



10 CFR 50.90

Palo Verde Nuclear
Generating Station

David Mauldin
Vice President
Nuclear Engineering
and Support

TEL (623) 393-5553
FAX (623) 393-6077

Mail Station 7605
P.O. Box 52034
Phoenix, AZ 85072-2034

102-05223-CDM/SAB/RKR
March 4, 2005

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

Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
Docket Nos. STN 50-528, 50-529, and 50-530
Request for Amendment to Facility Operating Licenses NPF-41,
NPF-51 and NPF-74 to License Condition 2.F (2.G in Unit 3) and
Request for Amendment to Technical Specifications:
1.4, "Frequency,"
2.1.1, "Reactor Core SLs,"
3.1.10, "Special Test Exceptions (STE) – MODES 1 and 2,"
3.3.1, "Reactor Protective System (RPS)
Instrumentation - Operating,"
3.4.3, "RCS Pressure and Temperature (P/T) Limits,"
3.7.2, "Main Steam Isolation Valves (MSIVs),"
3.7.3, "Main Feedwater Isolation Valves (MFIVs),"
3.8.1, "AC Sources – Operating,"
3.8.4, "DC Sources – Operating,"
3.8.6, "Battery Cell Parameters," and
5.5.9, "Steam Generator (SG) Tube Surveillance Program"**

Pursuant to 10 CFR 50.90, Arizona Public Service Company (APS) hereby requests an amendment to Facility Operating Licenses NPF-41, NPF-51 and NPF-74 to License Condition 2.F (2.G in Unit 3) and to Technical Specifications Sections 1.4, "Frequency," 2.1.1, "Reactor Core SLs," 3.1.10, "Special Test Exceptions (STE) – MODES 1 and 2," 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating," 3.4.3, "RCS Pressure and Temperature (P/T) Limits," 3.7.2, "Main Steam Isolation Valves (MSIVs)," 3.7.3, "Main Feedwater Isolation Valves (MFIVs)," 3.8.1, "AC Sources – Operating," 3.8.4, "DC Sources – Operating," 3.8.6, "Battery Cell Parameters," and 5.5.9, "Steam Generator (SG) Tube Surveillance Program." The proposed changes are considered administrative and/or editorial.

A member of the **STARS** (Strategic Teaming and Resource Sharing) Alliance

Callaway • Comanche Peak • Diablo Canyon • Palo Verde • South Texas Project • Wolf Creek

ADD 1

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Request for Amendment to Operating License and Technical Specifications
Page 2

The following changes are being proposed:

- License Condition 2.F (2.G in Unit 3) is being deleted. The reporting requirements in this License Condition are also governed by 10 CFR 50.72 and 50.73.
- TSs 1.4 and 3.4.3 are being changed to correct editorial errors.
- TSs 2.1.1 and 3.3.1 are being changed to remove the reference to departure from nucleate boiling ratios (DNBR) based on operating cycle, since only one of the listed DNBR values is now valid.
- TS 3.1.10 is being changed to correct an inconsistency between the limiting condition for operation and the TS Bases.
- TS 3.7.2 and 3.7.3 are being changed to correct the applicability for these specifications.
- A note is being added to a surveillance requirement in TS 3.8.1.
- TS 3.8.4 and 3.8.6 are being changed to remove the reference to AT&T batteries.
- TS 5.5.9 is being changed to correct the reference for NRC notification.

Enclosure 2 provides a detailed description of the proposed changes. Attachment 1 provides the existing TS pages marked up to show the proposed change. Attachment 2 provides revised (clean) TS pages. Associated TS Bases changes, provided for information in Attachment 3, would be implemented at the same time as the approved amendment.

The deletion of License Condition 2.F (2.G in Unit 3) in this License Amendment Request (LAR) is similar to changes approved by the NRC for Fermi 2, on May 16, 2003, Comanche Peak Steam Electric Station, Units 1 and 2 on May 15, 2003, Wolf Creek Generating Station, on September 24, 2001, and South Texas Project, Units 1 and 2 on August 16, 2001.

Arizona Public Service Company (APS) is submitting the change to License Condition 2.F (2.G in Unit 3) of this LAR in conjunction with an industry consortium of six stations as a result of a mutual agreement known as Strategic Teaming and Resource Sharing (STARS). The STARS group consists of the six stations operated by TXU Generation Company LP, Union Electric Company, Wolf Creek Nuclear Operating Corporation, Pacific Gas and Electric Company, STP Nuclear Operating Company, and Arizona Public Service Company. The change has been approved by the NRC for Wolf Creek Nuclear Operating Corporation, STP Nuclear Operating Company, and TXU Generation Company LP. Due to differences between the STARS plants, there may be some differences in the plant LARs, particularly for the information provided in Enclosure 2.

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Request for Amendment to Operating License and Technical Specifications
Page 3

Based on the responses to the three criteria provided for determining whether a significant hazard consideration exists as stated in 10 CFR 50.92, APS has concluded that the proposed amendment involves no significant hazard consideration.

In accordance with the PVNGS Quality Assurance Program, the Plant Review Board and the Offsite Safety Review Committee have reviewed and concurred with this proposed amendment. By copy of this letter, this submittal is being forwarded to the Arizona Radiation Regulatory Agency (ARRA) pursuant to 10CFR 50.91(b)(1).

The changes proposed in this LAR are not required to address an immediate safety concern. APS requests the LAR be made effective upon NRC issuance, to be implemented within 60 days from the date of issuance.

No commitments are being made to the NRC by this letter. If you have any questions, please contact Thomas N. Weber at (623) 393-5764.

Sincerely,



CDM/SAB/RKR/kg

Enclosures:

1. Notarized affidavit
2. Licensee's evaluation of the proposed change

Attachments:

1. Proposed Operating License and Technical Specification Changes (mark-up)
2. Proposed Technical Specification pages (retyped)
3. Changes to TS Bases Pages (For Information Only)

cc:	B. S. Mallett	NRC Region IV Regional Administrator
	M. B. Fields	NRC NRR Project Manager
	G. G. Warnick	NRC Senior Resident Inspector for PVNGS
	J. N. Donohew	NRC
	A. V. Godwin	Arizona Radiation Regulatory Agency (ARRA)

ENCLOSURE 1

AFFIDAVIT

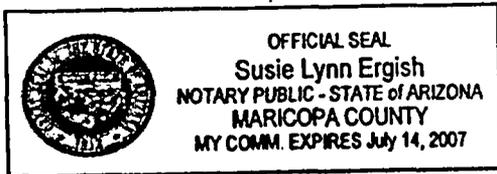
STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, David Mauldin, represent that I am Vice President Nuclear Engineering and Support, Arizona Public Service Company (APS), that the foregoing document has been signed by me on behalf of APS with full authority to do so, and that to the best of my knowledge and belief, the statements made therein are true and correct.

David Mauldin
David Mauldin

Sworn To Before Me This 4th Day Of March, 2005.

Susie Lynn Ergish
Notary Public



Notary Commission Stamp

ENCLOSURE 2

ARIZONA PUBLIC SERVICE COMPANY'S EVALUATION

Subject: Request for Amendment to Facility Operating Licenses NPF-41, NPF-51 and NPF-74 to License Condition 2.F (2.G in Unit 3) and Request for Amendment to Technical Specifications:
1.4, "Frequency,"
2.1.1, "Reactor Core SLs,"
3.1.10, "Special Test Exceptions (STE)—MODES 1 and 2,"
3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating,"
3.4.3, "RCS Pressure and Temperature (P/T) Limits,"
3.7.2, "Main Steam Isolation Valves (MSIVs),"
3.7.3, "Main Feedwater Isolation Valves (MFIVs),"
3.8.1, "AC Sources – Operating,"
3.8.4, "DC Sources – Operating,"
3.8.6, "Battery Cell Parameters," and
5.5.9, "Steam Generator (SG) Tube Surveillance Program"

1. DESCRIPTION
2. PROPOSED CHANGE
3. BACKGROUND
4. TECHNICAL ANALYSIS
5. REGULATORY ANALYSIS
 - 5.1 No Significant Hazards Consideration
 - 5.2 Applicable Regulatory Requirements/Criteria
6. ENVIRONMENTAL CONSIDERATION
7. PRECEDENT
8. REFERENCES

1.0 DESCRIPTION

This letter is a request from Arizona Public Service Company (APS) to amend Operating Licenses NPF-41, NPF-51, and NPF-74 for Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2, and 3, respectively.

