hours discharged from the battery and amp-hours returned to the battery.

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the UFSAR, Chapter 6 (Ref. 5), and Chapter 15 (Ref. 6), assume that ESF systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the DGs, emergency auxiliaries, and control and switching during all MODES of operation.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit. This includes maintaining DC sources OPERABLE during accident conditions in the event of:

a. An assumed loss of all offsite AC power or of all onsite AC power; and

b. A worst case single failure.

The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

(continued)

BASES

LCO

The Division 1 125 VDC and 250 VDC, Division 2 125 VDC, and Division 3 125 VDC, and opposite unit Division 2 125 VDC electrical power subsystems, each subsystem consisting of one battery, one required battery charger, and the corresponding control equipment and interconnecting cabling supplying power to the associated bus within the divisions, are required to be OPERABLE to ensure the availability of the required power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence (AOO) or a postulated DBA. Loss of any DC electrical power subsystem does not prevent the minimum safety function from being performed (Ref. 4).

APPLICABILITY

The DC electrical power sources are required to be OPERABLE in MODES 1, 2, and 3 to ensure safe unit operation and to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided, and containment integrity and other vital functions are maintained in the event of a postulated DBA.

The DC electrical power requirements for MODES 4 and 5 and other conditions in which the DC electrical power sources are required are addressed in LCO 3.8.5, "DC Sources–Shutdown."

ACTIONS

A.1, A.2, and A.3

Condition A represents one redundant ESF division with one required battery charger inoperable or the inoperability of one required battery charger on the 250 VDC electrical power subsystem supporting RCIC (e.g., the voltage limit of SR 3.8.4.1 is not maintained). The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring the fully qualified charger to OPERABLE status in a reasonable time period. Required

(continued)

BASES

ACTIONS (continued)

Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within 12 hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability. A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within 12 hours, avoiding a premature shutdown with its own attendant risk.

If battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide adequate assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event for which the DC system is designed.

If the charger is operating in the current-limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within 12 hours (Required Action A.2).

(continued)

BASES

ACTIONS (continued)

Required Action A.2 requires that the battery float current be verified as less than or equal to 2 amps. This indicates that, if the battery has been discharged as a result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial 12 hour period the battery float current is not less than or equal to 2 amps, this indicates there may be additional battery problems and the battery must be declared inoperable.

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

B.1

Condition B represents one division with a loss of ability to completely respond to an event, and a potential loss of ability to remain energized during normal operation. It is, therefore, imperative that the operator's attention focus on stabilizing the unit, minimizing the potential for complete loss of DC power to the affected division. The 2 hour limit is consistent with the allowed time for an inoperable DC distribution system division.

If one of the Division 1 or 2 125 VDC electrical power subsystems is inoperable for reasons other than Condition A (e.g., inoperable battery), the remaining DC electrical power subsystems have the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst case single failure could, however, result in the loss of minimum necessary DC electrical subsystems, continued power operation should not exceed 2 hours. The 2 hour Completion Time is based on Regulatory Guide 1.93 (Ref. 7) and reflects a reasonable time to assess unit status as a function of the inoperable DC electrical power subsystem and, if the DC electrical power subsystem is not restored to OPERABLE status, to prepare to effect an orderly and safe unit shutdown.

(continued)

BASES

ACTIONS

C.1 (continued)

If the Division 3 battery cannot be maintained OPERABLE, the required Division 3 battery charger cannot be restored, or the Division 3 DC electrical power subsystem is inoperable for reasons other than Condition A (e.g., inoperable battery), the HPCS System may be incapable of performing its intended function and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions of LCO 3.5.1, "ECCS—Operating."

D.1

If the Division 1 250 VDC battery cannot be maintained OPERABLE, the required 250 VDC battery charger cannot be restored, or the Division 1 250 VDC electrical power subsystem is inoperable for reasons other than Condition A (e.g., inoperable battery), the RCIC System and the RCIC DC powered PCIVs may be incapable of performing their intended functions and must be immediately declared inoperable. This declaration also requires entry into applicable Conditions and Required Actions of LCO 3.5.3, "RCIC System," and LCO 3.6.1.3, "PCIVs."

E.1

If the opposite unit Division 2 battery cannot be maintained OPERABLE, the required opposite unit Division 2 battery charger cannot be restored, or the opposite unit Division 2 125 VDC electrical power subsystem is inoperable for reasons other than Condition A (e.g., inoperable battery), certain redundant Division 2 features (e.g., a standby gas treatment subsystem) will not function if a design basis event were to occur. Therefore, a 7 day Completion Time is provided to restore the opposite unit Division 2 125 VDC electrical power subsystem to

(continued)

BASES

ACTIONS

E.1 (continued)

OPERABLE status. The 7 day Completion Time takes into account the capacity and capability of the remaining DC electrical power subsystems, and is based on the shortest restoration time allowed for the systems affected by the inoperable DC electrical power subsystem in the respective system specifications.

