

September 20, 2004

Mr. Gregory M. Rueger
Senior Vice President, Generation and
Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Power Plant
P. O. Box 3
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON POWER PLANT, UNIT NO. 1 (TAC NO. MC0176) AND
UNIT NO. 2 (TAC NO. MC0177) – ISSUANCE OF AMENDMENT RE: DIRECT
CURRENT (DC) ELECTRIC POWER SYSTEMS

Dear Mr. Rueger:

The Commission has issued the enclosed Amendment No. 172 to Facility Operating License No. DPR-80 and Amendment No. 174 to Facility Operating License No. DPR-82 for the Diablo Canyon Power Plant, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your application dated July 24, 2003, (DCL-03-084).

The amendments revise TS 3.8.4, "DC Sources - Operating," TS 3.8.5, "DC Sources - Shutdown," and TS 3.8.6, "Battery Cell Parameters," and add a new TS 5.5.17, "Battery Monitoring and Maintenance Program." The changes adopt in part the NRC-approved Technical Specification Task Force (TSTF)-360, Revision 1, "DC Electrical Rewrite."

A copy of the related Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

/RA/

Jack Donohew, Senior Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosures: 1. Amendment No. 172 to DPR-80
2. Amendment No. 174 to DPR-82
3. Safety Evaluation

cc w/encls: See next page

Diablo Canyon Power Plant, Units 1 and 2

cc:

NRC Resident Inspector
Diablo Canyon Power Plant
c/o U.S. Nuclear Regulatory Commission
P.O. Box 369
Avila Beach, CA 93424

Sierra Club San Lucia Chapter
c/o Henriette Groot
1000 Montecito Road
Cayucos, CA 93430

Ms. Nancy Culver
San Luis Obispo
Mothers for Peace
P.O. Box 164
Pismo Beach, CA 93448

Chairman
San Luis Obispo County Board of
Supervisors
Room 370
County Government Center
San Luis Obispo, CA 93408

Mr. Truman Burns
Mr. Robert Kinoshian
California Public Utilities Commission
505 Van Ness, Room 4102
San Francisco, CA 94102

Diablo Canyon Independent Safety
Committee
ATTN: Robert R. Wellington, Esq.
Legal Counsel
857 Cass Street, Suite D
Monterey, CA 93940

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Harris Tower & Pavillion
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Richard F. Locke, Esq.
Pacific Gas & Electric Company
P.O. Box 7442
San Francisco, CA 94120

Mr. David H. Oatley, Vice President
and General Manager
Diablo Canyon Power Plant
P.O. Box 56
Avila Beach, CA 93424

City Editor
The Tribune
3825 South Higuera Street
P.O. Box 112
San Luis Obispo, CA 93406-0112

Mr. Ed Bailey, Chief
Radiologic Health Branch
State Department of Health Services
P.O. Box 997414 (MS 7610)
Sacramento, CA 95899-7414

Mr. James D. Boyd, Commissioner
California Energy Commission
1516 Ninth Street (MS 31)
Sacramento, CA 95814

Mr. James R. Becker, Vice President
Diablo Canyon Operations
and Station Director
Diablo Canyon Power Plant
P.O. Box 3
Avila Beach, CA 93424

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-275

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 172
License No. DPR-80

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated July 24, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-80 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No.

172, are hereby incorporated in the license. Pacific Gas and Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days of the date of issuance. In addition, the licensee shall relocate Technical Specification requirements to licensee-controlled programs and the TS Bases, as described in the licensee's letter dated July 24, 2003, and the NRC safety evaluation attached to this amendment, in the next scheduled update of the Final Safety Analysis Report Update submitted pursuant to 10 CFR 50.71(e).

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: September 20, 2004

PACIFIC GAS AND ELECTRIC COMPANY

DOCKET NO. 50-323

DIABLO CANYON NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 174
License No. DPR-82

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Pacific Gas and Electric Company (the licensee) dated July 24, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-82 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 174, are hereby incorporated in the license. Pacific Gas and Electric Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan, except where otherwise stated in specific license conditions.

3. This license amendment is effective as of its date of issuance and shall be implemented within 120 days of the date of issuance. In addition, the licensee shall relocate Technical Specification requirements to licensee-controlled programs and the TS Bases, as described in the licensee's letter dated July 24, 2003, and the NRC safety evaluation attached to this amendment, in the next scheduled update of the Final Safety Analysis Report Update submitted pursuant to 10 CFR 50.71(e).

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Robert A. Gramm, Chief, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: September 20, 2004

ATTACHMENT TO LICENSE AMENDMENT NO. 172

TO FACILITY OPERATING LICENSE NO. DPR-80

AND AMENDMENT NO. 174 TO FACILITY OPERATING LICENSE NO. DPR-82

DOCKET NOS. 50-275 AND 50-323

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.8-18
3.8-19
3.8-20
3.8-22
3.8-23

3.8-24
3.8-25
5.0-24

INSERT

3.8-18
3.8-19
3.8-20
3.8-22
3.8-23
3.8-23a
3.8-24
3.8-25
5.0-24
5.0-24a

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 172 TO FACILITY OPERATING LICENSE NO. DPR-80
AND AMENDMENT NO. 174 TO FACILITY OPERATING LICENSE NO. DPR-82
PACIFIC GAS AND ELECTRIC COMPANY
DIABLO CANYON POWER PLANT, UNITS 1 AND 2
DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By application dated July 24, 2003, Pacific Gas and Electric Company (or the licensee) requested changes to the Technical Specifications (TSs, Appendix A to Facility Operating License Nos. DPR-80 and DPR-82) for the Diablo Canyon Power Plant, Units 1 and 2 (DCPP). The amendments would revise TS 3.8.4, "DC [Direct Current] Sources - Operating," TS 3.8.5, "DC Sources - Shutdown," and TS 3.8.6, "Battery Cell Parameters," and add a new TS 5.5.17, "Battery Monitoring and Maintenance Program." The proposed changes revise current TS conditions, required actions, completion time (CTs), and surveillance requirements (SRs) of the battery chargers, the batteries, and the DC electrical power subsystem.

The changes adopt, in part, Technical Specification Task Force (TSTF)-360, Revision 1, "DC Electrical Rewrite," (TSTF-360). On December 15, 2000, the NRC approved the TSTF for inclusion in the improved Standard Technical Specifications in NUREG-1431, Revision 2, "Standard Technical Specifications, Westinghouse Plants, PWR," dated June 2001, and for consideration to be added to plant-specific TSs. The TSTF provides a separate action for an inoperable battery not in the current TSs, new actions for the restoration of an inoperable battery charger or battery, alternate battery charger testing criteria, the relocation of battery maintenance and monitoring activities to licensee-controlled programs, and supports the performance of on-line battery maintenance and post-maintenance testing.

The licensee stated in its application that the proposed changes are to support performance of periodic on-line battery charger maintenance and post-maintenance testing, resulting in reduced plant refueling outage and improvement of battery charger availability during shutdown. The licensee believes the changes will provide operational flexibility by allowing more efficient application of plant resources to safety significant activities.

By Amendment No. 135, dated May 28, 1999, DCPP converted to the improved TSs based on NUREG-1431, Revision 1.

2.0 BACKGROUND

In describing the Class 1E DC electric power system at DCP, the licensee stated that the DC power system provides motive and/or control power to the alternating current (AC) emergency power system and selected safety-related equipment, and provides backup 120 volts (V) AC vital bus power through inverters, and is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure, in compliance with General Design Criterion (GDC) 17 in Appendix A to 10 CFR Part 50. The DC power system consists of three independent safety-related Class 1E electric power subsystems, each of which consists of one dedicated 60-cell 125 V DC battery, one dedicated battery charger, and the associated switchgear, control equipment, and interconnecting cable. There are two backup chargers for the three subsystems for a situation when a dedicated charger is out-of-service. The licensee provided a single line diagram of the DCP 125 V DC system in Enclosure 7 to its application.

During normal operation, the 125 V DC load is powered from the dedicated battery chargers with the batteries floating on the system. In the case of loss-of-power to the dedicated battery chargers, the DC load is automatically powered from the batteries and each battery has sufficient storage capacity to carry the required load continuously for at least two hours.

The DC electrical power subsystems provide the control power for its associated Class 1E AC power load group, 4.16 kV switchgear, and 480 V load centers. The DC electrical power subsystems also provide DC electrical power to the inverters, which in turn are backup sources to power the 120 V AC vital buses.