The proposed changes would revise Facility Operating License Condition 2.F (2.G in Unit 3) and to Technical Specifications (TS) Sections 1.4, "Frequency," 2.1.1, "Reactor Core SLs," 3.1.10, "Special Test Exceptions (STE)—MODES 1 and 2," 3.3.1, "Reactor Protective System (RPS) Instrumentation - Operating," 3.4.3, "RCS Pressure and Temperature (P/T) Limits," 3.7.2, "Main Steam Isolation Valves (MSIVs)," 3.7.3, "Main Feedwater Isolation Valves (MFIVs)," 3.8.1, "AC Sources – Operating," 3.8.4, "DC Sources – Operating," 3.8.6, "Battery Cell Parameters," and 5.5.9, "Steam Generator (SG) Tube Surveillance Program." The proposed changes are considered administrative and/or editorial. License Condition 2.F (2.G in Unit 3) is being deleted. The reporting requirements in this License Condition are also governed by 10 CFR 50.72 and 50.73. The changes to TSs 1.4 and 3.4.3 correct editorial errors. The changes to TSs 2.1.1 and 3.3.1 remove the reference to departure from nucleate boiling ratios (DNBR) based on operating cycle, since only one of the listed DNBR values is now valid. The changes to TS 3.7.2 and 3.7.3 correct the applicability for these specifications. The change to TS 3.8.1 adds a note to a surveillance requirement. The changes to TS 3.8.4 and 3.8.6 remove the reference to AT&T batteries. The changes to TS 5.5.9 correct the reference for NRC notification.

2.0 PROPOSED CHANGE

The proposed change will revise:

- Operating License Condition 2.F (2.G in Unit 3)

Deleted the following License Condition:

Unit 1

2. "F Except as otherwise provided in the Technical Specifications or the Environmental Protection Plan, APS shall report any violations of the requirements contained in Section 2.C of this license in the following manner: Initial notification shall be made within 24 hours in accordance with the provisions of 10 CFR 50.72 with written follow-up within 30 days in accordance with the procedures described in 10 CFR 50.73(b), (c) and (e)."

Units 2 and 3

2. "F (G in Unit 3). Except as otherwise provided in the Technical Specifications or the Environmental Protection Plan, APS shall report any violations of the requirements contained in Section 2.C of this license in the following manner: Initial notification shall be made within 24 hours to the NRC Operations Center via the Emergency Notification System with written follow-up within 30 days in accordance with the procedures described in 10 CFR 50.73(b), (c) and (e);"

- Technical Specification 1.4

Added line and "continued" at the bottom of the page.

- Technical Specification 2.1.1

Deleted "≥ 1.3 (through operating cycle 10)" and "(operating cycle 11 and later)" from 2.1.1.1.

- Technical Specification 3.1.10

Added additional limiting condition for operation (LCO) provision "and b. Shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion" and new surveillance requirement "SR 3.1.10.2 Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition" with a two hour frequency. Change in format also added item a labeling to first item.

- Technical Specification 3.3.1

Deleted "≥ 1.3 (through operating cycle 10)" and "(operating cycle 11 and later)" from Tables 3.3.1-1, Function 15.

- Technical Specification 3.4.3

Added "/HR" Heatup Rate of "75°F" in Table 3.4.3-1.

- Technical Specification 3.7.2

Revised applicability for this specification from "MODES 2, 3, and 4 except when all MSIVs are closed" to "MODES 2, 3, and 4 except when all MSIVs are closed *and deactivated.*"

- Technical Specification 3.7.3

Revised applicability for this specification from "MODES 1, 2, 3, and 4 except when MFIV is closed or isolated by a closed power operated valve" to "MODES 1, 2, 3, and 4 except when MFIV is closed *and deactivated* or isolated by a closed *and deactivated* power operated valve."

- Technical Specification 3.8.1

Added the following note to surveillance requirement (SR) 3.8.1.2:

"4. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error."

- Technical Specification 3.8.4

1. Revised SR 3.8.4.1 from "Verify battery terminal voltage is ≥ 129 V on float charge (low specific gravity cells) or ≥ 131 V on float charge (AT&T)" to "Verify battery terminal voltage is ≥ 129 V on float charge."
2. Revised SR 3.8.4.8 from "Verify battery capacity is $\geq 80\%$ (low specific gravity cells) or $\geq 90\%$ (AT&T) of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test" to "Verify battery capacity is $\geq 80\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test."
3. Deleted the asterisk at the end of SR 3.8.4.8 and the asterisk note, "** The requirement to perform SR 3.8.4.8 for the Unit 1 batteries A, B, and C is waived until entry into MODE 4 coming out of the ninth refueling outage for Unit 1 (1R09)" at the bottom of page 3.8.4-4.

- Technical Specification 3.8.6

1. Revised the title of Table 3.8.6-1 from "(page 1 of 2) (Low Specific Gravity Cells) Battery Surveillance Requirements" to "(page 1 of 1) Battery Surveillance Requirements."
2. Deleted "Table 3.8.6-1 (page 2 of 2) (AT&T) Battery Surveillance Requirements."

- Technical Specification 5.5.9

1. Revised the requirement for NRC notification in Tables 5.5.9-2 and 5.5.9-3 from "pursuant to 10 CFR 50.72 (b)(2)" to "pursuant to 10 CFR 50.72 (b)(3)"

3.0 BACKGROUND

Operating License Condition 2.F (2.G in Unit 3)

Operating License Condition 2.F (2.G in Unit 3), provides for initial notification with written follow-up of any violations of requirements contained in Condition 2.C of the PVNGS Facility Operating Licenses. The Nuclear Regulatory Commission's requirements for immediate notification with written follow-up requirements (Licensee Event Reports) of events at operating nuclear power reactors are stated in 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors" and 10 CFR 50.73, "Licensee event report system." Thus, the requirements of PVNGS License Condition 2.F (2.G in Unit 3) are adequately governed by the requirements of 10 CFR 50.72 and 10 CFR 50.73.

Technical Specification 1.4

This is an editorial change only that maintains the format of the TS.

Technical Specification 2.1.1

Technical Specification 2.1.1 provides the safety limits for Departure from Nucleate Boiling Ratio (DNBR). As part of Amendment 133 to the PVNGS Operating License, the minimum DNBR was revised based on Unit operating cycle, " ≥ 1.30 (through operating cycle 10)" and " ≥ 1.34 (operating cycle 11 and later)." All three PVNGS units have completed operating cycle 10. Therefore, the reference to the minimum DNBR through operating cycle 10 (≥ 1.30) is no longer required.

Technical Specification 3.1.10

Technical Specification 3.1.10 permits relaxation of existing LCOs to allow the performance of certain PHYSICS TESTS. These tests are conducted to determine specific reactor core characteristics. The Bases for this specification states that "Even if an accident occurs during PHYSICS TESTS with one or more LCOs suspended, fuel damage criteria are preserved because the limits on power distribution and shutdown capability are maintained during PHYSICS TESTS." The limits on power distribution are maintained by TSs 3.2.1, "Linear Heat Rate (LHR)" and 3.2.4 "Departure from Nucleate Boiling Ratio (DNBR)." However, there are no explicit requirements maintaining shutdown capability. The change to TS 3.1.10 corrects this inconsistency. This change is also consistent with the requirements in TS 3.1.9.

Technical Specification 3.3.1

Technical Specification 3.3.1, Tables 3.3.1-1 provides the minimum trip setpoint for Departure from Nucleate Boiling Ratio (DNBR). As part of Amendment 133 to the PVNGS Operating License, the minimum DNBR was revised based on Unit operating cycle, "≥1.30 (through operating cycle 10)" and "≥1.34 (operating cycle 11 and later)." All three PVNGS units have completed operating cycle 10. Therefore, the reference to the minimum DNBR through operating cycle 10 (≥1.30) is no longer required.

Technical Specification 3.4.3

This is an editorial change only that corrects the parameter for the heatup rate.

Technical Specifications 3.7.2 and 3.7.3

Technical Specifications 3.7.2 and 3.7.3 provide the operability requirements for Main Steam Isolation Valves (MSIVs) and the Main Feedwater Isolation Valves (MFIVs), respectively. The required action for an inoperable valve requires that the valve be closed and then verified closed every 7 days. In some cases closing the valve removes the LCO required actions from the applicability for the specification. The changes to the applicability correct this conflict.

Technical Specification 3.8.1

As part of Amendment 129 to the PVNGS Operating License, a note was added to several SRs in TS 3.8.1, except SR 3.8.1.2, that verified voltage and frequency. Even though SR 3.8.1.2 verifies voltage and frequency, the note was inadvertently omitted from SR 3.8.1.2. The changes correct this inconsistency.

Technical Specifications 3.8.4 and 3.8.6

APS has replaced the AT&T batteries with low specific gravity batteries in all three units. This change removes the requirements and references to the AT&T batteries from the TS.

As part of the replacement of the AT&T batteries, PVNGS received a one-time deferral from the requirement to perform a performance discharge test on the Unit 1 AT&T batteries until startup from the ninth Unit 1 refueling outage. The AT&T batteries were replaced prior to startup from the ninth Unit 1 refueling outage. Therefore, the one-time deferral no longer applies and the note is being deleted.