F.1 and F.2

If the inoperable Division 1, Division 2, or opposite unit Division 2 DC electrical power subsystem cannot be restored to OPERABLE status within the associated Completion Time, the unit 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. The Completion Time to bring the unit to MODE 4 is consistent with the time specified in Regulatory Guide 1.93 (Ref. 7).

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by two Notes to clearly identify how the Surveillances apply to the given unit and opposite unit DC electrical power sources. Note 1 states that SR 3.8.4.1 through SR 3.8.4.3 are applicable only to the given unit DC electrical power sources and Note 2 states that SR 3.8.4.4 is applicable to the opposite unit DC electrical power sources. These Notes are necessary since opposite unit DC electrical power sources are not required to perform all of the requirements of the given unit DC electrical power sources (e.g., the opposite unit battery is not required to perform SR 3.8.4.2 and 3.8.4.3 under certain conditions when not in MODE 1, 2, or 3).

SR 3.8.4.1

Verifying battery terminal voltage while on float charge helps to ensure the effectiveness of the battery chargers, which support the ability of the batteries to perform their intended function. Float charge is the condition in which

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1 (continued)

the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state while supplying the continuous steady state loads of the associated DC subsystem. On float charge, battery cells will receive adequate current to optimally charge the battery. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the minimum float voltage established by the battery manufacturer (2.2 Vpc or 127.6 V for the 125 V batteries and 255.2 V for the 250 volt battery at the battery terminals). This voltage maintains the battery plates in a condition that supports maintaining the grid life (expected to be approximately 20 years) The 7 day Frequency is consistent with manufacturers recommendations and IEEE-450 (Ref. 8).

SR 3.8.4.2

This SR verifies the design capacity of the battery chargers. According to Regulatory Guide 1.32 (Ref. 9), the battery charger supply is recommended to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensure that these requirements can be satisfied.

This SR provides two options. One option requires that each 125 V and 250 V Division 1 and 2 battery charger be capable of supplying 200 amps (50 amps for the 125 V Division 3 charger) at the minimum established float voltage for 4 hours. The ampere requirements are based on the output rating of the chargers. The voltage requirements are based on the charger voltage level after a response to a loss of AC power. The time period is sufficient for the charger temperature to have stabilized and to have been maintained for at least 2 hours.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.2 (continued)

The other option requires that each battery charger be capable of recharging the battery after a service test coincident with supplying the largest coincident demands of the various continuous steady state loads (irrespective of the status of the plant during which these demands occur). This level of loading may not be normally available following the battery service test and will need to be supplemented with additional loads. The duration for this test may be longer than the charger sizing criteria since the battery recharge is affected by float voltage, temperature, and the exponential decay in charging current. The battery is recharged when the measured charging current is $\leq$ 2 amps.

The Surveillance Frequency is acceptable, given the administrative controls existing to ensure adequate charger performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.

SR 3.8.4.3

A battery service test is a special test of the battery's capability, as found, to satisfy the design requirements (battery duty cycle) of the DC electrical power system. The discharge rate and test length correspond to the design duty cycle requirements as specified in Reference 4.

The Surveillance Frequency of 24 months is acceptable, given unit conditions required to perform the test and the other requirements existing to ensure adequate battery performance during these 24 month intervals. In addition, this Frequency is intended to be consistent with expected fuel cycle lengths.

This SR is modified by two Notes. Note 1 allows the performance of a modified performance discharge test in lieu of a service test. This substitution is acceptable because a modified performance discharge test represents a more severe test of battery capacity than SR 3.8.4.3. The reason for Note 2 is that performing the Surveillance would remove a required 125 VDC electrical power subsystem from service, perturb the

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.3 (continued)

electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy the Surveillance.

SR 3.8.4.4

With the exception of this Surveillance, all other Surveillances of this Specification (SR 3.8.4.1 through 3.8.4.3) are applied to the given unit DC sources. This Surveillance is provided to direct that appropriate Surveillances for the required opposite unit DC source are governed by the applicable opposite unit Technical Specifications. Performance of the applicable opposite unit Surveillances will satisfy the opposite unit requirements as well as satisfy the given unit Surveillance Requirement.

The Frequency required by the applicable opposite unit SR also governs performance of that SR for the given unit.

As noted, if the opposite unit is in MODE 4 or 5, or moving irradiated fuel assemblies in secondary containment, SR 3.8.4.2 and SR 3.8.4.3 are not required to be performed. This ensures that a given unit SR will not require an opposite unit SR to be performed, when the opposite unit

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.4 (continued)

Technical Specifications exempts performance of an opposite unit SR (however, as stated in the opposite unit SR 3.8.5.1 Note 1, while performance of an SR is exempted, the SR must still be met).