The batteries for the 3 DC electrical power subsystems are sized to produce required capacity at 80 percent of nameplate rating, corresponding to warranted capacity at end-of-life cycles and the 100 percent design demand. The voltage limit is 2.13 V per cell, which corresponds to a total minimum voltage output of 128 V per battery.

Each DC electrical power subsystem has ample power output capacity for the steady-state operation of connected loads needed during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger also has sufficient capacity to restore the battery from the design minimum charge to its fully charged state within 12 hours while supplying normal steady-state loads.

For a DC electric power subsystem to be considered operable, the battery in the subsystem and its dedicated or backup charger must be operating and connected to the associated DC bus, and the battery must also be within its performance limits as specified in the TSs. TSs 3.8.4 to 3.8.6 provide the operability requirements on the DC electric power subsystem and on the battery parameters.

3.0 REGULATORY EVALUATION

The NRC staff applied the following regulatory requirements in its review of the licensee's proposed TS changes:

1. GDC 17, "Electric Power System," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 requires that nuclear power plants have an onsite electric power system and an offsite electric power system to permit the functioning of structures, systems and components (SSCs) important to safety. The safety function of each system (assuming the other system is not functioning) is to provide sufficient capacity and capability to assure that (1) fuel design limits and design conditions of the reactor coolant boundary are not exceeded as a result of anticipated operational occurrences, and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents. The onsite electric power supplies, including the batteries, and the onsite electric distribution system shall have sufficient independence, redundancy, and testability to perform their safety functions assuming a single failure. Electric power from the transmission network to the onsite electric distribution system is required to be supplied by two physically independent circuits designed and located so as to minimize the likelihood of their simultaneous failure. Each of these circuits is required to be designed to be available in sufficient time following a loss of all onsite AC power supplies and the other offsite electric power circuit, to assure that fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits is required to be available within a few seconds following an accident to assure that core cooling, containment integrity, and other vital safety functions are maintained. In addition, GDC 17 requires provisions to minimize the probability of losing electric power from the remaining electric power supplies as the result of loss of power from the unit, the offsite transmission network, or the onsite power supplies.
2. GDC 18, "Inspection and testing of electric power systems," requires that electric power systems important to safety shall be designed to permit appropriate periodic inspection and testing of important areas and features to assess the continuity of the systems and the condition of their components. The systems shall be designed with a capacity to test periodically (1) the operability and functional performance of the components of the systems, and (2) the operability of the systems as a whole and, under conditions as close to design as practical, the full operation sequence that brings the system into operation.
3. Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.36, "Technical specifications," sets forth the Commission's regulatory requirements related to the content of the TSs. Section 50.36 requires the TSs to include the following five categories: (1) safety limits, limiting safety system settings, and limiting control settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls. This requires the TSs to be derived from the analyses and evaluation included in the safety analysis report. LCOs are required to be established for the SSCs that are part of the primary success path and which function or actuate 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 (e.g., the Class 1E DC electric power system). Section 50.36 also requires SRs to determine that safety systems are within the safety limits and LCOs are being met, and required actions for conditions when LCOs are not being met. The LCOs, SRs, and required actions must be sufficient for the SSCs to perform their required safety functions as described in the accident analyses in Chapter 15 of the plant's Final Safety Analysis Report (FSAR).

Under 10 CFR 50.36(c)(2)(ii), an LCO must be included in the TSs for any item meeting one or more of the following four criteria:

1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary;
2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;
3. An SSC 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; and
4. An SSC which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

As a result, current TS requirements that fall within or satisfy any of the criteria in 10 CFR 50.36 must be retained in the TSs, while those TS requirements that do not fall within or satisfy these criteria may be relocated to other licensee-controlled documents.

The licensee identified what it considered the applicable regulatory requirements in Section 5.2 of its application. The licensee listed GDC 17 and several NRC regulatory guides (RGs) and industry standards such as IEEE 450-1995, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications," dated 1995. The RGs provide acceptable methods to meet regulatory requirements, but are not in themselves regulatory requirements. Industry standards may be requirements if they are incorporated into the regulations or the TSs. In addition, such a standard may form part of the design basis for a system as set forth in the licensee's FSAR. RG 1.129, "Maintenance, Testing and Replacement of Large Lead Storage Batteries for Nuclear Power Plants," dated December 1974, endorses IEEE 450-1975 for complying with the Commission's regulations with respect to maintenance, testing, and replacement of large lead storage batteries.

The licensee states in Section 8.3.2.2.1.3, "Class 1E 125-Vdc Batteries," of its FSAR Update for DCPD that the "[b]attery capacity is verified by performing a battery performance test in accordance with IEEE 450." The version of IEEE 450 referenced in the FSAR Update is 1987. Also, as documented in FSAR Update Section 8.4.3, "Regulatory Guides," since RG 1.129 is not listed as one of the RGs implemented at DCPD, the licensee has not committed to follow IEEE 450-1975. In the application, the licensee further stated the following:

- The program for maintaining and monitoring the batteries in the DC electric power system will be consistent with the recommendations of IEEE 450-1995, or of the battery manufacturer, although the wording proposed in the application for the new TS 5.5.17 program is that the actions to only (1) restore battery cells with float voltage less than 2.13 V, and (2) equalize and test battery cells with electrolyte level below the top of the plates will be consistent with the recommendations of IEEE 450-1995, or of the battery manufacturer.

- Maintenance and testing procedures and criteria for replacement are in accordance with IEEE 450-1995, and RG 1.129.

In Enclosure 4 to its application, the licensee identified changes to the TS Bases because of the proposed amendments. The licensee shows that it would add a statement to the background of TS 3.8.6 about the TS 5.5.17 program to the effect that there is a program "specified in Specification 5.5.17 for monitoring various battery parameters that is based on the recommendations of IEEE Standard 450 ..." The licensee will also add statements about this standard to the TS Bases in that (1) the surveillance test intervals (STIs) are "consistent with IEEE 450" for SRs 3.8.6.1 to 3.8.6.6, and (2) the test specified in SR 3.8.6.6 "should be in accordance with IEEE 450." In both cases, the referenced version of IEEE 450 is 1995. Also, in the current TS Bases for SR 3.8.4.1, there is the statement that the STI is consistent with IEEE-450-1995.

Therefore, because the licensee has not stated anything about changes to the FSAR Update for this amendment, there may be discrepancies between what will be stated in the TS Bases and what is stated in the FSAR Update. In accordance with 10 CFR 50.71(e), the licensee shall periodically update its FSAR to reflect information and analyses submitted to the Commission since the last update. In the next update of the FSAR Update, the licensee shall include the information submitted for this amendment. The implementation condition for these amendments incorporates this requirement.

3.0 TECHNICAL EVALUATION

The licensee has proposed changes to the TSs that involve relocation of requirements from one TS section to another, revising requirements, replacing TS conditions and SRs with new requirements, and re-numbering TS requirements. Therefore, the proposed changes will be discussed in terms of adding new requirements and revising current requirements. In Section 2.0 of Enclosure 1 to its application, the licensee identified the following categories of change to TSs 3.8.4, 3.8.5, 3.8.6, and 5.5:

1. Addition of new TS conditions and required actions for battery chargers and batteries in each DC electric power subsystem.
2. Relocation of TS 3.8.4 preventative maintenance SRs to a licensee-controlled program.
3. Addition of alternate criteria for battery charger testing.
4. Replacement of battery specific gravity monitoring with float current monitoring.
5. Relocation of battery limits to a licensee-controlled program, based on IEEE Standard 450-1995, and/or to the TS Bases.
6. Addition of TS 3.8.6 required actions and extended CTs for out-of-limits battery conditions and associated SRs.
7. Enhancement of the TS Bases for the proposed changes.

8. Elimination of "once per 60 months" in TSTF-360 on replacing the battery service test with the battery modified performance test.
9. Relocation of SR 3.8.4.8 on battery operability to TS 3.8.6.
10. Deletion of reference to "cell" in LCO 3.8.6.
11. Addition of a program to TS 5.5 for the maintenance and monitoring of batteries.