Technical Specification 5.5.9

Tables 5.5.9-2 and 5.5.9-3 require NRC notification in accordance with 10 CFR 50.72 when the condition of the nuclear power plant, including its principal safety barriers, are seriously degraded (e.g., defective steam generator tubes). Prior to January 23, 2001, this requirement was in 10 CFR 50.72 (b)(2). A rule change was issued for 10 CFR 50.72 on January 23, 2001. As part of the rule change, the reporting requirement for this criteria was changed to an 8-hour non-emergency report in 10 CFR 50.72 (b)(3). Therefore, this change corrects NRC notification requirements based on the January 23, 2001 rule change to 10 CFR 50.72 (65 FR 63786, 10/25/00).

4.0 TECHNICAL ANALYSIS

Operating License Condition 2.F (2.G in Unit 3)

Operating License Condition 2.C lists requirements regarding Maximum Thermal Power Level, Technical Specifications and Environmental Protection Plan, Antitrust, and Fire Protection (Units 1 and 2 only). Condition 2.F (2.G in Unit 3) requires that PVNGS notify the NRC of violations of the conditions in Condition 2.C within 24 hours and submit a report within 30 days. However, this reporting requirement is adequately addressed by the requirements identified in 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors." and 10 CFR 50.73, "Licensee event report system." Since Condition 2.F (2.G in Unit 3) is redundant, the Condition is not required.

Operating License Condition 2.F (2.G in Unit 3) can be deleted for the following reasons:

- Deviations from the conditions regarding Maximum Thermal Power (2.C.(1)), Technical Specifications and Environmental Protection Plan (2.C.(2)), and Fire Protection (Unit 1 - 2.C.(7) and Unit 2 - 2.C.(6)) are adequately addressed by the requirements of 10 CFR 50.72 and 50.73.
- Condition 2.C.(3) regarding Antitrust is an administrative issue and has no safety significance. Consequently, it is not relevant to the proposed elimination of the reporting and notification requirements in Condition 2.F (2.G in Unit 3).

Technical Specification 1.4

This is an editorial change only that maintains the format of the TS.

Technical Specification 2.1.1

Technical Specification 2.1.1 provides the safety limits for Departure from Nucleate Boiling Ratio (DNBR). As part of Amendment 133 to the PVNGS Operating License, the minimum DNBR was revised based on Unit operating cycle, "≥1.30 (through operating cycle 10)" and "≥1.34 (operating cycle 11 and later)." All three PVNGS units have completed operating cycle 10. The DNBR based on unit operating cycle is no longer required. Therefore, the reference to the minimum DNBR through operating cycle 10 (≥1.30) is no longer required.

Technical Specification 3.1.10

Technical Specification 3.1.10 allows the suspension of existing TS LCOs to allow the performance of PHYSICS TESTS. These tests are conducted to determine specific reactor core characteristics. Technical Specification Bases 3.1.10 states that "Even if an accident occurs during PHYSICS TESTS with one or more LCOs suspended, fuel damage criteria are preserved because the limits on power distribution and shutdown capability are maintained during PHYSICS TESTS." Per TS Bases 3.1.10, the limits on power distribution are maintained by TSs 3.2.1, "Linear Heat Rate (LHR)" and 3.2.4 "Departure from Nucleate Boiling Ratio (DNBR)." NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants," 3.1.10 included the requirement to verify shutdown margin (SDM). During the conversion to the improved TS, verification of SDM in Modes 1 and 2 was removed by Technical Specification Task Force (TSTF) Standard Technical Specification Change Traveler, TSTF- 67. This resulted in TS 3.1.10 not including explicit requirements for maintaining shutdown capability. This change will ensure that shutdown capability is maintained during PHYSICS TESTS. This change is also consistent with the requirements of TS 3.1.9, "Special Test Exceptions (STE) - SHUTDOWN MARGIN (SDM)."

Technical Specification 3.3.1

Technical Specification 3.3.1, Table 3.3.1-1 provides the minimum trip setpoint for Departure from Nucleate Boiling Ratio (DNBR). As part of Amendment 133 to the PVNGS Operating License, the minimum DNBR was revised based on Unit operating cycle, "≥1.30 (through operating cycle 10)" and "≥1.34 (operating cycle 11 and later)." All three PVNGS units have completed operating cycle 10. The DNBR based on unit operating cycle is no longer required. Therefore, the reference to the minimum DNBR through operating cycle 10 (≥1.30) is no longer required.

Technical Specification 3.4.3

This is an editorial change only that corrects the parameter for the heatup rate. The heat rates in Table 3.4.3-1 are in "°F/HR." One of the heatup rates in the Table only had a parameter of "°F." This change corrects that omission.

Technical Specifications 3.7.2 and 3.7.3

The purpose of the MFIVs is to isolate Main Feedwater (MFW) flow to the secondary side of the steam generators following a High Energy Line Break (HELB). Closure of the MFIVs terminates flow to both steam generators, terminating the event for Feedwater Line Breaks (FWLBs) occurring upstream of the MFIVs. The consequences of events occurring in the main steam lines or in the MFW lines downstream of the MFIVs will be mitigated by their closure. Closure of the MFIVs effectively terminates the addition of feedwater to an affected steam generator, limiting the mass and energy release for Steam Line Breaks (SLBs) or FWLBs inside containment, and reducing the cooldown effects for SLBs.

The LCO for TS 3.7.3 states that "Four economizer MFIVs and four downcomer MFIVs shall be OPERABLE" with the applicability "MODES 1, 2, 3, and 4 except when MFIV is closed or isolated by a closed power operated valve." Condition A, "One or more MFIVs inoperable" requires that the inoperable MFIV(s) be closed or isolated within "72 hours" and verified closed or isolated "Once per 7 days." Condition B, "Two valves in the same flow path inoperable" requires that the affected flow path be isolated within "8 hours" and verify inoperable MFIV is closed or isolated "Once per 7 days." However, closing the inoperable valve removes the valve from the applicability for the LCO, removing the valve from the requirement to periodically verify that the valve is closed.

The NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants," applicability for this LCO includes the bracketed words "[and deactivated]." During the conversion to the improved TS, APS did not include the bracketed words in the applicability for this LCO. In the original PVNGS TS the requirement to close and deactivate the valves was part of the action and during the conversion it was relocated to the TS Bases.

Based on the discussion above, the requirement to deactivate the valve should have been relocated to the applicability instead of the Actions discussion in the TS Bases. Adding "and deactivated" to the applicability would correct the inconsistency between the current applicability and required action. Also, changing the applicability to exclude the MFIV when it is closed and deactivated ensures that the isolation function of the MFIV is maintained, the MFIV cannot be inadvertently opened, and, therefore, a weekly check that the MFIV is closed is not necessary.

The purpose of the MSIVs is to isolate steam flow from the secondary side of the steam generators following a HELB. MSIV closure terminates flow from the unaffected (intact)

steam generator. One MSIV is located in each main steam line outside, but close to, containment. The MSIVs are downstream from the Main Steam Safety Valves (MSSVs), atmospheric dump valves, and auxiliary feedwater pump turbine steam supplies to prevent their being isolated from the steam generators by MSIV closure. Closing the MSIVs isolates each steam generator from the other, and isolates the turbine, Steam Bypass Control System, and other auxiliary steam supplies from the steam generators.

The LCO for TS 3.7.2 states that "Four MSIVs shall be OPERABLE" with the applicability "MODE 1, MODES 2, 3, and 4 except when all MSIVs are closed." Condition C, "One or more MSIVs inoperable in MODE 2, 3, or 4" requires that the inoperable MSIV be closed within "4 hours" and verified closed "Once per 7 days." The NUREG-1432 applicability for this LCO includes the bracketed words "[and deactivated]." The original PVNGS TS only required that an inoperable MSIV be maintained closed and did not specifically require that the MSIV be deactivated. However, APS has determined that the same inconsistency described above for the MFIVs, applies to this LCO and proposes to add "and deactivated" to the applicability. This change corrects the inconsistency between the current applicability and the required action.

Therefore, this is considered an administrative change that corrects an inconsistency in TSs 3.7.2 and 3.7.3.

Technical Specification 3.8.1

Amendment 129 to the PVNGS Operating License revised the voltage and frequency limits in the SRs for TS 3.8.1, "AC Sources - Operating." As part of the change, a note was added to each of the affected SRs, except SR 3.8.1.2, stating that "The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error." However, the voltage and frequency limits were also revised in SR 3.8.1.2. This change corrects this inconsistency by adding the note to SR 3.8.1.2.

Technical Specifications 3.8.4 and 3.8.6

APS has replaced the AT&T batteries with low specific gravity batteries in all three units. This change removes the requirements and references to the AT&T batteries from the TS.

As part of the replacement of the AT&T batteries, PVNGS received a one-time deferral from the requirement to perform a performance discharge test on the Unit 1 AT&T batteries until startup from the ninth Unit 1 refueling outage. The AT&T batteries were replaced prior to startup from the ninth Unit 1 refueling outage. Therefore, the one-time deferral no longer applies and the note is being deleted.

Since AT&T batteries are no longer installed at PVNGS, these requirements are no longer applicable and are being removed from TS.