REFERENCES

1. 10 CFR 50, Appendix A, GDC 17.
2. Regulatory Guide 1.6, March 10, 1971.
3. IEEE Standard 308, 1971.
4. UFSAR, Section 8.3.2.
5. UFSAR, Chapter 6.
6. UFSAR, Chapter 15.
7. Regulatory Guide 1.93, December 1974.
8. IEEE Standard 450, 1995.
9. Regulatory Guide 1.32, August 1972.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.5 DC Sources—Shutdown

BASES

BACKGROUND

A description of the DC sources is provided in the Bases for LCO 3.8.4, "DC Sources—Operating."

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident and transient analyses in the UFSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 2), assume that Engineered Safety Feature systems are OPERABLE. The DC electrical power system provides normal and emergency DC electrical power for the diesel generators, emergency auxiliaries, and control and switching during all MODES of operation and during movement of irradiated fuel assemblies in the secondary containment.

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and the requirements for the supported systems' OPERABILITY.

The OPERABILITY of the minimum DC electrical power sources during MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment ensures that:

a. The facility can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate DC electrical power is provided to mitigate events postulated during shutdown, such as an inadvertent draindown of the vessel or a fuel handling accident.

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, and 3 have no specific analyses in MODES 4

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

and 5. Worst case bounding events are deemed not credible in MODES 4 and 5 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

The shutdown Technical Specification requirements are designed to ensure that the unit has the capability to mitigate the consequences of certain postulated accidents. Worst case Design Basis Accidents which are analyzed for operating MODES are generally viewed not to be a significant concern during shutdown MODES due to the lower energies involved. The Technical Specifications therefore require a lesser complement of electrical equipment to be available during shutdown than is required during operating MODES. More recent work completed on the potential risks associated with shutdown, however, have found significant risk associated with certain shutdown evolutions. As a result, in addition to the requirements established in the Technical Specifications, the Industry has adopted NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," as an industry initiative to manage shutdown tasks and associated electrical support to maintain risk at an acceptable low level. This may require the availability of additional equipment beyond that required by the shutdown Technical Specifications.

The DC sources satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The DC electrical power subsystems, each required subsystem consisting of one battery, one required battery charger, and the corresponding control equipment and interconnecting cabling supplying power to the associated buses within the division, are required to be OPERABLE to support some of the required DC Distribution System divisions required OPERABLE by LCO 3.8.8, "Distribution Systems—Shutdown." This ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the

(continued)

BASES

LCO (continued)

consequences of postulated events during shutdown (e.g., fuel handling accidents and inadvertent reactor vessel draindown).

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 4 and 5 and during movement of irradiated fuel assemblies in the secondary containment provide assurance that:

a. Required features to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core in case of an inadvertent draindown of the reactor vessel;

b. Required features needed to mitigate a fuel handling accident are available;

c. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The DC electrical power requirements for MODES 1, 2, and 3 are covered in LCO 3.8.4.

ACTIONS

LCO 3.0.3 is not applicable while in MODE 4 or 5. However, since irradiated fuel assembly movement can occur in MODE 1, 2, or 3, the ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 4 or 5, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, or 3, the fuel movement is independent of reactor operations. Entering LCO 3.0.3 while in MODE 1, 2, or 3 would require the unit to be shutdown, but would not require immediate suspension of movement of irradiated fuel assemblies. The Note to the ACTIONS, "LCO 3.0.3 is not applicable," ensures that the actions for immediate suspension of irradiated fuel assembly movement are not postponed due to entry into LCO 3.0.3.

(continued)

BASES

ACTIONS (continued)

A.1, A.2, and A.3

Condition A represents one required division with one required battery charger inoperable (e.g., the voltage limit of SR 3.8.4.1 is not maintained). This Condition is only entered under plant conditions in which LCO 3.8.8, "Distribution Systems - Shutdown," requires more than one division of Class 1E DC Electrical Power Distribution (e.g., during CORE ALTERATIONS, LCO 3.8.8 requires the operability of both the Division 2 and the opposite unit Division 2 DC electrical power distribution subsystems). Although the High Pressure Core Spray (HPCS) System is typically considered a single division system, for this Condition, Division 3 (HPCS System) is considered redundant to Division 1 and 2 Emergency Core Cooling Systems. If the redundant required division battery or battery charger are inoperable, or as stated above, LCO 3.8.8 does not require a redundant DC electrical power distribution subsystem, then Condition B must be entered.

The ACTIONS provide a tiered response that focuses on returning the battery to the fully charged state and restoring the fully qualified charger to OPERABLE status in a reasonable time period. Required Action A.1 requires that the battery terminal voltage be restored to greater than or equal to the minimum established float voltage within 2 hours. This time provides for returning the inoperable charger to OPERABLE status or providing an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage. Restoring the battery terminal voltage to greater than or equal to the minimum established float voltage provides good assurance that, within 12 hours, the battery will be restored to its fully charged condition (Required Action A.2) from any discharge that might have occurred due to the charger inoperability. A discharged battery having terminal voltage of at least the minimum established float voltage indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within 12 hours, avoiding a premature shutdown with its own attendant risk.