Although the licensee did not identify the Category 11 listed above, it did identify in Category 5 that such a program is being added for the relocation of certain requirements from TS 3.8.6 to TS 5.5.17. To be clear that such a new program is being added to the TSs, the NRC staff added the Category 11. Table 1 attached to this safety evaluation (SE) lists the 27 TS changes in terms of the TS section, the 11 TS change categories, and whether the change is in TSTF-360. The TS changes are given in the order of the changes shown in the marked-up TS pages in Enclosure 2 of the licensee's application. Table 2 attached to this SE lists the TS changes involving relocations of TS requirements and the licensee's programs that are identified to receive these requirements. The following SE sections address the 11 TS change categories:

3.1 Addition of New TS Conditions and Required Actions

For TS 3.8.4, the licensee stated that the following TS conditions and required actions are proposed to be added to provide compensatory actions specific to the battery chargers and batteries in each electrical power subsystem:

- a. TS 3.8.4 Condition A is added to address the condition where one battery charger in one DC electrical power subsystem is inoperable. The new Required Actions A.1 and A.2 are to restore the affected battery to the fully charged state (i.e., restore terminal float voltage within 2 hours and battery float current within 12 hours), and the new Required Action A.3 is to restore the inoperable charger to operable status within 14 days.
- b. TS 3.8.4 Condition B is added to address the condition where one battery in one DC electrical power subsystem is inoperable. The new Required Action B.1 is to restore the inoperable battery to operable status within 2 hours.
- c. With the above additions to the conditions for TS 3.8.4, the current TS 3.8.4 Conditions A, B, and C are re-numbered to be Conditions C, D, and E. The only changes to the requirements in these TS conditions, required actions, and CTs are the changes in item d and e below.
- d. For clarification, the phrase "for reasons other than Condition A or B" is added to current TS 3.8.4 Condition A.
- e. The second part of the current TS 3.8.4 Condition B of "any DC bus not receiving power from its associated AC electrical power distribution subsystem" is deleted because, as

stated by the licensee, it has been replaced by the new Condition A of "one battery charger inoperable."

The licensee stated that the current TS 3.8.4 Conditions A and B do not contain required actions for the case of one inoperable battery. Because the current TSs did not specifically address the case of an inoperable battery, the proposed new conditions will allow the TSs to address inoperable batteries separate from inoperable battery chargers. Therefore, to allow for a range of possible degradations of the safety-related DC electrical sources in Modes 1 through 4, the licensee proposed to revise the current TS 3.8.4 format to incorporate the plant-specific wording in TSTF-360 and to add the following two new conditions: (1) a condition specific to an inoperable battery charger, and (2) a condition specific to an inoperable battery. Included with the new conditions were required actions and CTs.

For item a above, the proposed TS 3.8.4 Condition A addresses the condition where "one battery charger" in one DC electrical power system becomes inoperable. Required actions are proposed that focus on returning the battery affected by the inoperable charger to the fully charged state and restoring the charger to operable status. The proposed TS 3.8.4 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. The proposed TS 3.8.4 Required Action A.2 requires that the battery float current be less than or equal to 2 amps within 12 hours. The proposed TS 3.8.4 Required Action A.3 limits the restoration time of the battery charger to 14 days. With an inoperable battery charger, the first priority is to minimize the associated battery discharge.

Proposed TS 3.8.4 Required Action A.1 ensures that the associated battery discharge is terminated within 2 hours by requiring that the battery terminal voltage be restored to a value greater than or equal to the battery minimum established voltage within the 2 hours. This CT allows for restoring the inoperable battery charger or for providing an alternate means for restoring battery terminal voltage to a value greater than or equal to the minimum established float voltage. The licensee stated that, in most cases, the backup battery charger would be employed within the initial 2 hours. In other cases, other means, including a degraded normally in-service dedicated charger or a non-Class 1E charger would be employed to float the battery.

Proposed TS 3.8.4 Required Action A.2 is to establish within 12 hours that the battery has sufficient capacity to perform its assumed duty cycle which is indicated by the float current being less than or equal to 2 amps. A battery with float current greater than 2 amps for greater than 12 hours would be inoperable in accordance with new TS 3.8.6 Condition B, and new TS 3.8.6 Condition F would require entry into new TS 3.8.4 Condition B which requires that the current be restored to less than 2 amps within an additional 2 hours or a unit shutdown to Mode 3 would have to be initiated.

Proposed TS 3.8.4 Required Action A.3 will provide 14 days for the battery charger to be restored to operable status. This action is applicable if the backup charger or a non-class 1E battery charger has been used to restore battery terminal voltage to greater than or equal to the minimum established float voltage.

The licensee stated that proposed wording of the new TS 3.8.4 Condition A follows the DC electrical subsystem design of one battery charger per subsystem during normal operation

(i.e., in Modes 1 through 4) and is the same requirement, in different words, as the second part of the current TS 3.8.4 Condition B (item e above) that addresses "Any DC bus not receiving power from its associated AC electrical power distribution subsystem" (i.e., the battery charger). The licensee further explained that the phrase "on one train" in TSTF-360 was not included in the proposed TS 3.8.4 Condition A because one battery charger is the equivalent to one dedicated battery charger on one subsystem (or train) in the DCPD design.

The NRC staff has evaluated the proposed new condition and required actions for an inoperable battery charger. The new Condition A focuses on retaining battery capabilities and retaining the requirement for battery charger operability. The new condition and three new required actions are equivalent to the second part of the current TS 3.8.4 Condition B and the current required action for this condition. The CTs proposed for the new required actions are within the 14 days specified in the current Required Action B.1, and the 2-hour CT for proposed Required Actions A.1 and A.2 are more restrictive requirements compared to the current TSs. The CTs provide a reasonable restoration time for an inoperable battery charger. Based on this, the NRC staff concludes that the proposed changes in Items a and e above are acceptable.

For item b, the proposed TS 3.8.4 Condition B is added to address the condition when one battery in one DC electrical power subsystem becomes inoperable. The Required Action B.1 is to restore the affected battery to operable status within 2 hours.

When a battery becomes inoperable, the associated DC bus is supplied by its associated dedicated battery charger. If the AC bus supplying the associated dedicated battery charger is lost, the loads fed from the affected DC bus will be affected. The proposed CT for restoration of the inoperable battery is unchanged from the current 2-hour limit for restoration of the DC electrical power subsystem, of which the battery is a component, and allows sufficient time to effect restoration of the inoperable battery, given that the majority of conditions that lead to battery inoperability (e.g., loss of the associated battery charger or battery cell voltages less than 2.07 V) are identified, along with specific actions and CTs, in DC electrical power systems TSs 3.8.4, 3.8.5, and 3.8.6.

Therefore, because the proposed TS 3.8.4 Condition B is clarifying the TSs by specifically identifying required actions for an inoperable battery and the required actions are the same as the required actions in the current TSs that would apply to an inoperable battery, but the proposed wording now is specifically for an inoperable battery, and the CT for the required action is the same as the CT in the current TSs, the NRC staff concludes that the proposed item b is editorial in nature in that it is only re-wording the requirements for an inoperable battery without reducing the requirements, and, therefore, is acceptable.

For item c, to reflect the addition of the new TS 3.8.4 Conditions A and B, the licensee has proposed to re-number the current TS 3.8.4 Conditions A, B, and C as new TS 3.8.4 Conditions C, D, and E, respectively.

The current TS 3.8.4 Condition A is re-numbered to Condition C and revised to "one DC electrical power subsystem inoperable for reasons other than Condition A or B." The required action and the CT for this new condition are not being changed. The revised wording for the new condition (item d) is to add the phrase "for reasons other than Condition A or B." This

revision has the condition agreeing with the wording in TSTF-360 for the condition. The licensee stated that this change is editorial to reformat the condition. Because there will be Conditions A and B on inoperable batteries or an inoperable battery charger, the new Condition C will cover the remaining components of the DC electrical power subsystem. The NRC staff concludes that the re-numbering of current Condition A and the addition of the phrase is editorial in nature to account for the new Conditions A and B, and, therefore, are acceptable.

Current TS 3.8.4 Condition B is renumbered to New Condition D and the portion of current Condition B which applies to "any DC bus not receiving power from its associated AC electric power distribution subsystem" is deleted. This portion of current Condition B is replaced by the new Condition A for an inoperable battery charger and the 14-day CT to restore the battery charger to operable status is unchanged. The NRC staff concludes that these changes are only editorial changes and are not changing any requirements in the TSs and, therefore, are acceptable.