Technical Specification 5.5.9

Tables 5.5.9-2 and 5.5.9-3 require NRC notification in accordance with 10 CFR 50.72 when the condition of the nuclear power plant, including its principal safety barriers, are seriously degraded (e.g., defective steam generator tubes). Prior to January 23, 2001, this requirement was in 10 CFR 50.72 (b)(2). A rule change was issued for 10 CFR 50.72 on January 23, 2001. As part of the rule change, the reporting requirement for this criteria was changed to an 8-hour non-emergency report in 10 CFR 50.72 (b)(3). Therefore, this change corrects NRC notification requirements based on the January 23, 2001 rule change to 10 CFR 50.72 (65 FR 63786, 10/25/00).

5.0 REGULATORY ANALYSIS

5.1 No Significant Hazards Consideration

Arizona Public Service (APS) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

Response: No.

The proposed amendment includes following changes that are considered to be administrative and/or editorial changes:

The reporting requirement in License Condition 2.F (2.G in Unit 3) is adequately addressed by the requirements identified in 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors" and 10 CFR 50.73, "Licensee event report system." Since Condition 2.F (2.G in Unit 3) is adequately addressed by the requirements in 10 CFR 50.72 and 10 CFR 50.73, the Condition is not required. Therefore, this is considered an administrative change that eliminates regulatory requirements that are adequately addressed by the requirements in 10 CFR 50.72 and 10 CFR 50.73.

The changes to Technical Specifications (TS) 1.4 and 3.4.3 are editorial changes only. These changes maintain the format of the Technical Specifications and correct editorial errors in the Technical Specifications.

The changes to Technical Specifications 2.1.1 and 3.3.1 remove requirements that are no longer applicable to the Palo Verde Nuclear Generating Station (PVNGS) units. As part of Amendment 133 to the PVNGS Operating License, the minimum DNBR was revised based on Unit operating cycle, " ≥ 1.30 (through operating cycle 10)" and " ≥ 1.34 (operating cycle 11 and later)." All three PVNGS units have completed operating cycle 10. Therefore, the reference to the minimum departure from nucleate boiling ratio (DNBR) through operating cycle 10 (≥ 1.30) is no longer required.

The changes to Technical Specification 3.1.10 correct an inconsistency between the Technical Specification limiting condition for operation (LCO) and Bases. The Bases for this specification states that "Even if an accident occurs during PHYSICS TESTS with one or more LCOs suspended, fuel damage criteria are preserved because the limits on power distribution and shutdown capability are maintained during PHYSICS TESTS." The limits on power distribution are maintained by TSs 3.2.1, "Linear Heat Rate (LHR)" and 3.2.4 "Departure from Nucleate Boiling Ratio (DNBR)." These changes ensure that shutdown capability is maintained during physics tests.

The changes to Technical Specifications Section 3.7.2, "Main Steam Isolation Valves (MSIVs)" and Section 3.7.3, "Main Feedwater Isolation Valves (MFIVs)" correct an inconsistency between the applicability and the required actions. The changes are consistent with the guidance in NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants." Therefore, this is considered an administrative change that corrects an inconsistency in the Technical Specifications.

The changes to Technical Specifications Section 3.8.1, "AC Sources - Operating," correct an inconsistency in the surveillance requirements that were revised in Amendment 129 to the PVNGS Operating License. A note was not included with the change to one of the surveillance requirements. This change adds the note to the surveillance requirement. Therefore, this is considered an administrative change that corrects an inconsistency in the Technical Specifications.

The changes to Technical Specifications Section 3.8.4, "DC Sources - Operating" and Section 3.8.6, "Battery Cell Parameters" removes the requirements and references to the AT&T batteries. APS has replaced the AT&T batteries with low specific gravity batteries in all three units. Therefore, this is considered an administrative change that removes unnecessary requirements and references.

The changes to Technical Specifications Section 5.5.9, "Steam Generator (SG) Tube Surveillance Program," updates the requirement to notify the NRC based on the January 23, 2001 rule change to 10 CFR 50.72. Therefore, this change corrects NRC notification requirements in Technical Specifications, based on the January 23, 2001 rule change to 10 CFR 50.72 (65 FR 63786, 10/25/00).

As discussed above the proposed amendment involves administrative and/or editorial changes only. The proposed amendment does not impact any accident initiators, analyzed events, or assumed mitigation of accident or transient events. The proposed changes do not involve the addition or removal of any equipment or any design changes to the facility. The proposed changes do not affect plant operations, any design function or an analysis that verifies the capability of structures, systems, and components (SSCs) of the plant. The proposed changes do not change any of the previously evaluated accidents in the updated final safety analysis report (UFSAR). The proposed changes do not affect SSCs, operating procedures, and administrative controls that have the function of preventing or mitigating any of these accidents.

Therefore, the proposed changes do not represent 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

As discussed in standard 1, the proposed amendment only involves administrative and/or editorial changes. No actual plant equipment or accident analysis will be affected by the proposed changes. The proposed changes will not change the design function or operation of any SSCs. The proposed changes will not result in any new failure mechanisms, malfunctions, or accident initiators not considered in the design and licensing bases. The proposed amendment does not impact any accident initiators, analyzed events, or assumed mitigation of accident or transient events.

Therefore, this proposed change does not create the possibility of an accident of a different kind than previously evaluated.

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

Response: No

As discussed in standard 1, the proposed amendment only involves administrative and/or editorial changes. Margin of safety is associated with confidence in the ability of the fission product barriers (i.e., fuel and fuel cladding, reactor coolant system pressure boundary, and containment structure) to limit the level of radiation dose to the public. This request involves administrative and/or editorial changes only. No actual plant equipment or accident analysis will be affected by the proposed changes. Additionally, the proposed changes will not relax any criteria used to establish safety limits, will not relax any safety system settings, or will not relax the bases for any limiting conditions for operation.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Conclusion:

Based on the above, APS concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

Operating License Condition 2.F (2.G in Unit 3)

10 CFR 50.72: "Immediate notification requirements for operating nuclear power reactors." This regulatory requirement contains general requirements (section (a)), requirements for reporting non-emergency events (section (b)), and requirements for providing followup notification (section c)).

10 CFR 50.73(a) Reportable events. (1) The holder of an operating license for a nuclear power plant (licensee) shall submit a Licensee Event Report (LER) for any event of the type described in this paragraph within 60 days after the discovery of the event. In the case of an invalid actuation reported under § 50.73(a)(2)(iv), other than actuation of the reactor protection system (RPS) when the reactor is critical, the licensee may, at its option, provide a telephone notification to the NRC Operations Center within 60 days after discovery of the event instead of submitting a written LER. Unless otherwise specified in this section, the licensee shall report an event if it occurred within three years of the

date of discovery regardless of the plant mode or power level, and regardless of the significance of the structure, system, or component that initiated the event.

The proposed deletion of Operating License Condition 2.F (2.G in Unit 3) will reduce unnecessary regulatory burden, allowing APS to follow the requirements of 10 CFR 50.72 and 10 CFR 50.73.

Changes to Technical Specifications

The proposed changes to the Technical Specifications are administrative and/or editorial and do not affect any regulatory requirements/criteria.

Conclusion

Therefore, 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) Issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

APS has evaluated the proposed amendment and determined 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 amendments meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed amendment is not required.

7.0 PRECEDENT

The NRC issued License Amendment 155 for Fermi 2 on May 16, 2003, License Amendment 103 for Comanche Peak Steam Electric Station, Units 1 and 2 on May 15, 2003, License Amendment 141 for Wolf Creek Generating Station on September 24, 2001, and License Amendments 129 and 118 for South Texas Project, Units 1 and 2 on

August 16, 2001. These approved License Amendments are similar to the deletion of License Condition 2.F (2.G in Unit 3) in this License Amendment Request.

8.0 REFERENCES

1. 10 CFR 50.72, "Immediate notification requirements for operating nuclear power reactors"
2. 10 CFR 50.73, "Licensee event report system"
3. NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants," Rev. 3, June 2004
4. NRC letter dated October 4, 2000, to Gregg R. Overbeck, Arizona Public Service Company, "Palo Verde Nuclear Generating Station, Units 1, 2, and 3 – Issuance of Amendments on Diesel Generator Steady-State Voltage and Frequency (TAC Nos. MA9214, MA9215, and MA9216)" Amendment No. 129
5. NRC letter dated March 28, 2001, to Gregg R. Overbeck, Arizona Public Service Company, "Palo Verde Nuclear Generating Station, Units 1, 2, and 3 – Issuance of Amendments to Changing the Minimum Departure of the Nucleate Boiling Ratio (TAC Nos. MB0745, MB0746, and MB0747)" Amendment No. 133
6. NRC letter dated May 16, 2003, to William T. O'Connor, Jr., Detroit Edison Company, "Fermi 2 - Issuance of Amendment RE: Deletion of Three Obsolete License Conditions and the Reporting Requirements in the Operating License (TAC No. MB5170)" Amendment No. 155
7. NRC letter dated May 15, 2003, to C. Lance Terry., TXU Energy, "Comanche Peak Steam Electric Station (CPSES), Units 1 and 2 Issuance of Amendments RE: Deletion of Unnecessary License Conditions and Reporting Requirements (TAC Nos. MB5770 and MB5771)" Amendment No. 103
8. NRC letter dated September 24, 2001, to Otto L. Maynard, Wolf Creek Nuclear Operating Corporation, "Wolf Creek Generating Station – Issuance of Amendment Regarding Deletion of License Conditions and Revision to Steam Generator Tube Inspection Table 5.5.9-2 (TAC No. MB1611)" Amendment No. 141
9. NRC letter dated August 16, 2001, to William T. Cottle, STP Nuclear Operating Company, "South Texas Project, Units 1 and 2 – Issuance of Amendments on Reporting Requirements (TAC Nos. MB1057 and MB1058)" Amendment Nos. 129 and 118