(continued)

BASES

ACTIONS (continued)

If battery terminal float voltage cannot be restored to greater than or equal to the minimum established float voltage within 2 hours, and the charger is not operating in the current-limiting mode, a faulty charger is indicated. A faulty charger that is incapable of maintaining established battery terminal float voltage does not provide adequate assurance that it can revert to and operate properly in the current limit mode that is necessary during the recovery period following a battery discharge event that the DC system is designed for.

If the charger is operating in the current limit mode after 2 hours that is an indication that the battery is partially discharged and its capacity margins will be reduced. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within 12 hours (Required Action A.2).

Required Action A.2 requires that the battery float current be verified as less than or equal to 2 amps. This indicates that, if the battery has been discharged as a result of the inoperable battery charger, it has now been fully recharged. If at the expiration of the initial 12 hour period the battery float current is not less than or equal to 2 amps, this indicates there may be additional battery problems and the battery must be declared inoperable.

Required Action A.3 limits the restoration time for the inoperable battery charger to 7 days. This action is applicable if an alternate means of restoring battery terminal voltage to greater than or equal to the minimum established float voltage has been used (e.g., balance of plant non-Class 1E battery charger). The 7 day Completion Time reflects a reasonable time to effect restoration of the qualified battery charger to OPERABLE status.

(continued)

BASES

ACTIONS (continued)

B.1, B.2.1, B.2.2, B.2.3, and B.2.4

By allowing the option to declare required features inoperable with associated DC electrical power subsystems inoperable, appropriate restrictions are implemented in accordance with the affected system LCOs' ACTIONS. However, in many instances this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and any activities that could result in inadvertent draining of the reactor vessel).

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the plant safety systems may be without sufficient power.

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

SR 3.8.5.1 requires all Surveillances required by SR 3.8.4.1 through SR 3.8.4.4 to be applicable. Therefore, see the corresponding Bases for LCO 3.8.4 for a discussion of each SR.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that these SRs must still be capable of being met, but actual performance is not required.

(continued)

BASES (continued)

REFERENCES

1. UFSAR, Chapter 6.

2. UFSAR, Chapter 15.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.6 Battery Parameters

BASES

BACKGROUND

This LCO delineates the limits on battery float current as well as electrolyte temperature, level, and float voltage for the DC power source batteries. A discussion of these batteries and their OPERABILITY requirements is provided in the Bases for LCO 3.8.4, "DC Sources—Operating," and LCO 3.8.5, "DC Sources—Shutdown." In addition to the limitations of this Specification, the Battery Monitoring and Maintenance Program described in the Technical Requirements Manual implements the program specified in Specification 5.5.14 for monitoring various battery parameters that is based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications" (Ref. 4).

The battery cells are of flooded lead acid construction with a nominal specific gravity of 1.215. This specific gravity corresponds to an open circuit battery voltage of approximately 120 V for a 58 cell battery and 240 V for a 116 cell battery (i.e., cell voltage of 2.065 volts per cell (Vpc)). The open circuit voltage is the voltage maintained when there is no charging or discharging. Once fully charged with its open circuit voltage $\geq$ 2.065 Vpc, the battery will maintain its capacity for 30 days without further charging per manufacturers instructions. Optimal long term performance however, is obtained by maintaining a float voltage 2.20 to 2.25 Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge. The nominal float voltage of 2.25 Vpc corresponds to a total float voltage output of 130.5 V for a 58 cell battery and 261 V for a 116 cell battery as discussed in the UFSAR, Section 8.3.2 (Ref. 2).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in UFSAR, Chapter 6 (Ref. 1) and Chapter 15 (Ref. 3), assume Engineered Safety Feature systems are OPERABLE. The DC electrical power subsystems provide normal and emergency DC electrical power for the diesel generators, emergency auxiliaries, and control and switching during all MODES of operation.

(continued)

BASES (continued)

ACTIONS

The OPERABILITY of the DC subsystems is consistent with the initial assumptions of the accident analyses and is based upon meeting the design basis of the unit as discussed in the Bases for LCO 3.8.4 and LCO 3.8.5.

Since battery parameters support the operation of the DC power sources, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

Battery parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational occurrence or a postulated DBA. Battery parameter limits are conservatively established, allowing continued DC electrical system function even with limits not met. Additional preventative maintenance, testing, and monitoring performed in accordance with the Battery Monitoring and Maintenance Program is conducted as specified in Specification 5.5.14.