Current TS 3.8.4 Condition C is renumbered to Condition E and no changes are made to the required actions or CTs. Based on this, the NRC staff concludes that the proposed change is editorial, making no changes to requirements in the TSs, and is, therefore, acceptable.

Based on the above, the NRC staff concludes that the proposed changes given in items a through e above are acceptable.

3.2 Relocation of TS 3.8.4 SRs

The licensee stated that SRs 3.8.4.2, 3.8.4.3, 3.8.4.4, and 3.8.4.5 are to be relocated to licensee-controlled programs based on IEEE 450 practices. The licensee stated that these SRs are preventive maintenance requirements and the failure to meet any of the SRs does not mean that the battery is inoperable. SRs 3.8.4.2 and 3.8.4.5 requires periodic verification of battery resistance values and lack of visible corrosion. SR 3.8.4.3 requires a periodic visual inspection of the battery. SR 3.8.4.4 requires periodic cleaning of the battery and use of anti-corrosion material. The licensee explained that the activities involved with these SRs are better controlled under maintenance programs at the plant and stated that the requirements in these SRs will be relocated to a licensee-controlled program based on IEEE 450 practices.

The NRC staff agrees with the licensee that these SRs are for preventative maintenance and not operability of the batteries. The SRs to determine that a battery is operable are the current SRs 3.8.4.1 and 3.8.4.7. Because 10 CFR 50.36 requires only that TSs contain requirements governing the capability of equipment to meet its safety function (i.e., whether the equipment is operable), these SRs are unnecessary for use as operability SRs and need not be retained in the TSs. They are better controlled in a licensee-controlled maintenance program for batteries. Based on this, the NRC staff concludes that the proposed relocation of these SRs from the TSs to a maintenance program for the batteries is acceptable.

With SRs 3.8.4.2 through 3.8.4.5 being relocated, the licensee has also proposed the following: (1) the current SRs 3.8.4.6 and 3.8.4.7 are re-numbered to be SRs 3.8.4.2 and 3.8.4.3, (2) the , the TS 3.8.4 SRs listed in SR 3.8.5.1 and current SR 3.8.4.7 are either deleted or re-numbered, and (3) the phrase "the service test" is deleted from current SR 3.8.4.7. As the licensee stated in its application, the first two proposed changes are editorial and do not change any

requirements in the TSs. The deletion of the phrase is consistent with TSTF-360 and also does not change any requirements in the TSs. Based on this, the NRC concludes that the proposed changes involved in relocating SRs 3.8.4.2 through 3.8.4.5 from the TSs is acceptable.

As addressed in Section 3.9 in this SE, current SR 3.8.4.8 is not being re-numbered because the licensee has proposed to relocate this SR to TS 3.8.6.

3.3 Addition of Alternate Criteria for Battery Charger Testing

Current SR 3.8.4.6 is revised to allow an alternative battery acceptance criterion and as discussed in Section 3.2 of this SE, current SR 3.8.4.6 is being re-numbered as SR 3.8.4.2. The licensee proposed an alternative battery acceptance criterion that would allow an actual in-service demonstration that the charger can recharge the battery to the fully-charged state within 12 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. The proposed change meets the underlying purpose of the current SR 3.8.4.6 test and allows for a normal in-place demonstration of the charger capability thereby minimizing the time when the charger would be disconnected from the DC bus. Based on the above, the NRC staff finds the proposed change acceptable.

3.4 Replacement of Battery Specific Gravity Monitoring with Float Current Monitoring

The licensee states that this proposed change is to replace the current TS 3.8.6 requirements on monitoring specific gravity with new requirements based on float current monitoring to ensure the battery is sufficient to perform its design duty cycle. The change would delete the requirements in TS Table 3.8.6-1, "Battery Cell Parameters Requirements" on specific gravity; add a new TS 3.8.4 Condition B, and add a new SR 3.8.6.1. The current TS Table 3.8.6-1 Category A, B, and C limits and footnotes on battery specific gravity, and the requirements for monitoring specific gravity and the required actions to respond to conditions below the limits, are to be replaced by the float monitoring requirements in the new TS 3.8.6 Condition B and new SR 3.8.6.1.

The current TS 3.8.6 requirements are to monitor the battery specific gravity. The licensee has proposed to replace the requirements with new conditions and SRs based on float current monitoring. Float current monitoring of lead-acid batteries provides a good indication of full charge. The float current of 2 amps is appropriate for cells with an 8-hour capacity of 1000 amp hours or larger. Because the DCPB batteries are rated at 2320 amp hours (8 hour rate to 1.75 volt/cell), the NRC staff concludes that the proposed changes in the new TS 3.8.6 Condition B and new SR 3.8.6.1 are acceptable.

3.5 Relocation of Battery Limits to Licensee-Controlled Programs

The licensee identified that the following TS requirements are proposed to be deleted from the TSs, and relocated to licensee-controlled programs:

- a. The limit on minimum voltage to be provided by each battery charger in current SR 3.8.4.6.

- b. The Category A and B limits in TS Table 3.8.6-1 for battery cell float voltage and electrolyte level, including table footnote (a).
- c. The Category C limit in Table 3.8.6-1 for electrolyte level.
- d. The limit of electrolyte temperature in current TS 3.8.6 Condition B and current SR 3.8.6.3.
- e. The specific value for the minimum battery charging float voltage in current Table 3.8.6-1 (Category C limit) and the battery terminal voltage limit in current SR 3.8.4.1 are relocated to the TS Bases, and the surveillance acceptance criteria in SR 3.8.4.1 is revised.
- f. The required actions in current TS 3.8.4 Condition A for battery cell voltage and electrolyte level not being within the limits of current TS Table 3.8.6-1.
- g. The Category A, B, and C limits on specific gravity are to be replaced with the float current monitoring requirements, as discussed in Section 3.4 of this SE.

In the application, the licensee provided information on where the above requirements would be relocated as follows:

- Current TS Table 3.8.6-1 Category A and B limits for cell electrolyte level and float voltage along with the associated current TS 3.8.6 Condition A compensatory actions, the table Category C limit on electrolyte level, and the current SR 3.8.6.3 limit on pilot cell electrolyte temperature are to be relocated to licensee-controlled programs based on IEEE 450-1995.
- Current SR 3.8.4.6 limit on minimum voltage to be provided by each battery charger and the current TS Table 3.8.6-1 Category C limits on the minimum battery charging float voltage are to be relocated to the TS Bases.
- The current TS 3.8.6 Condition A compensatory actions for battery cell float voltage and electrolyte level not being within limits are relocated to the new TS 5.5.17 program.
- Current Table 3.8.6-1 Category A, B, and C limits on specific gravity are to be replaced with battery float current monitoring requirements as addressed in Section 3.4 of the SE.

For item b, the removal of the Category A and B limits for battery cell voltage and electrolyte level, along with the associated compensatory actions from the TSs, the current TS Table 3.8.6-1 contains categories of limitations on battery cell float voltage, electrolyte level, and specific gravity. The Category A and B limits reflect nominal fully-charged battery parameter values. These Category A and B values represent appropriate monitoring levels and appropriate preventive maintenance levels for long-term battery quality and extended battery life. As such, they do not reflect the 10 CFR 50.36 criteria for LCOs as "the lowest functional capability or performance levels of equipment required for the safe operation of the facility." The licensee proposed to relocate these values and the actions associated with restoration to a licensee-controlled program that is under the control of 10 CFR 50.59. In the licensee's

application, this means that the licensee's TS-controlled administrative procedures on changes to programs requires that the changes are submitted to the NRC for approval if they do not meet the criteria in 10 CFR 50.59. These programs comply with the recommendations of IEEE 450-1995. Because the proposed changes in item b above will continue to assure that the batteries are maintained at acceptable levels of performance, the NRC staff concludes that the proposed changes are acceptable.