**Proposed Operating License
and Technical Specification Changes (mark-up)**

UNR 1

Deleted

- F. ~~Except as otherwise provided in the Technical Specifications or the Environmental Protection Plan, APS shall report any violations of the requirements contained in Section 2.C of this license in the following manner: Initial notification shall be made within 24 hours in accordance with the provisions of 10 CFR 50.72 with written follow-up within 30 days in accordance with the procedures described in 10 CFR 50.73(b), (c) and (e);~~
- G. The licenses shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims; and
- H. This license is effective as of the date of issuance and shall expire at midnight on June 01, 2025.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By

Harold R. Denton, Director
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Attachment 1 - [Requirements for Initial Mode 1 Entry] - Deleted
- 2. Attachment 2 - [Operating Staff Experience Requirements] - Deleted
- 3. Attachment 3 - [Emergency Response Capabilities] - Deleted
- 4. Appendix A -
Technical Specifications
- 5. Appendix B -
Environmental Protection Plan
- 6. Appendix C -
Antitrust Conditions
- 7. Appendix D - [Additional Conditions] - Deleted

Date of Issuance: June 1, 1985

Unit 2 OL

-7-

(9) Additional Conditions

Deleted

D. (1) APS has previously been granted an exemption from Paragraph III.D.2(b)(ii) of Appendix J to 10 CFR Part 50. This exemption was previously granted in Facility Operating License NPF-46 pursuant to 10 CFR 50.12.

(2) Deleted

With the granting of these exemptions, the facility will operate, to the extent authorized herein, in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission.

E. The licensees shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Palo Verde Nuclear Station Security Plan, Training and Qualification Plan, Safeguards Contingency Plan and Independent Spent Fuel Storage Installation Security Program Revision 0," submitted by letter dated October 22, 2004.

F. ~~Except as otherwise provided in the Technical Specifications or the Environmental Protection Plan, APS shall report any violations of the requirements contained in Section 2.C of this license in the following manner: initial notification shall be made within 24 hours to the NRC Operations Center via the Emergency Notification System with written follow-up within 30 days in accordance with the procedures described in 10 CFR 50.73(b), (c) and (e);~~

Deleted

**THIS DOCUMENT HAS BEEN REVIEWED
AND DETERMINED TO NOT CONTAIN
SAFEGUARDS INFORMATION**

Amendment No. 403, 408, 428
Revised by letter dated October 28, 2004

SG ADMIN

Rgn

DATE 11/5/04

- F. APS shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety analysis Report for the facility, as supplemented and amended, and as approved in the SER through Supplement 11, subject to the following provision:

APS may make changes to the approved fire protection program without approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

- G. ~~Except as otherwise provided in the Technical Specifications or the Environmental Protection Plan, APS shall report any violations of the requirements contained in Section 2.C of this license in the following manner: Initial notification shall be made within 24 hours to the NRC Operations Center via the Emergency Notification System, with written follow-up within 30 days in accordance with the procedures described in 10 CFR 50.73(b), (c) and (e);~~

Deleted

- H. The licensees shall have and maintain financial protection of such type and in such amounts as the Commission shall require in accordance with Section 170 of the Atomic Energy Act of 1954, as amended, to cover public liability claims; and
- I. This license is effective as of the date of issuance and shall expire at midnight on November 25, 2027.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed By

Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Attachments:

- 1. [Requirements for Initial Mode 1 Entry] - Deleted
- 2. Appendix A -
 Technical Specifications
- 3. Appendix B -
 Environmental Protection Plan
- 4. Appendix C -
 Antitrust Conditions
- 5. Appendix D -
 [Additional Conditions] - Deleted

Date of Issuance: November 25, 1987

**THIS DOCUMENT HAS BEEN REVIEWED
AND DETERMINED TO NOT CONTAIN
SAFEGUARDS INFORMATION**

SG ADMIN *Ryan* DATE 11/8/04

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE The purpose of this section is to define the proper use and application of Frequency requirements.

DESCRIPTION Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

EXAMPLES The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

Add ↓

(continued)

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, Departure from Nucleate Boiling Ratio (DNBR) shall be maintained, ~~as follows:~~

~~≥ 1.3 through operating cycle 10)~~

~~at ≥ 1.34 operating cycle 11 and later)~~

2.1.1.2 In MODES 1 and 2, the peak fuel centerline temperature shall be maintained $< 5080^{\circ}\text{F}$ (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-382-P-A).

2.1.2 Reactor Coolant System (RCS) Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained at ≤ 2750 psia.

2.2 SL Violations

2.2.1 If SL 2.1.1.1 or SL 2.1.1.2 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

2.2.3 Within 1 hour, notify the NRC Operations Center, in accordance with 10 CFR 50.72.

2.2.4 Within 24 hours, notify the Director, Operations and the Senior Vice President, Nuclear.

(continued)

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 Special Test Exceptions (STE) - MODES 1 and 2

LCO 3.1.10 During performance of PHYSICS TESTS, the requirements of:

- LCO 3.1.4, "Moderator Temperature Coefficient (MTC)";
- LCO 3.1.5, "Control Element Assembly (CEA) Alignment";
- LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits";
- LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits";
- LCO 3.1.8, "Part Length or Part Strength CEA Insertion Limits";
- LCO 3.2.2, "Planar Radial Peaking Factors (Fxy)";
- LCO 3.2.3, "AZIMUTHAL POWER TILT (Tq)";
- LCO 3.2.5, "AXIAL SHAPE INDEX (ASI)"; and
- LCO 3.3.3, "Control Element Assembly Calculators (CEACs)"

INSERT → may be suspended, provided THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP.

APPLICABILITY: MODES 1 and 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Test power plateau exceeded.	A.1 Reduce THERMAL POWER to less than or equal to the test power plateau.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

Insert Page
Technical Specification 3.1.10
LCO

Insert

provided:

- a. THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP: and
- b. Shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.10.1 Verify THERMAL POWER equal to or less than the test power plateau.	1 hour

INSERT

Technical Specification 3.1.10 Surveillance Requirements

Insert

SR 3.1.10.2 Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.

2 hours

RPS Instrumentation – Operating (Before CPC Upgrade)
3.3.1

Table 3.3.1-1 (page 3 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Local Power Density – High(b)	1.2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≤ 21.0 kw/ft
15. Departure From Nucleate Boiling Ratio (DNBR) – Low(b)	1.2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> ≥ 1.3 (through operating cycle 10) </div> <div style="border: 1px solid black; padding: 2px; display: inline-block;"> ≥ 1.34 (operating cycle 11 and later) </div>

(b) Trip may be bypassed when logarithmic power is $< 1E-4\%$ NRTP. Bypass shall be automatically removed when logarithmic power is $\geq 1E-4\%$ NRTP.

RPS Instrumentation – Operating (After CPC Upgrade)
3.3.1

Table 3.3.1-1 (page 3 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Local Power Density – High ^(b)	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≤ 21.0 kW/ft
15. Departure From Nucleate Boiling Ratio (DNBR) – Low ^(b)	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> ≥ 1.3 (through operating cycle 10) </div> <div style="border: 1px solid black; padding: 2px; display: inline-block;"> ≥ 1.34 (operating cycle 11 and later) </div>

(b) Trip may be bypassed when logarithmic power is < 1E-4% NRTP. Bypass shall be automatically removed when logarithmic power is ≥ 1E-4% NRTP.