APPLICABILITY

The battery parameters are required solely for the support of the associated DC electrical power subsystem. Therefore, battery parameter limits are only required when the associated DC electrical power subsystem is required to be OPERABLE. Refer to the Applicability discussion in Bases for LCO 3.8.4 and LCO 3.8.5.

The ACTIONS Table is modified by a Note which indicates that separate Condition entry is allowed for each battery. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DC electrical power subsystem. Complying with the Required Actions for one inoperable DC electrical power subsystem may allow for continued operation, and subsequent inoperable DC electrical power subsystem(s) are governed by separate Condition entry and application of associated Required Actions.

ACTIONS

A.1, A.2, and A.3

With one or more cells of a battery < 2.07 V, the battery is degraded. Within 2 hours, verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage (SR 3.8.4.1) and the overall

(continued)

BASES (continued)

ACTIONS
(continued)

battery state of charge by monitoring the battery float charge current (SR 3.8.6.1). This assures that there is still sufficient battery capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells in the battery being < 2.07 V, and continued operation is permitted for a limited period of up to 24 hours.

Since the Required Actions only specify "perform", a failure of SR 3.8.4.1 or SR 3.8.6.1 acceptance criteria does not result in the Required Action not met. However, if one of the SRs is failed, the appropriate Condition(s), depending on the cause of the failure, is entered. If SR 3.8.6.1 is failed, then there is not assurance that there is still sufficient battery capacity to perform the intended function and the battery must be declared inoperable immediately as specified in Condition F.

B.1 and B.2

One or more batteries with float current > 2 amps indicates that a partial discharge of the battery capacity has occurred. This may be due to a temporary loss of a battery charger or possibly due to one or more battery cells in a low voltage condition reflecting some loss of capacity. Within 2 hours, verification of the required battery charger OPERABILITY is made by monitoring the battery terminal voltage. If the terminal voltage is found to be less than the minimum established float voltage, there are two possibilities; the battery charger is inoperable or is operating in the current limit mode. Condition A of LCO 3.8.4 and LCO 3.8.5 address charger inoperability. If the charger is operating in the current limit mode after 2 hours, that is an indication that the battery has been substantially discharged and likely cannot perform its required design functions. The time to return the battery to its fully charged condition in this case is a function of the battery charger capacity, the amount of loads on the associated DC system, the amount of the previous discharge, and the recharge characteristic of the battery. The charge time can be extensive, and there is not adequate assurance that it can be recharged within 12 hours (Required Action B.2). The battery must therefore be declared inoperable as specified in Condition F.

(continued)

BASES (continued)

ACTIONS

If the float voltage is found to be satisfactory, but there are one or more battery cells with float voltage less than 2.07 V, the associated "OR" statement in Condition F is applicable and the battery must be declared inoperable immediately. If float voltage is satisfactory and there are no battery cells less than 2.07 V, there is good assurance that, within 12 hours, the battery will be restored to its fully charged condition (Required Action B.2) from any discharge that might have occurred due to a temporary loss of the battery charger. A discharged battery with float voltage (the charger setpoint) across its terminals indicates that the battery is on the exponential charging current portion (the second part) of its recharge cycle. The time to return a battery to its fully charged state under this condition is simply a function of the amount of the previous discharge and the recharge characteristic of the battery. Thus there is good assurance of fully recharging the battery within 12 hours, avoiding a premature shutdown with its own attendant risk.

If the condition is due to one or more cells in a low voltage condition but still greater than 2.07 V and float voltage is found to be satisfactory, this is not an indication of a substantially discharged battery and 12 hours is a reasonable time prior to declaring the battery inoperable.

Since Required Action B.1 only specifies "perform," a failure of SR 3.8.4.1 acceptance criteria does not result in the Required Action not met. However, if SR 3.8.4.1 is failed, the appropriate Condition(s), depending on the cause of the failure, is entered.

C.1, C.2, and C.3

With one or more batteries with one or more cells electrolyte level above the top of the plates but below the minimum established design limits, the battery still retains sufficient capacity to perform the intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of electrolyte level not met. Within 31 days, the minimum established design limits for electrolyte level must be re-established.

(continued)

BASES (continued)

ACTIONS

With electrolyte level below the top of the plates, there is a potential for dryout and plate degradation. Required Actions C.1 and C.2 address this potential (as well as provisions in Specification 5.5.14, Battery Maintenance and Monitoring Program). They are modified by a Note that indicates they are only applicable if electrolyte level is below the top of the plates. Within 8 hours, level is required to be restored to above the top of the plates. The Required Action C.2 requirement to verify that there is no leakage by visual inspection and the Specification 5.5.14.b item to initiate action to equalize and test in accordance with the manufacturer's recommendation are taken from Annex D of IEEE 450-1995. They are performed following restoration of the electrolyte level to above the top of the plates. Based on the results of the manufacturer's recommended testing, the battery may have to be declared inoperable and the affected cell(s) replaced.