For items c and d above, the removal of Category C specific value limit for electrolyte level and the specific value limit for electrolyte temperature from the TSs, the licensee proposed to relocate the specific limiting values from current TS 3.8.6 Condition B and Table 3.8.6-1 for battery electrolyte level (b) and temperature (c) to a licensee-controlled program. Additionally, the licensee proposed new TS 3.8.6 Conditions C and D that require the electrolyte level and temperature to be greater than or equal to the minimum established design limits, which are addressed in Section 3.6 of this SE. The licensee stated that these values do not determine if the battery is inoperable and, therefore, do not meet the criteria in 10 CFR 50.36 for inclusion in the TSs (i.e., the values do not determine whether the battery is inoperable). Also, the licensee further stated that the relocation will allow it added flexibility to monitor and control these limits at values directly related to the battery's ability to perform its assumed function. Because the proposed changes in items c and d do not determine a battery being inoperable, the NRC staff concludes that the proposed changes are acceptable.

For items a and e above, the removal of the specific value for the minimum battery charging float voltage from the TSs, the licensee proposed to relocate the specific limiting value for the minimum battery cell float voltage from current SR 3.8.4.6 and current TS Table 3.8.6-1 to the TS Bases. This change also applies to the relocation to the TS Bases of the specific limiting value for the minimum operating battery charging float voltage monitored in current SR 3.8.4.1. TS 3.8.4 Condition A will require the battery charger to supply battery terminal voltage greater than or equal to the minimum established float voltage. The licensee stated that the battery manufacturer establishes a float voltage range to provide the optimum charge on the battery. The minimum battery cell float voltage will maintain the battery plates in a condition that supports maintaining the grid life of the battery cells. The minimum established float voltage does not meet 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," and can be adequately controlled outside of the TSs. Based on this, the NRC staff concludes that the proposed changes identified in items a and e are acceptable.

For item f above, the proposed new TS administrative controls program in TS 5.5.17 with actions for battery cell voltage and electrolyte level, the NRC staff addresses this proposed change in Section 3.11 of this SE.

3.6 Addition of TS 3.8.6 Required Actions and CTs

New conditions, required actions, and CTs are being added to TS 3.8.6 for batteries. The changes are the following:

- a. Add TS 3.8.6 Condition A to address the condition where one battery on one DC electrical power subsystem has one or more cells with float voltage below the limit of 2.07 V. The new Required Actions A.1 and A.2 are to perform the new SR 3.8.4.1 and

new SR 3.8.6.1 within 2 hours, and the new Required Action A.3 is to restore the cells float voltage to at or above the limit within 24 hours.

As discussed in the application, if a battery cell is found to be less than 2.07 V, verification within 2 hours of the required battery charger operability by monitoring the battery terminal voltage (i.e., performance of new SR 3.8.4.1), and determining the overall battery state-of-charge by monitoring the battery float charge current (i.e., performance of new SR 3.8.6.1), is considered a reasonable allowed time to complete these actions and assure that there is still sufficient battery capacity to perform its intended function. Therefore, the affected battery is not required to be considered inoperable solely as a result of one or more cells being less than 2.07 V, and continued operation is permitted for a limited period up to 24 hours. The CT of 24 hours is considered a reasonable time to effect restoration of the out-of-limit condition. The NRC staff agrees with the statements made by the licensee.

The NRC staff has reviewed the new required actions and CTs for the proposed new condition of one battery with one or more cells with float voltage less than 2.07 V that are in agreement with TS 3.8.6 in TSTF-360. The NRC staff concludes that this condition is a valid condition for LCO 3.8.6 on battery parameters not meeting limits because the proposed new SR 3.8.6.2 requires surveillance for this condition and a battery being in this condition would mean that the battery would not meet LCO 3.8.6. The new required actions are valid compensatory actions for the condition. The proposed CTs of 2 hours for the new Required Actions A.1, A.2, and A.3 are reasonable. Based on this, the NRC staff concludes that the proposed changes are acceptable.

- b. Add TS 3.8.6 Condition B to address the condition where one battery on one DC electrical power subsystem has float current above the limit of 2 amps, which indicates a partial discharge of the battery has occurred. The new Required Action B.1 is to perform the new SR 3.8.4.1 within 2 hours, and the new Required Action B.2 is to restore the battery float current to at or below the limit within 12 hours.

As explained in the application, a battery with a float current of greater than 2 amps 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 performed by monitoring the battery terminal voltage (i.e., performance of new 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 the battery charger is operating in the current limit mode. If the battery charger is found to be inoperable, new LCO 3.8.4 Condition A would be entered. If the battery charger is operating in the current limit mode after 2 hours, this 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 previous discharge, and the recharge characteristic of the battery. Because the charge time can be extensive, if the battery cannot be recharged within the 12 hours allowed by new Required Action B.2, the battery must be declared inoperable. The NRC staff agrees with the licensee's statements.

The NRC staff has reviewed the new required actions and CTs for the proposed new condition of one battery with float current greater than 2 amps that are in agreement with TS 3.8.6 in

TSTF-360. The NRC staff concludes that this condition is a valid condition for LCO 3.8.6 on battery parameters not meeting limits because the proposed new SR 3.8.6.2 requires surveillance for this condition and a battery being in this condition would mean that the battery would not meet LCO 3.8.6. The new required actions are valid compensatory actions for the condition. The proposed CTs of 2 and 12 hours for the new Required Actions B.1 and B.2 are reasonable. Based on this, the NRC staff concludes that the proposed changes are acceptable.

- c. Add TS 3.8.6 Condition C, including notes, to address the condition where one battery on one DC electrical power subsystem has one or more cells with electrolyte level less than the minimum design limits. The new Required Actions C.1 to C.3 are to restore the level to above the top of the plates within 8 hours, verify no evidence of leakage within 12 hours, and restore the electrolyte level(s) to greater than or equal to the design limits within 31 days, respectively. The notes specify that Required Actions C.1 and C.2 are to be completed or apply only if the level was below the top of the plates.

For item c above, the licensee provided the following justification in its application:

With the electrolyte level in one or more cells found above the top of the battery 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 an electrolyte level not met. Within 31 days, the minimum established design limits for electrolyte level must be restored in order to restore its margin.

With electrolyte level below the top of the plates a potential exists for dryout and plate degradation. TS 3.8.6 Required Actions C.1 and C.2 restore the level and ensure that the cause of the loss of electrolyte level is not due to a leak in the battery casing. These actions are only required if the electrolyte level in one or more cells is found below the top of the battery plates.

Additionally, the battery monitoring and maintenance program described in proposed new TS 5.5.17 will require actions, consistent with IEEE Standard 450-1995, to equalize and test battery cells that have been discovered with an electrolyte level below the minimum established design limit.

The NRC staff has reviewed the required actions and CTs for the proposed new condition of one battery with one or more cells with electrolyte level less than minimum established design limits. These proposed TS changes are in agreement with TS 3.8.6 in TSTF-360. The NRC staff concludes that this condition is valid for LCO 3.8.6 on battery parameters not meeting limits because the proposed new SR 3.8.6.3 requires surveillance for this condition and a battery in this condition would mean that the battery would not meet LCO 3.8.6. The new required actions are valid compensatory actions for the condition. The proposed CTs of 8 hours, 12 hours, and 31 days for the new Required Actions C.1, C.2, and C.3 are reasonable. Based on this, the NRC staff concludes that the proposed changes are acceptable.

The licensee explained in the application that the new Condition C, required actions, and CTs are the same as TSTF-360 except that the phrase "on one train" in TSTF-360 was not included in the proposed Condition C because one battery is the equivalent to one battery on one

subsystem (or train) in the DCPD design. The NRC staff agrees with this difference in the application of TSTF-360 to the TSs.

- d. Add TS 3.8.6 Condition D to address the condition where one battery on one DC electric power subsystem has the pilot cell electrolyte temperature less than the design limits. The required action is to restore the temperature to greater than or equal to the design limits within 12 hours.

The licensee stated in its application that a low electrolyte temperature limits the current and power available from the battery; however, 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 not being met, and the proposed 12 hours provides a reasonable time to restore the temperature within established design limits. The NRC staff agrees with the statements made by the licensee.

The NRC staff has reviewed the new required actions and CTs for the proposed new condition of one battery with pilot cell temperature less than design limits that are in agreement with TS 3.8.6 in TSTF-360. The NRC staff concludes that this condition is a valid condition for LCO 3.8.6 on battery parameters not meeting limits because the proposed new SR 3.8.6.4 requires surveillance for this condition and a battery in this condition would mean that the battery would not meet LCO 3.8.6. The new required action is a valid compensatory action for the condition and the proposed CT of 12 hours for the new Required Action D.1 is reasonable. Based on this, the NRC staff concludes that the proposed changes are acceptable.