TABLE 3.4.3-1
Maximum Allowable Heatup and Cooldown Rates

<8 Effective Full Power Years

Heatup		Cooldown	
T_c^x (°F)	Rate (°F/HR)	T_c^x (°F)	Rate (°F/HR)
< 128°F	20°F/HR	≤ 93°F	See Figure 3.4.3-3
128°F - 180°F	30°F/HR	94°F - 114°F	10°F/HR
181° - 230°F	50°F/HR	115°F - 148°F	20°F/HR
> 230°F	75°F/HR	> 148°F	100°F/HR

8-32 Effective Full Power Years

Heatup		Cooldown	
T_c^x (°F)	Rate (°F/HR)	T_c^x (°F)	Rate (°F/HR)
< 116°F	10°F/HR	≤ 108°F	See Figure 3.4.3-4
117°F - 150°F	20°F/HR	109° - 126°F	10°F/HR
151° - 199°F	30°F/HR	127°F - 147°F	20°F/HR
200°F - 246°F	50°F/HR	148°F - 162°F	40°F/HR
> 246°F	75°F	>162°F	100°F/HR

* Indicated Cold Leg Temperature

HR

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LCO 3.7.2 Four MSIVs shall be OPERABLE.

and deactivated

APPLICABILITY: MODE 1,
MODES 2, 3, and 4 except when all MSIVs are closed.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	4 hours
B. Required Action and Associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. -----NOTE----- Separate Condition entry is allowed for each MSIV. ----- One or more MSIVs inoperable in MODE 2, 3, or 4.	C.1 Close MSIV. <u>AND</u> C.2 Verify MSIV is closed.	4 hours Once per 7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs)

LCO 3.7.3 Four economizer MFIVs and four downcomer MFIVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4 except when MFIV is closed or isolated by a closed power operated valve.

and deactivated

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each penetration flow path.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs inoperable.	A.1 Close or isolate inoperable MFIV.	72 hours
	<u>AND</u> A.2 Verify inoperable MFIV is closed or isolated.	Once per 7 days
B. Two valves in the same flow path inoperable.	B.1 Isolate affected flow path.	8 hours
	<u>AND</u> B.2 Verify inoperable MFIV is closed or isolated.	Once per 7 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	7 days
SR 3.8.1.2	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Performance of SR 3.8.1.7 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. <p>-----</p> <p>Verify each DG starts from standby condition and achieves steady state voltage ≥ 4000 V and ≤ 4377.2 V, and frequency ≥ 59.7 Hz and ≤ 60.7 Hz.</p>	31 days

(continued)

4. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.4.1 Verify battery terminal voltage is ≥ 129 V on float charge (low specific gravity cells) or ≥ 131 V on float charge (AT&T).	7 days
SR 3.8.4.2 Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance is $\leq 150E-6$ ohms for inter-cell connections. $\leq 150E-6$ ohms for inter-rack connections. $\leq 150E-6$ ohms for inter-tier connections. and $\leq 150E-6$ ohms for terminal connections.	92 days
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.	18 months
SR 3.8.4.4 Remove visible terminal corrosion and verify battery cell to cell and terminal connections are clean, and are coated with anti-corrosion material.	18 months
SR 3.8.4.5 Verify battery connection resistance is $\leq 150E-6$ ohms for inter-cell connections. $\leq 150E-6$ ohms for inter-rack connections. $\leq 150E-6$ ohms for inter-tier connections. and $\leq 150E-6$ ohms for terminal connections.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.8</p> <p>-----NOTE----- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. -----</p> <p>Verify battery capacity is $\geq 80\%$ (low specific/gravity cells) or $\geq 90\%$ (AT&T) of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test. ⊗</p>	<p>60 months</p> <p><u>AND</u></p> <p>12 months when battery shows degradation or has reached 85% of the expected life with capacity < 100% of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached 85% of the expected life with capacity $\geq 100\%$ of manufacturer's rating</p>

* The requirement to perform SR 3.8.4/8 for the Unit 1 batteries A, B, and C is waived until entry into MODE 4 coming out of the ninth refueling outage for Unit 1 (1R09).

Table 3.8.6-1 (page 1 of 2) (Low Specific Gravity Cells)
Battery Surveillance Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark; and $\leq \frac{1}{4}$ inch above maximum level indication mark(a)	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V(d)	> 2.07 V
Specific Gravity(b)(c)	≥ 1.200	≥ 1.195 <u>AND</u> Average of all connected cells ≥ 1.205	Not more than 0.020 below average connected cells <u>AND</u> Average of all connected cells ≥ 1.195

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.
- (b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.
- (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.
- (d) Corrected for average electrolyte temperature.

Table 3.8.6-1 (page 2 of 2) (AT&T)
Battery Surveillance Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark(a)	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.18 V	≥ 2.18 V(d)	> 2.14 V
Specific Gravity(b)(c)	≥ 1.290	≥ 1.280 <u>AND</u> Average of all connected cells ≥ 1.290	Not more than 0.020 below average connected cells <u>AND</u> Average of all connected cells ≥ 1.280

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.
- (b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.
- (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.
- (d) Corrected for average electrolyte temperature.

TABLE 5.5.9-2
STEAM GENERATOR TUBE INSPECTION

1ST SAMPLE INSPECTION			2ND SAMPLE INSPECTION		3RD SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G	C-1	None	N.A.	N.A.	N.A.	N.A.
	C-2	Plug or repair defective tubes and inspect additional 2S tubes in this S.G.	C-1	None	N.A.	N.A.
			C-2	Plug or repair defective tubes and inspect additional 4S tubes in this S.G.	C-1	None
			C-2	Plug or repair defective tubes and inspect additional 4S tubes in this S.G.	C-2	Plug or repair defective tubes
			C-3	Perform action for C-3 result of first sample	C-3	Perform action for C-3 result of first sample
	C-3	Perform action for C-3 result of first sample	N.A.	N.A.	N.A.	N.A.
	C-3	Inspect all tubes in this S.G., plug or repair defective tubes and inspect 2S tubes in each other S.G. Notification to NRC pursuant to 10 CFR 50.72 (b)(7) 3	All other S.G.s are C-1	None	N.A.	N.A.
			Some S.G.s C-2 but no additional S.G. are C-3	Perform action for C-2 result of second sample	N.A.	N.A.
			Additional S.G. is C-3	Inspect all tubes in each S.G. and plug or repair defective tubes. Notification to NRC pursuant to 10 CFR 50.72 (b)(7) 3	N.A.	N.A.

$S = 3 \frac{N}{n} \%$ Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection.

TABLE 5.5.9-3
STEAM GENERATOR SLEEVE INSPECTION

1ST SAMPLE INSPECTION			2ND SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required
A minimum of 20% of the sleeves per S.G.	C-1	None	N.A.	N.A.
	C-2	Plug tubes containing defective sleeves and inspect all remaining installed sleeves in this S.G.	C-1	None
			C-2	Plug tubes containing defective sleeves
			C-3	Perform action for C-3 result of first sample
	C-3	Inspect all installed sleeves in this S.G., plug tubes containing defective sleeves and inspect 100% of the installed sleeves in the other S.G. Notification to NRC pursuant to 10 CFR 50.72 (b)(3)	Other S.G. is C-1	None
			Other S.G. is C-2	Plug tubes containing defective sleeves
			Other S.G. is C-3	Inspect all sleeves in each S.G. and plug tubes containing defective sleeves. Notification to NRC pursuant to 10 CFR 50.72(b)(3)

Proposed Technical Specification Changes (retyped)

1.0 USE AND APPLICATION

1.4 Frequency

PURPOSE The purpose of this section is to define the proper use and application of Frequency requirements.

DESCRIPTION Each Surveillance Requirement (SR) has a specified Frequency in which the Surveillance must be met in order to meet the associated LCO. An understanding of the correct application of the specified Frequency is necessary for compliance with the SR.

The "specified Frequency" is referred to throughout this section and each of the Specifications of Section 3.0, Surveillance Requirement (SR) Applicability. The "specified Frequency" consists of the requirements of the Frequency column of each SR, as well as certain Notes in the Surveillance column that modify performance requirements.

Situations where a Surveillance could be required (i.e., its Frequency could expire), but where it is not possible or not desired that it be performed until sometime after the associated LCO is within its Applicability, represent potential SR 3.0.4 conflicts. To avoid these conflicts, the SR (i.e., the Surveillance or the Frequency) is stated such that it is only "required" when it can be and should be performed. With an SR satisfied, SR 3.0.4 imposes no restriction.

EXAMPLES The following examples illustrate the various ways that Frequencies are specified. In these examples, the Applicability of the LCO (LCO not shown) is MODES 1, 2, and 3.

(continued)

2.0 SLs

2.0 SAFETY LIMITS (SLs)

2.1 SLs

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, Departure from Nucleate Boiling Ratio (DNBR) shall be maintained at ≥ 1.34 .

2.1.1.2 In MODES 1 and 2, the peak fuel centerline temperature shall be maintained $< 5080^{\circ}\text{F}$ (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-382-P-A).