D.1

With one or more batteries with pilot cell temperature less than the minimum established design limits, 12 hours is allowed to restore the temperature to within limits. A low electrolyte temperature limits the current and power available. Since the battery is sized with margin, while battery capacity is degraded, sufficient capacity exists to perform the intended function and the affected battery is not required to be considered inoperable solely as a result of pilot cell temperature not met.

E.1

If two or more redundant division (e.g., both the Division 2 and the opposite unit Division 2) batteries have battery parameters not within limits there is not sufficient assurance that battery capacity has not been affected to the degree that the batteries are can still perform their required function, given that redundant batteries are involved. With redundant batteries involved, this potential could result in a total loss of function on multiple systems that rely upon the batteries. The longer Completion Times specified for battery parameters on non-redundant batteries not within limits are therefore not appropriate, and the parameters must be restored to within limits on at least one affected division within 2 hours. Although the High

(continued)

BASES (continued)

ACTIONS

Pressure Core Spray (HPCS) System is typically considered a single division system, for this Condition, the Division 3 (HPCS System) battery is considered redundant to Division 1 and 2 batteries for the Emergency Core Cooling function.

F.1

When any battery parameter is outside the allowances of the Required Actions for Condition A, B, C, D, or E, sufficient capacity to supply the maximum expected load requirement is not assured and the corresponding battery must be declared inoperable. Additionally, discovering a battery with one or more battery cells float voltage less than 2.07 V and float current greater than 2 amps indicates that the battery capacity may not be sufficient to perform the intended functions. The battery must therefore be declared inoperable immediately.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

Verifying battery float current while on float charge is used to determine the state of charge of the battery. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery and maintain the battery in a fully charged state. The float current requirements are based on the float current indicative of a charged battery. Use of float current to determine the state of charge of the battery is consistent with IEEE-450 (Ref.4). The 7 day Frequency is consistent with IEEE-450 (Ref. 4).

This SR is modified by a Note that states the float current requirement is not required to be met when battery terminal voltage is less than the minimum established float voltage of SR 3.8.4.1. When this float voltage is not maintained, the Required Actions of LCO 3.8.4 or LCO 3.8.5 ACTION A, as applicable, are being taken, which provide the necessary and appropriate verifications of battery condition. Furthermore, the float current limit of 2 amps is established based on the nominal float voltage and is not directly applicable when this voltage is not maintained.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.6.2 and SR 3.8.6.5

Optimal long term battery performance is obtained by maintaining a float voltage greater than or equal to the minimum established design limits provided by the manufacturer, which corresponds to 127.6 V for the 125 V batteries and 255.2 V for the 250 volt battery at the battery terminals or 2.20 Vpc. This provides adequate over-potential, which limits the formation of lead sulfate and self discharge, which could eventually render the battery inoperable. Float voltage in this range or less, but greater than 2.07 Vpc, is addressed in Specification 5.5.14. SRs 3.8.6.2 and 3.8.6.5 require verification that the cell float voltages are equal to or greater than the short term absolute minimum voltage of 2.07 V. The Frequency for cell voltage verification every 31 days for pilot cell and 92 days for each connected cell is consistent with IEEE-450 (Ref. 4).

SR 3.8.6.3

The limit specified for electrolyte level ensures that the plates suffer no physical damage and maintains adequate electron transfer capability. The Frequency is consistent with IEEE-450 (Ref. 4).

SR 3.8.6.4

This Surveillance verifies that the pilot cell temperature is greater than or equal to the minimum established design limit (i.e., 60°F for 125 V batteries and 65°F for the 250 V battery). Pilot cell electrolyte temperature is maintained above this temperature to assure the battery can provide the required current and voltage to meet the design requirements. Temperatures lower than assumed in the battery sizing calculations may act to inhibit or reduce battery capacity. The Frequency is consistent with IEEE-450 (Ref. 4).

(continued)

BASES (continued)

SR 3.8.6.6

A battery performance discharge test is a test of constant current capacity of a battery, normally done in the as found condition, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.6.6; however, only the modified performance discharge test may be used to satisfy the battery service test requirements of SR 3.8.4.3 at the same time.

A modified performance discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service test when the modified performance discharge test is performed in lieu of a service test.

A battery modified performance discharge test is a simulated duty cycle normally consisting of just two rates; the one minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance discharge test, both of which envelope the duty cycle of the service test. (The test can consist of a single rate if the test rate employed for the performance discharge test exceeds the 1 minute rate and continues to envelope the duty cycle of the service test.) Since the ampere-hours removed by a rated one minute discharge represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test must remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

(continued)

BASES (continued)

The acceptance criteria for this Surveillance is consistent with IEEE-450 (Ref. 4) and IEEE-485 (Ref. 5). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating, since IEEE-485 (Ref. 11) recommends using an aging factor of 125% in the battery sizing calculation. A capacity of 80% shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements. Furthermore, the battery is sized to meet the assumed duty cycle loads when the battery design capacity reaches this 80% limit.