The licensee explained in its application that the new Condition D, required actions, and CTs are the same as TSTF-360 except that the phrase "on one train" in TSTF-360 was not included in the proposed Condition D because one battery is the equivalent to one battery on one subsystem (or train) in the DCPD design. The NRC staff agrees with this difference in the application of TSTF-360 to the TSs.

- e. Add TS 3.8.6 Condition E to address the condition where two or more batteries in redundant DC electric power subsystems have battery parameters not within limits. The required action is restore the battery parameters for one battery to within limits within 2 hours.

The licensee stated in its application that, 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. With redundant DC electrical power subsystems batteries involved, this potentially could result in a total loss of function on multiple systems that rely upon the batteries. The longer CTs specified for battery parameters when only one DC electrical power subsystem has a battery with parameters not within limits are therefore not appropriate, and the parameters must be restored to within limits in at least one DC electrical power subsystem within 2 hours. The NRC staff agrees with the licensee's statements.

The NRC staff has reviewed the new required actions and CTs for the proposed new condition of one or more batteries have battery parameters not within limits that are in agreement with TS 3.8.6 in TSTF-360. The NRC staff concludes that this condition is a valid condition for

LCO 3.8.6 on battery parameters not meeting limits because in the DCPD design, two or more batteries might not be within limits. The new required action is a valid compensatory action for the condition and the proposed CT of 12 hours for the new Required Action E.1 is reasonable. Based on this, the NRC staff concludes that the proposed changes are acceptable.

- f. Delete current TS 3.8.6 Condition A, revise current TS 3.8.6 Condition B but not the required action or CT, and re-number current TS 3.8.6 Condition B to be TS 3.8.6 Condition F.

The current TS 3.8.6 Condition A on one or more batteries is being replaced by the five new conditions proposed by the licensee and addressed above in Items a to e above. Current Condition A is on batteries not meeting parameter limits in TS Table 3.8.6-1. Because this condition has been replaced by the five parameter limits in the new TS 3.8.6 Conditions A through E addressed above, the NRC staff concludes that this proposed change is acceptable.

The licensee stated in its application that the new TS 3.8.6 Condition F revises current TS 3.8.6 Condition B to address the case where required actions for the new TS 3.8.6 Conditions A, B, C, D, or E cannot be met. Given this condition, sufficient capacity to supply the maximum expected load requirement is not assured and the corresponding battery must be declared inoperable. Additionally, upon discovering one battery with one or more battery cell(s) 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 its intended function and the corresponding battery must be declared inoperable immediately.

The NRC staff agrees with the above statements made by the licensee. In addition, because the requirements on electrolyte temperature and Category C limits in TS Table 3.8.6-1 are being relocated from the TSs or to the new TS 5.5.17, as addressed in Section 3.5 of this SE, the current TS 3.8.6 Condition B does not have to address the conditions of these battery parameters not being met. Based on this, the NRC staff concludes that the proposed revision of current TS 3.8.6 Condition B and the re-numbering of the condition to be TS 3.8.6 Condition F is acceptable.

- g. Replace current SR 3.8.6.1 to 3.8.6.3 by the new SRs 3.8.6.1 to 3.8.6.5 to verify battery float current, pilot cell voltage, cell electrolyte level, pilot cell electrolyte temperature, connected cell voltage are within limits, respectively. The STIs are 7 days, 31 days, 31 days, 31 days, and 92 days, respectively.

The current SRs 3.8.6.1 to 3.8.6.3 are in terms of the Category A and B limits and the cell electrolyte temperature that are being relocated from the TSs as discussed in Section 3.5 of this SE. The new TS 3.8.6 Conditions A to D require SRs that will determine if a battery is in that condition or not. The licensee has proposed the new SRs 3.8.6.1 to 3.8.6.5.

For the new TS 3.8.6 Condition B, the licensee has proposed the new SR 3.8.6.1 from TSTF-360 requiring a surveillance to verify battery float current is less than or equal to 2 amps every 7 days. The licensee stated that the new SR 3.8.6.1 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 necessary 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. The use of float current to determine the state-of-charge of the battery and the 7-day frequency is consistent with TSTF-360. The proposed STI of 7 days is the minimum STI specified for the current SRs 3.8.6.1 to 3.8.6.3. Based on this, the NRC staff concludes that the proposed addition of a new SR 3.8.6.1 is acceptable

For the new TS 3.8.6 Condition A, the licensee has proposed the new SRs 3.8.6.2 and 3.8.6.5 from TSTF-360. The licensee stated in its application that the new SRs 3.8.6.2 and 3.8.6.5 verify that the float voltages of pilot cells and of all connected cells, respectively, are equal to or greater than the short term absolute minimum voltage of 2.07 V, 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 a minimum established float voltage, which is established and controlled in accordance with the proposed battery monitoring and maintenance program specified in TS Section 5.5.17. The battery monitoring and maintenance program will provide necessary actions if the battery is found at a float voltage less than the minimum established float voltage but greater than the short term absolute minimum voltage of 2.07 V. The frequency for cell voltage verification, every 31 days for pilot cells and 92 days for each connected cell, is consistent with IEEE 450-1995. Based on this, the NRC staff concludes that the new SRs 3.8.6.2 and 3.8.6.5 are acceptable.

For the new TS 3.8.6 Condition C, the licensee has proposed the new SR 3.8.6.3 from TSTF-360. The licensee stated in its application that SR 3.8.6.3 verifies the connected cell electrolyte level of each battery to be greater than or equal to minimum established design limits established in the proposed battery monitoring and maintenance program provided in TS 5.5.17. Operation of the batteries at electrolyte levels greater than the minimum established design limit ensures that the plates will not suffer physical damage and will continue to maintain adequate electron transfer capability. The STI of 31 days is consistent with IEEE 450-1995. Based on this, the NRC staff concludes that the new SR 3.8.6.3 is acceptable.

For the new TS 3.8.6 Condition D, the licensee has proposed the new SR 3.8.6.4 from TSTF-360. The licensee stated in its application that new SR 3.8.6.4 verifies the temperature of each battery pilot cell to be greater than or equal to the minimum established design limits established in the proposed battery monitoring and maintenance program provided in TS 5.5.17. Maintaining the electrolyte temperature above this level ensures that the battery can provide the current and voltage necessary to meet the design loads, since temperatures lower than assumed in the battery sizing calculations act to inhibit or reduce the overall battery capacity. The STI of 31 days is consistent with IEEE 450-1995. Based on this, the NRC staff concludes that the new SR 3.8.6.4 is acceptable.

3.7 Enhancement of TS Bases for the Proposed Changes

For item 7 above, the licensee has a TS Bases control program in TS 5.5.14, "Technical Specification (TS) Bases Control Program," which provides the means for the licensee to change the TS Bases without prior NRC approval. Because of this program in TS 5.5.14, the NRC does not approve changes to the DCPD TS Bases unless certain criteria are satisfied (not the case here); however, the staff has reviewed the TS Bases changes identified by the licensee in its application and has no disagreement with the changes.

3.8 Elimination of "Once per 60 Months" in TSTF-360

The licensee stated that this part of TSTF-360 was not proposed because it has already been approved for DCPD in Amendment No. 135 that was issued on May 28, 1999.

3.9 Relocation of SR 3.8.4.8 to TS 3.8.6

The proposed change is to relocate current SR 3.8.4.8 to TS 3.8.6 and re-number it as the new SR 3.8.6.6. The current SR 3.8.4.8 is to verify battery capacity to be greater than or equal to 80 percent of the manufacturer's rating when subjected to a performance discharge test or modified performance discharge test. The requirements and STI in the SR are not being changed by this amendment. Therefore, the licensee stated that the proposed change is an administrative change to have this SR in TS 3.8.6 because this SR defines operability requirements of the batteries in the DC electrical power subsystem and TS 3.8.6 specifies the acceptable battery parameters for battery operability. Based on this, the NRC staff concludes that the proposed relocation and re-numbering of current SR 3.8.4.8 to SR 3.8.6.6 is acceptable.