2.1.2 Reactor Coolant System (RCS) Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained at ≤ 2750 psia.

2.2 SL Violations

2.2.1 If SL 2.1.1.1 or SL 2.1.1.2 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

2.2.3 Within 1 hour, notify the NRC Operations Center, in accordance with 10 CFR 50.72.

2.2.4 Within 24 hours, notify the Director, Operations and the Senior Vice President, Nuclear.

(continued)

3.1 REACTIVITY CONTROL SYSTEMS

3.1.10 Special Test Exceptions (STE) – MODES 1 and 2

LCO 3.1.10 During performance of PHYSICS TESTS, the requirements of:

- LCO 3.1.4. "Moderator Temperature Coefficient (MTC)";
- LCO 3.1.5. "Control Element Assembly (CEA) Alignment";
- LCO 3.1.6. "Shutdown Control Element Assembly (CEA) Insertion Limits";
- LCO 3.1.7. "Regulating Control Element Assembly (CEA) Insertion Limits";
- LCO 3.1.8. "Part Length or Part Strength CEA Insertion Limits";
- LCO 3.2.2. "Planar Radial Peaking Factors (Fxy)";
- LCO 3.2.3. "AZIMUTHAL POWER TILT (Tq)";
- LCO 3.2.5. "AXIAL SHAPE INDEX (ASI)"; and
- LCO 3.3.3. "Control Element Assembly Calculators (CEACs)"

may be suspended, provided:

- a. THERMAL POWER is restricted to the test power plateau, which shall not exceed 85% RTP; and
- b. Shutdown reactivity equivalent to at least the highest estimated CEA worth (of those CEAs actually withdrawn) is available for trip insertion.

APPLICABILITY: MODES 1 and 2 during PHYSICS TESTS.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Test power plateau exceeded.	A.1 Reduce THERMAL POWER to less than or equal to the test power plateau.	15 minutes
B. Required Action and associated Completion Time not met.	B.1 Suspend PHYSICS TESTS.	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.10.1 Verify THERMAL POWER equal to or less than the test power plateau.	1 hour
SR 3.1.10.2 Verify that the position of each CEA not fully inserted is within the acceptance criteria for available negative reactivity addition.	2 hours

RPS Instrumentation – Operating (Before CPC Upgrade)
3.3.1

Table 3.3.1-1 (page 3 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Local Power Density – High ^(b)	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≤ 21.0 kW/ft
15. Departure From Nucleate Boiling Ratio (DNBR) – Low ^(b)	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≥ 1.34

(b) Trip may be bypassed when logarithmic power is < 1E-4% NRTP. Bypass shall be automatically removed when logarithmic power is ≥ 1E-4% NRTP.

RPS Instrumentation – Operating (After CPC Upgrade)
3.3.1

Table 3.3.1-1 (page 3 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
14. Local Power Density – High(b)	1.2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≤ 21.0 kW/ft
15. Departure From Nucleate Boiling Ratio (DNBR) – Low(b)	1.2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13	≥ 1.34

(b) Trip may be bypassed when logarithmic power is < 1E-4% NRTP. Bypass shall be automatically removed when logarithmic power is ≥ 1E-4% NRTP.

TABLE 3.4.3-1
Maximum Allowable Heatup and Cooldown Rates

<8 Effective Full Power Years

Heatup		Cooldown	
T_c^x (°F)	Rate (°F/HR)	T_c^x (°F)	Rate (°F/HR)
< 128°F	20°F/HR	≤ 93°F	See Figure 3.4.3-3
128°F - 180°F	30°F/HR	94°F - 114°F	10°F/HR
181° - 230°F	50°F/HR	115°F - 148°F	20°F/HR
> 230°F	75°F/HR	> 148°F	100°F/HR

8-32 Effective Full Power Years

Heatup		Cooldown	
T_c^x (°F)	Rate (°F/HR)	T_c^x (°F)	Rate (°F/HR)
< 116°F	10°F/HR	≤ 108°F	See Figure 3.4.3-4
117°F - 150°F	20°F/HR	109° - 126°F	10°F/HR
151° - 199°F	30°F/HR	127°F - 147°F	20°F/HR
200°F - 246°F	50°F/HR	148°F - 162°F	40°F/HR
> 246°F	75°F/HR	>162°F	100°F/HR

* Indicated Cold Leg Temperature

3.7 PLANT SYSTEMS

3.7.2 Main Steam Isolation Valves (MSIVs)

LC0 3.7.2 Four MSIVs shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2, 3, and 4 except when all MSIVs are closed and
deactivated.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One MSIV inoperable in MODE 1.	A.1 Restore MSIV to OPERABLE status.	4 hours
B. Required Action and Associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours
C. -----NOTE----- Separate Condition entry is allowed for each MSIV. ----- One or more MSIVs inoperable in MODE 2, 3, or 4.	C.1 Close MSIV. <u>AND</u> C.2 Verify MSIV is closed.	4 hours Once per 7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Be in MODE 3. <u>AND</u> D.2 Be in MODE 5.	6 hours 36 hours

3.7 PLANT SYSTEMS

3.7.3 Main Feedwater Isolation Valves (MFIVs)

LCO 3.7.3 Four economizer MFIVs and four downcomer MFIVs shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4 except when MFIV is closed and deactivated or isolated by a closed and deactivated power operated valve.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each penetration flow path.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more MFIVs inoperable.	A.1 Close or isolate inoperable MFIV.	72 hours
	<u>AND</u> A.2 Verify inoperable MFIV is closed or isolated.	Once per 7 days
B. Two valves in the same flow path inoperable.	B.1 Isolate affected flow path.	8 hours
	<u>AND</u> B.2 Verify inoperable MFIV is closed or isolated.	Once per 7 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each required offsite circuit.	7 days
SR 3.8.1.2	<p>-----NOTES-----</p> <ol style="list-style-type: none"> 1. Performance of SR 3.8.1.7 satisfies this SR. 2. All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading. 3. A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met. 4. The steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument error. <p>-----</p> <p>Verify each DG starts from standby condition and achieves steady state voltage ≥ 4000 V and ≤ 4377.2 V, and frequency ≥ 59.7 Hz and ≤ 60.7 Hz.</p>	31 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ≥ 129 V on float charge.	7 days
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. <u>OR</u> Verify battery connection resistance is $\leq 150E-6$ ohms for inter-cell connections. $\leq 150E-6$ ohms for inter-rack connections. $\leq 150E-6$ ohms for inter-tier connections. and $\leq 150E-6$ ohms for terminal connections.	92 days
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.	18 months
SR 3.8.4.4	Remove visible terminal corrosion and verify battery cell to cell and terminal connections are clean, and are coated with anti-corrosion material.	18 months
SR 3.8.4.5	Verify battery connection resistance is $\leq 150E-6$ ohms for inter-cell connections. $\leq 150E-6$ ohms for inter-rack connections. $\leq 150E-6$ ohms for inter-tier connections. and $\leq 150E-6$ ohms for terminal connections.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.4.8 -----NOTE----- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. -----</p> <p>Verify battery capacity is $\geq 80\%$ of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.</p>	<p>60 months</p> <p><u>AND</u></p> <p>12 months when battery shows degradation or has reached 85% of the expected life with capacity $< 100\%$ of manufacturer's rating</p> <p><u>AND</u></p> <p>24 months when battery has reached 85% of the expected life with capacity $\geq 100\%$ of manufacturer's rating</p>

Table 3.8.6-1 (page 1 of 1)
Battery Surveillance Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark(a)	> Minimum level indication mark, and $\leq \frac{1}{4}$ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V(d)	> 2.07 V
Specific Gravity(b)(c)	≥ 1.200	≥ 1.195 <u>AND</u> Average of all connected cells ≥ 1.205	Not more than 0.020 below average connected cells <u>AND</u> Average of all connected cells ≥ 1.195

- (a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.
- (b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.
- (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.
- (d) Corrected for average electrolyte temperature.

TABLE 5.5.9-2
STEAM GENERATOR TUBE INSPECTION

1ST SAMPLE INSPECTION			2ND SAMPLE INSPECTION		3RD SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required	Result	Action Required
A minimum of S Tubes per S.G	C-1	None	N.A.	N.A.	N.A.	N.A.
	C-2	Plug or repair defective tubes and inspect additional 2S tubes in this S.G.	C-1	None	N.A.	N.A.
			C-2	Plug or repair defective tubes and inspect additional 4S tubes in this S.G.	C-1	None
			C-2	Plug or repair defective tubes and inspect additional 4S tubes in this S.G.	C-2	Plug or repair defective tubes
			C-3	Perform action for C-3 result of first sample	C-3	Perform action for C-3 result of first sample
	C-3	Perform action for C-3 result of first sample	N.A.	N.A.	N.A.	N.A.
	C-3	Inspect all tubes in this S.G., plug or repair defective tubes and inspect 2S tubes in each other S.G. Notification to NRC pursuant to 10 CFR 50.72 (b)(3)	All other S.G.s are C-1	None	N.A.	N.A.
			Some S.G.s C-2 but no additional S.G. are C-3	Perform action for C-2 result of second sample	N.A.	N.A.
			Additional S.G. is C-3	Inspect all tubes in each S.G. and plug or repair defective tubes. Notification to NRC pursuant to 10 CFR 50.72 (b)(3)	N.A.	N.A.

$S = 3 \frac{N}{n} \%$ Where N is the number of steam generators in the unit, and n is the number of steam generators inspected during an inspection.