The Surveillance Frequency for this test is normally 60 months. If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is $< 100\%$ of the manufacturers rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity $\geq 100\%$ of the manufacturers rating. Degradation is indicated, consistent with IEEE-450 (Ref. 4), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is $\geq 10\%$ below the manufacturers rating. The 12 month and 60 month Frequencies are consistent with the recommendations in IEEE-450 (Ref. 4). The 24 month Frequency is derived from the recommendations of IEEE-450 (Ref. 4).

This SR is modified by two Notes. The reason for the first Note is that performing the Surveillance would remove a required 125 VDC electrical power subsystem from service, perturb the electrical distribution system, and challenge safety systems. This restriction from normally performing the Surveillance in MODE 1 or 2 is further amplified to allow portions of the Surveillance to be performed for the purpose of reestablishing OPERABILITY (e.g., post work testing following corrective maintenance, corrective modification, deficient or incomplete surveillance testing, and other unanticipated OPERABILITY concerns) provided an assessment determines plant safety is maintained or enhanced. This assessment shall, as a minimum, consider the potential outcomes and transients associated with a failed

(continued)

BASES (continued)

partial Surveillance, a successful partial Surveillance, and a perturbation of the offsite or onsite system when they are tied together or operated independently for the partial Surveillance; as well as the operator procedures available to cope with these outcomes. These shall be measured against the avoided risk of a plant shutdown and startup to determine that plant safety is maintained or enhanced when portions of the Surveillance are performed in MODE 1 or 2. Risk insights or deterministic methods may be used for this assessment. Credit may be taken for unplanned events that satisfy this SR.

The reason for the second Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that these SRs must still be capable of being met, but actual performance is not required.

REFERENCES

1. UFSAR, Chapter 6.
2. UFSAR, Chapter 8.
3. UFSAR, Chapter 15.
4. IEEE Standard 450, 1995.
5. IEEE Standard 485, 1983.
6. Technical Requirements Manual

ATTACHMENT 4
Retyped Technical Specification Pages

LASALLE COUNTY STATION, UNITS 1 AND 2

FACILITY OPERATING LICENSE NOS. NPF-11 AND NPF-18

Request for Amendment to Technical Specifications Associated With Direct Current Electrical Power

REVISED TECHNICAL SPECIFICATIONS PAGES

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(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources–Operating

LCO 3.8.4 The Division 1 125 VDC and 250 VDC, Division 2 125 VDC, Division 3 125 VDC, and the opposite unit Division 2 125 VDC electrical power subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required Division 1, 2, or 3 125 VDC battery charger on one division inoperable. OR One required Division 2 or opposite unit Division 2 battery charger on one division inoperable. OR One required Division 1 250 VDC battery charger inoperable.	A.1 Restore battery terminal voltage to greater than or equal to the minimum established float voltage. AND A.2 Verify battery float current $\leq$ 2 amps. AND A.3 Restore required battery charger(s) to OPERABLE status.	2 hours Once per 12 hours 7 days
B. Division 1 or 2 125 VDC electrical power subsystem inoperable for reasons other than Condition A.	B.1 Restore Division 1 and 2 125 VDC electrical power subsystems to OPERABLE status.	2 hours

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met for the Division 3 DC electrical power subsystem. OR Division 3 DC electrical power subsystem inoperable for reasons other than Condition A.	C.1 Declare High Pressure Core Spray System inoperable.	Immediately
D. Required Action and associated Completion Time of Condition A not met for the Division 1 250 VDC electrical power subsystem. OR Division 1 250 VDC electrical power subsystem inoperable for reasons other than Condition A.	D.1 Declare associated supported features inoperable.	Immediately
E. Required Action and associated Completion Time of Condition A not met for the opposite unit Division 2 DC electrical power subsystem. OR Opposite unit Division 2 DC electrical power subsystem inoperable for reasons other than Condition A.	E.1 Restore opposite unit Division 2 DC electrical power subsystem to OPERABLE status.	7 days

(continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition A not met for the Division 1 or 2 125 VDC electrical power subsystem. OR Required Action and associated Completion Time of Condition B or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

---------- NOTES ----------
1. SR 3.8.4.1 through SR 3.8.4.3 are applicable only to the given unit's DC electrical power sources.