3.10 Deletion of Word "Cell" in LCO 3.8.6

The licensee stated that the proposed deletion of the word "cell" in two places in LCO 3.8.6 is editorial in that (1) TS 3.8.6 is to specify the operability requirements of the batteries in the DC electrical power subsystem and not the requirements on the battery cells, and (2) TS Table 3.8.6-1 is to be deleted (see Section 3.5 of this SE). With the deletion of the table, the reference to the table in LCO 3.8.6 will also be deleted. TS Table 3.8.6-1 is a listing of the battery "cell" parameter requirements.

As the licensee stated in its application, LCO 3.8.6 is intended to require operability and define the operability requirements of the DC electrical power subsystem batteries. The LCO is not limited to battery cell parameters or performance and the deletion of the word "cell" is editorial in that it does not change any requirements in the TSs. The NRC staff concludes that the proposed deletion of the word "cell" in two places from LCO 3.8.6 is acceptable.

The licensee is also proposing to delete the reference to TS Table 3.8.6-1 in LCO 3.8.6. This is addressed in Section 3.5 of this SE in that the Category A, B, and C limits and footnotes are being relocated to license-controlled programs outside the TSs or to TS 5.5.17. Because the NRC staff has concluded that these relocations are acceptable in Section 3.5 of this SE, it further concludes that nothing remains in TS Table 3.8.6-1 and, therefore, the table can be deleted from the TSs and the reference to the table can be deleted from LCO 3.8.6.

3.11 Addition of Program to TS 5.5

The licensee has proposed to add a program in the new TS 5.5.17 to the administrative controls section of the TSs. This was addressed in the licensee's Change 5.e on new TS administrative controls with actions for battery cell voltage and electrolyte level in Enclosure 1 of its application. This new TS program is for the maintenance and monitoring of the batteries in the DC electrical power subsystems consistent with the recommendations of IEEE 450-1995, or of the battery manufacturer. This program has the required compensatory actions in current

TS 3.8.6 Condition A for battery cell float voltage and electrolyte level not within limits. Based on this, the NRC staff concludes that the proposed TS 5.5.17 is acceptable.

The licensee stated that this program is the same as the program in TSTF-360 except for the following two deviations:

1. Substituting the phrase "the top of the plates" in paragraph b for the phrase "the minimum established design limit" in the TSTF, and
2. Deletion of the year 1995 in the reference to IEEE 450 in the TSTF so that the standard is stated in TS 5.5.17 without the reference to the version or year.

For Deviation 1 above, the licensee has proposed that the current TS 3.8.6 Condition A required actions related to cell voltage and electrolyte level be incorporated in a new administrative controls program, TS 5.5.17, "Battery Monitoring and Maintenance Program." This is the program in TSTF-360 for monitoring and maintaining the safety-related Class 1E batteries. The licensee stated that this program is based on the recommendations of IEEE 450-1995, and includes actions to (1) restore battery cells with float voltage less than 2.13 V, and (2) equalize and test battery cells that had been discovered with electrolyte level below the top of the plates. The licensee further stated that this will provide for better control of these requirements, assure that each battery is maintained at acceptable levels of performance, allow flexibility to monitor and control these limits to values directly related to the battery's ability to perform its assumed function, and allow the TSs to focus on parameter value degradations that approach levels that may impact battery operability.

Because the proposed TS 5.5.17 is the program that encompasses the current TS 3.8.6 Condition A required actions on cell voltage and electrolyte level and since the program is stated to be based on IEEE 450-1995, the NRC staff concludes that the proposed TS 5.5.17 program is acceptable in this regard.

For the proposed TS 5.5.17 program, the licensee adopted the program in TSTF-360 except that it substituted the phrase "the top of the plates" for the phrase "minimum established design limits" in TS 5.5.17.b. This substitution was proposed by the licensee to have Paragraph b of the new TS 5.5.17 consistent with IEEE Standard 450-1995, Annex D, Section D.1. The licensee stated that the recommended actions of IEEE 450-1995 include that an equalizing charge be performed if electrolyte level is below the top of the plates, while the minimum established design limit is a level which is above the top of the plates. The underlining was added. The licensee, therefore, included the reference to the "top of the plate" in the actions for the electrolyte level in the proposed program. Based on this, the NRC staff concludes that the substitution of the phrase is acceptable.

For Deviation 2 above, the licensee proposed to list IEEE 450 in TS 5.5.17 without the year "1995" in the reference to the standard. The licensee stated that it is committed to IEEE 450-1995 as documented in the TS Bases. There is a reference to this standard in the TS Bases for both TS 3.8.4 and 3.8.6. Therefore, because the standard is listed with the year 1995 in the appropriate TS Bases and changes to the TS Bases are evaluated in accordance with TS 5.5.14 (which incorporates the provisions of 10 CFR 50.59) as to whether NRC approval is needed or not for the changes, there is adequate control over changes to the

applicable IEEE 450 standard. The licensee concludes that there is no need to have the year 1995 also listed in TS 5.5.17. The NRC staff agrees that IEEE 450-1995 is appropriately referenced in the TS Bases for DC electric power systems, that changes to TS Bases would be evaluated under TS 5.5.14 with respect to the criteria in 10 CFR 50.59 for determining whether the licensee may make changes without NRC approval, and that this control is sufficient to manage changes to the IEEE 450 standard. Therefore, the NRC staff concludes that the proposed deletion of the year 1995 from the reference to the IEEE 450 standard in TS 5.5.17 is acceptable.

3.12 Deviations to TSTF-360

In proposing to adopt in part TSTF-360, the licensee identified the following 12 deviations from TSTF-360 in Enclosure 6 to its application:

1. The proposed CT for TS 3.8.4 Required Action A.2 is "12 hours" instead of the "Once per 12 hours" in the TSTF.

This required action is for an inoperable battery charger. The licensee explained that for a battery with float current > 2 amps (Required Action A.2) the battery charger is inoperable under new TS 3.8.6 Condition B and the battery float current must be restored to less than or equal to 2 amps within 12 hours or the associated battery is declared inoperable immediately. Declaring the associated battery inoperable would require entry into new TS 3.8.4 Condition B and the battery would have to be restored to operable status within 2 hours, or the plant would have to be in Mode 3 in 6 hours and Mode 5 in 36 hours under the new TS 3.8.4 Condition E. Based on this, the licensee stated that if the TS 3.8.4 Required Action A.2 was not met, the float current would be restored to less than or equal to 2 amps within 14 hours or a plant shutdown would be initiated. The licensee concluded that a CT of 12 hours was the same, and more appropriate, than a CT of "once per 12 hours" because "once per" implies the required action would be performed at least twice meaning the battery float current could be verified above 2 amps for more than the 14 hours allowed by the TSs.

2. The proposed CT for TS 3.8.4 Required Action A.3 is "14 days" instead of "7 days" in the TSTF.

The licensee stated that it retained the 14 days that is in the current TS 3.8.4 Required Action B.1 to restore a full capacity charger. The proposed TS 3.8.4 Required Action A.3 and the current TS 3.8.4 Required Action B.1 are both to restore the full capacity charger to operable status.

3. Existing TS 3.8.4 Condition B for more than full capacity charger receiving power simultaneously from a single 480 V vital bus is retained, and re-numbered as new TS 3.8.4 Condition D.

The proposed revision of current TS 3.8.4 Condition B is addressed in Section 3.1 of this SE, and accepted by the NRC staff.

4. The time period in new SR 3.8.4.2 for verifying the battery charger test duration is the 4-hour time period specified in the current SR 3.8.4.6 instead of the value in the TSTF.

The licensee stated that it retained the 4-hour period to test the battery charger in the current SR 3.8.4.6.

5. The new SRs 3.8.4.2 and 3.8.4.3 retain the STI in the current SRs 3.8.4.6 and 3.8.4.7.

The licensee stated that it retained the 24 months in the current SRs as the STI for the new SRs 3.8.4.2 and 3.8.4.3.

6. The elimination of "Once per 60 Months" in Note 1 to SR 3.8.4.7 is not proposed.

This is addressed in Section 3.8 of this SE and accepted by the NRC staff.

7. The changes to TS 3.8.5 Conditions are not proposed for the amendments.

The licensee explained in its application that these changes in the TSTF are not applicable to DCPD and, therefore, did not include them in the proposed amendments.

8. Eliminating the phrase "on one train" in the TSTF in new TS 3.8.4 Condition A and new TS 3.8.6 Conditions A, B, C, and D.