2. SR 3.8.4.4 is applicable only to the opposite unit DC electrical power source.

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is greater than or equal to the minimum established float voltage.	7 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.2	Verify each required battery charger supplies: a. ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the Division 1 and 2 125 V battery chargers; b. ≥ 50 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the Division 3 125 V battery charger; and c. ≥ 200 amps at greater than or equal to the minimum established float voltage for ≥ 4 hours for the 250 V battery charger. OR Verify each battery charger can recharge the battery to the fully charged state within 24 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.	24 months

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.3	----------NOTES---------- 1. The modified performance discharge test in SR 3.8.6.6 may be performed in lieu of SR 3.8.4.3. 2. This Surveillance shall not normally be performed in MODE 1 or 2 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. ---------- 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.	24 months
SR 3.8.4.4	----------NOTE---------- When the opposite unit is in MODE 4 or 5, or moving irradiated fuel in the secondary containment, the following opposite unit SRs are not required to be performed: SR 3.8.4.2 and SR 3.8.4.3. ---------- For the opposite unit Division 2 DC electrical power subsystem, the SRs of the opposite unit Specification 3.8.4 are applicable.	In accordance with applicable SRs

ACTIONS

---NOTE---
LCO 3.0.3 is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required battery charger on one division inoperable.	A.1 Restore required battery terminal voltage to greater than or equal to the minimum established float voltage.	2 hours
AND	AND	
The redundant required division battery and charger OPERABLE.	A.2 Verify required battery float current $\leq$ 2 amps.	Once per 12 hours
	AND	
	A.3 Restore required battery charger to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One or more required DC electrical power subsystems inoperable for reasons other than Condition A. OR Required Action and Completion Time of Condition A not met.	B.1 Declare affected required feature(s) inoperable. OR B.2.1 Suspend CORE ALTERATIONS. AND B.2.2 Suspend movement of irradiated fuel assemblies in the secondary containment. AND B.2.3 Initiate action to suspend operations with a potential for draining the reactor vessel. AND B.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.	Immediately Immediately Immediately Immediately Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.5.1	----------NOTE---------- The following SRs are not required to be performed: SR 3.8.4.2 and SR 3.8.4.3. ---------- For DC electrical power subsystems required to be OPERABLE the following SRs are applicable: SR 3.8.4.1, SR 3.8.4.2, SR 3.8.4.3, and SR 3.8.4.4.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Parameters

LCO 3.8.6 Battery parameters for the Division 1, 2, and 3 and opposite unit Division 2 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 or more batteries with one or more battery cells float voltage < 2.07 V.	A.1 Perform SR 3.8.4.1.	2 hours
	AND	
	A.2 Perform SR 3.8.6.1.	2 hours
	AND	
	A.3 Restore affected cell voltage ≥ 2.07 V.	24 hours

(continued)

ACTIONS

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

(continued)

E. Two or more redundant division batteries with battery parameters not within limits.	E.1	Restore battery parameters for affected battery in one division to within limits.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met. OR One or more batteries with one or more battery cells float voltage < 2.07V and float current > 2 amps.	F.1	Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
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. ---------- Verify battery float current is $\leq$ 2 amps.	7 days
SR 3.8.6.2	Verify each battery pilot cell voltage is $\geq$ 2.07 V.	31 days
SR 3.8.6.3	Verify each battery connected cell electrolyte level is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.4	Verify each battery pilot cell temperature is greater than or equal to minimum established design limits.	31 days
SR 3.8.6.5	Verify each battery connected cell voltage is $\geq$ 2.07 V.	92 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.6	----------NOTES---------- 1. This Surveillance shall not normally be performed in MODE 1 or 2 for the 125 VDC batteries. However, portions of the Surveillance may be performed to reestablish OPERABILITY provided an assessment determines the safety of the plant is maintained or enhanced. Credit may be taken for unplanned events that satisfy this SR. 2. Not required to be performed when the opposite unit is in Modes 4 or 5, or during movement of irradiated fuel in the secondary containment. ---------- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months AND 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating

5.5 Programs and Manuals

5.5.13 Primary Containment Leakage Rate Testing Program (continued)

2. NEI 94-01 - 1995, Section 9.2.3: The first Unit 2 Type A test performed after December 8, 1993 Type A test shall be performed no later than December 7, 2008.

b. The peak calculated primary containment internal pressure for the design basis loss of coolant accident, P_a, is 39.9 psig.

c. The maximum allowable primary containment leakage rate, L_a, at P_a, is 0.635% of primary containment air weight per day.

d. Leakage rate acceptance criteria are:

1. Primary containment overall leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the combined Type B and Type C tests, and $\leq 0.75\ L_a$ for Type A tests.

2. Air lock testing acceptance criteria are:

a) Overall air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$.

b) For each door, the seal leakage rate is ≤ 5 scf per hour when the gap between the door seals is pressurized to ≥ 10 psig.

e. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

5.5.14 Battery Monitoring and Maintenance Program

This Program provides for restoration and maintenance, based on the recommendations of IEEE Standard 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," of the following:

a. Actions to restore battery cells with float voltage < 2.13 V, and

b. Actions to equalize and test battery cells that had been discovered with electrolyte level below the minimum established design limit.