These are addressed for each TS condition in Sections 3.1 and 3.5 of this SE. The NRC staff found other TS conditions not identified by the licensee in Enclosure 6 of its application where the same deviation to the TSTF was made.

9. The phrase "affected cell(s)" was added to new TS 3.8.6 Required Actions C.1 and C.3.

The licensee stated that the phrase was added for clarification. It is the restoration of the electrolyte level of the affected cell(s) that is required in Required Actions C.1 and C.3.

10. New TS 3.8.6 Condition E was written as "two or more batteries" instead of "one or more batteries in redundant trains" in the TSTF.

The licensee explained that use of "two or more batteries" reflects the plant-specific design of three Class 1E batteries and one battery per DC electrical power subsystem.

11. Remove the reference to version year in IEEE-450 in TS 5.5.17.

This is addressed in Section 3.11 of this SE and accepted by the NRC staff.

12. Replacing the phrase "below the minimum established design limit" in the new TS 5.5.17 program by the phrase "below the top of the plates."

This is addressed in Section 3.11 of this SE and accepted by the NRC staff.

Based on the discussions in Sections 3.1, 3.8, and 3.11 of the SE or on the licensee's statements given above for why the deviation was made to the TSTF, the NRC staff concludes that the above deviations from TSTF-360 are acceptable.

3.13 Conclusions

Because the licensee has made no changes to the design of its Class 1E DC electric power system in these amendments, the NRC staff concludes that this system continues to meet GDC 17 and GDC 18.

In the review of the licensee's implementation of the TSs in TSTF-360 that are addressed in Sections 3.1 through 3.12, the NRC staff has concluded that the proposed changes to the LCOs, LCO conditions, required actions, CTs, and SRs to TSs 3.8.4, 3.8.5, and 3.8.6 are acceptable. Based on this, the NRC staff further concludes that the proposed amendments meet 10 CFR 50.36 in that the LCOs, required actions, and SRs for the Class 1E DC electric power system provide assurance that the system will perform its required safety functions as described in the accident analyses in Chapter 15 of the DCPP FSAR Update.

Based on the above conclusions, the NRC staff further concludes that the proposed amendments are acceptable. The relocations of TS requirements from the TSs to licensee-controlled programs and the TS Bases will be completed during the implementation of the amendments.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding (68 FR 52236). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

Attachments: Table 1 – List of Changes to the DCPD Technical Specifications
Table 2 – Relocation of DCPD TS Requirements

Principal Contributors: Saba Saba
Matthew McConnell
Tommy Le
Jack Donohew

Date: September 20, 2004

TABLE 1

LIST OF CHANGES TO THE DCPD TECHNICAL SPECIFICATIONS

Change Number ¹	SE Section ²	Change Category ³	TS Section	TSTF-360 ⁴	Description of the change
1.	3.1	1	3.8.4	Yes	Add Condition A with required actions and CTs.
2.	3.1	1		Yes	Add Condition B with a required action and CT.
3.	3.1	1		Yes	Re-number current Conditions A to C, and the required actions, but the required actions and CTs are not changed.
4.	3.1	1		Yes	Revise current Condition A for one DC electrical power system inoperable.
5.	3.1	1		No	Revise current Condition B by deleting the second part of the condition.
6.	3.5 (item e)	5		Yes	Revise current SR 3.8.4.1 to change the surveillance acceptance criteria, and relocate battery terminal voltage limit to TS Bases.
7.	3.2	2		Yes	Relocate current SRs 3.8.4.2 through 3.8.4.5.
8.	3.9	9		Yes	Relocate current SR 3.8.4.8 to TS 3.8.6 to be re-numbered as SR 3.8.6.6.
9.	3.2	2		Yes	Re-number current SRs 3.8.4.6 and 3.8.4.7.
10.	3.3 and 3.5	3, 5		Yes	Revise the surveillance criteria in current SR 3.8.4.6 and relocate the limit on voltage provided by each battery charger, but the STI is not changed.
11.	3.2	2		Yes	Revise Note 1 in current SR 3.8.4.7, including listing the re-numbered SR 3.8.4.3 and SR 3.8.6.6.

Change Number ¹	SE Section ²	Change Category ³	TS Section	TSTF-360 ⁴	Description of the change
12.	3.2	2	3.8.5	Yes	Revise the list of TS 3.8.4 SRs that are in current SR 3.8.5.1.
13.	3.10	10	3.8.6	Yes	Delete the word "cell" from the phrase "Battery Cell Parameters" in the title of LCO 3.8.6.
14.	3.10	10		Yes	Revise LCO 3.8.6 by deleting the word "cell" and the reference to Table 3.8.6-1.
15.	3.6 (item a)	6	3.8.6	Yes	Add Condition A with required actions and CTs.
16.	3.6 (item b)	4, 6		Yes	Add Condition B with required actions and CTs.
17.	3.6 (item c)	6		Yes	Add Condition C with required actions and CTs.
18.	3.6 (item d)	6		Yes	Add Condition D with a required action and CT.
19.	3.6 (item e)	6		Yes	Add Condition E with a required action and CT.
20.	3.6 (item f)	6		Yes	Delete current Condition A with the required actions and CTs.
21.	3.6 (item f)	6		Yes	Re-number current Condition B and the required action, but the specified required action and CT are not changed.
22.	3.6 (item f)	6		Yes	Revise current Condition B.
23.	3.6 (item g)	4, 5, 6		Yes	Delete current SRs 3.8.6.1 to 3.8.6.3, and add new SRs 3.8.6.1 to 3.8.6.5.
24.	3.9	9		Yes	Relocate SR 3.8.4.8 to be SR 3.8.6.6.
25.	3.4, 3.5, 3.6 and 3.10	4, 5, 6, 10		Yes	Relocate requirements from Table 3.8.6-1, and delete table.

Change Number ¹	SE Section ²	Change Category ³	TS Section	TSTF-360 ⁴	Description of the change
26.	3.11	11	5.5	Yes	Add TS 5.5.17 on the battery monitoring and maintenance program.
27.	3.11	11		No	Have the reference to IEEE 450 in new TS 5.5.17 not include the revision year.

Notes:

- 1 = The TS changes are listed in the order of the changes shown in the marked-up TS pages in Enclosure 2 of the licensee's application.
- 2 = The section in this safety evaluation that addresses the TS change.
- 3 = The licensee's change categories are listed in SE Section 3.0. In some cases, the change is discussed in the application in more than one category. Each change category is addressed in Section 3.[change category number] of the SE. For example, Category 3 changes are addressed in Section 3.3 of the SE.
- 4 = Yes, if the TS change is in NRC-approved TSTF-360, Revision 1.

TABLE 2

RELOCATION OF DCPD TS REQUIREMENTS

The page number in the description of the change refers to the page number in Enclosure 1 to the application that addresses the licensee-controlled program where

Change Number	Description of TS Requirement to be Relocated (as identified on the following page in Enclosure 1 of the application)	Relocated to Following Licensee-Controlled Program (as identified in Enclosure 1)
6	Battery terminal voltage limit in current SR 3.8.4.1. (page 4)	TS Bases.
7	Current SRs 3.8.4.2 to 3.8.4.5. (pages 4, 17)	Licensee-controlled programs based on IEEE 450 practices.
8	Current SR 3.8.4.8. (page 4)	TSs, with the SR re-numbered to be SR 3.8.6.6.
10	Limit on voltage provided by battery charger in current SR 3.8.4.6. (page 4)	TS Bases.
25	Current TS Table 3.8.6-1 Category A and B limits for cell electrolyte level and float voltage. (pages 6, 18)	Licensee-controlled programs based on IEEE 450-1995 and under the control of 10 CFR 50.59.
25	Current Table 3.8.6-1 Category C limit on electrolyte level. (pages 6, 19)	Licensee-controlled programs based on IEEE 450-1995 and under the control of 10 CFR 50.59.
25	Current TS 3.8.4 Condition B and current SR 3.8.6.3 limit on pilot cell electrolyte temperature. (pages 6, 19)	Licensee-controlled programs based on IEEE 450-1995 and under the control of 10 CFR 50.59.
25	Current TS Table 3.8.6-1 Category C limit on the minimum battery charging float voltage. (pages 6, 19)	TS Bases.
25	The required compensatory actions in current TS 3.8.6 Condition A for battery cell float voltage and electrolyte level not being within limits. (pages 6, 20)	New TS 5.5.17 program.