TABLE 5.5.9-3
STEAM GENERATOR SLEEVE INSPECTION

1ST SAMPLE INSPECTION			2ND SAMPLE INSPECTION	
Sample Size	Result	Action Required	Result	Action Required
A minimum of 20% of the sleeves per S.G.	C-1	None	N.A.	N.A.
	C-2	Plug tubes containing defective sleeves and inspect all remaining installed sleeves in this S.G.	C-1	None
			C-2	Plug tubes containing defective sleeves
			C-3	Perform action for C-3 result of first sample
	C-3	Inspect all installed sleeves in this S.G., plug tubes containing defective sleeves and inspect 100% of the installed sleeves in the other S.G. Notification to NRC pursuant to 10 CFR 50.72 (b)(3)	Other S.G. is C-1	None
			Other S.G. is C-2	Plug tubes containing defective sleeves
			Other S.G. is C-3	Inspect all sleeves in each S.G. and plug tubes containing defective sleeves. Notification to NRC pursuant to 10 CFR 50.72(b)(3)

**Changes to Technical Specification Bases Pages
(For Information Only)**

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

- h. Log Power Level – High trip;
- i. Reactor Coolant Flow – Low trip; and
- j. Steam Generator Safety Valves.

The limitation that the average enthalpy in the hot leg be less than or equal to the enthalpy of saturated liquid also ensures that the ΔT measured by instrumentation used in the protection system design as a measure of the core power is proportional to core power.

The SL represents a design requirement for establishing the protection system trip setpoints identified previously. LCO 3.2.1, "Linear Heat Rate (LHR)," and LCO 3.2.4, "Departure From Nucleate Boiling Ratio (DNBR)," or the assumed initial conditions of the safety analyses (as indicated in the UFSAR, Ref. 2) provide more restrictive limits to ensure that the SLs are not exceeded.

SAFETY LIMITS

SL 2.1.1.1 and SL 2.1.1.2 ensure that the minimum DNBR is not less than the safety analyses limit and that fuel centerline temperature remains below melting.

The minimum value of the DNBR during normal operation and design basis AOOs is limited to ~~1.3~~ (this value will be 1.34 for operating cycles 11 and later), based on a statistical combination of CE-1 CHF correlation and engineering factor uncertainties, and is established as an SL. Additional factors such as rod bow and spacer grid size and placement will determine the limiting safety system settings required to ensure that the SL is maintained. Maintaining the dynamically adjusted peak LHR to ≤ 21 kW/ft or peak fuel centerline temperature $< 5080^\circ\text{F}$ (decreasing by 58°F per 10,000 MWD/MTU for burnup and adjusting for burnable poisons per CENPD-382-P-A), ensures that fuel centerline melt will not occur during normal operating conditions or design AOOs.

The design melting point of new fuel with no burnable poison is 5080°F . The melting point is adjusted downward from this temperature depending on the amount of burnup and amount and type of burnable poison in the fuel. The 58°F per 10,000 MWD/MTU adjustment for burnup was accepted by the NRC in

(continued)

BASES

APPLICABLE
SAFETY ANALYSES
(continued)

PHYSICS TESTS meet the criteria for inclusion in the Technical Specifications, since the component and process variable LCOs suspended during PHYSICS TESTS meet Criteria 1, 2, and 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

This LCO permits individual CEAs to be positioned outside of their normal group heights and insertion limits during the performance of PHYSICS TESTS, such as those required to:

- a. Measure CEA worth;
- b. Determine the reactor stability index and damping factor under xenon oscillation conditions;
- c. Determine power distributions for nonnormal CEA configurations;
- d. Measure rod shadowing factors; and
- e. Measure temperature and power coefficients.

Additionally, it permits the center CEA to be misaligned during PHYSICS TESTS required to determine the isothermal temperature coefficient (ITC), MTC, and power coefficient.

The requirements of LCO 3.1.4, LCO 3.1.5, LCO 3.1.6, LCO 3.1.7, LCO 3.1.8, LCO 3.2.2, LCO 3.2.3, LCO 3.2.5 and LCO 3.3.3, may be suspended during the performance of PHYSICS TESTS provided THERMAL POWER is restricted to test power plateau, which shall not exceed 85% RTP.

APPLICABILITY

This LCO is applicable in MODES 1 and 2 because the reactor must be critical at various THERMAL POWER levels to perform the PHYSICS TESTS described in the LCO section. Limiting the test power plateau to $\leq 85\%$ RTP ensures that LHRs are maintained within acceptable limits.

and that a minimum amount of CEA worth is immediately available for reactivity control.

(continued)

BASES (continued)

ACTIONS

A.1

If THERMAL POWER exceeds the test power plateau in MODE 1, THERMAL POWER must be reduced to restore the additional thermal margin provided by the reduction. The 15 minute Completion Time ensures that prompt action shall be taken to reduce THERMAL POWER to within acceptable limits.

B.1 and B.2

If Required Action A.1 cannot be completed within the required Completion Time, PHYSICS TESTS must be suspended within 1 hour. Allowing 1 hour for suspending PHYSICS TESTS allows the operator sufficient time to change any abnormal CEA configuration back to within the limits of LCO 3.1.5, LCO 3.1.6, and LCO 3.1.7. Suspension of PHYSICS TESTS exceptions requires restoration of each of the applicable LCOs to within specification.

SURVEILLANCE
REQUIREMENTS

SR 3.1.10.1

Verifying that THERMAL POWER is equal to or less than that allowed by the test power plateau, as specified in the PHYSICS TEST procedure and required by the safety analysis, ensures that adequate LHR and departure from nucleate boiling ratio margins are maintained while LCOs are suspended. The 1 hour Frequency is sufficient, based upon the slow rate of power change and increased operational controls in place during PHYSICS TESTS. Monitoring LHR ensures that the limits are not exceeded.

INSERT →

(continued)

Technical Specification Bases

3.1.10 Surveillance Requirements

Insert

SR 3.1.10.2

Verification of the position of each partially or fully withdrawn full strength, part length, or part strength CEA is necessary to ensure that the minimum negative reactivity requirements for insertion on a trip are preserved. A 2 hour Frequency is sufficient for the operator to verify that each CEA position is within the acceptance criteria.

and deactivated

BASES (continued)

APPLICABILITY

The MSIVs must be OPERABLE in MODE 1 and in MODES 2, 3 and 4 except when all MSIVs are closed when there is significant mass and energy in the RCS and steam generators. When the MSIVs are closed, they are already performing their safety function.

In MODES 5 and 6, the steam generators do not contain much energy because their temperature is below the boiling point of water; therefore, the MSIVs are not required for isolation of potential high energy secondary system pipe breaks in these MODES.

ACTIONS

A.1 and A.2

With one MSIV inoperable in MODE 1, time is allowed to restore the component to OPERABLE status. Some repairs can be made to the MSIV with the unit hot. The 4 hour Completion Time is reasonable, considering the probability of an accident occurring during the time period that would require closure of the MSIVs.

The 4 hour Completion Time is consistent with that normally allowed for containment isolation valves that isolate a closed system penetrating containment. These valves differ from other containment isolation valves in that the closed system provides an additional means for containment isolation.

(continued)

BASES

APPLICABILITY

The MFIVs must be OPERABLE whenever there is significant mass and energy in the Reactor Coolant System and steam generators. This ensures that, in the event of an HELB, a single failure cannot result in the blowdown of more than one steam generator.

and deactivated

In MODES 1, 2, 3, and 4, the MFIVs are required to be OPERABLE, except when they are closed or isolated by a deactivated and closed power operated valve, in order to limit the amount of available fluid that could be added to containment in the case of a secondary system pipe break inside containment. When the valves are closed or isolated by a closed power operated valve, they are already performing their safety function.

In MODES 5 and 6, steam generator energy is low. Therefore, the MFIVs are not required.

ACTIONS

The ACTIONS table is modified by a Note indicating that separate Condition entry is allowed for each penetration flow path:

A.1 and A.2

With one MFIV inoperable, action must be taken to close or isolate, ~~and deactivate~~ the inoperable valves within 72 hours. When these valves are closed or isolated, ~~and deactivated~~ they are performing their required safety function (e.g., to isolate the line).

The 72 hour Completion Time takes into account the redundancy afforded by the remaining OPERABLE valves, and the low probability of an event occurring during this time period that would require isolation of the MFW flow paths.

Inoperable MFIVs that are closed to comply with Required Action A.1 must be verified on a periodic basis to be closed. This is necessary to ensure that the assumptions in the safety analysis remain valid. The seven day completion time is responsible, based on engineering judgement, MFIV status indications available in the control room, and other administrative controls, to ensure these valves are ~~deactivated and~~ in the closed position.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.2 and SR 3.8.1.7

These SRs help to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and to maintain the unit in a safe shutdown condition.

To minimize the wear on moving parts that do not get lubricated when the engine is not running, these SRs are modified by a Note to indicate that all DG starts for these Surveillances may be preceded by an engine prelube period and followed by a warmup period prior to loading.

For the purposes of SR 3.8.1.2 and SR 3.8.1.7 testing, the DGs are started from standby condition. Standby conditions for a DG mean that the engine lube oil and coolant temperatures are maintained consistent with manufacturer recommendations. Additionally, during standby conditions the diesel engine lube oil is circulated continuously and the engine coolant is circulated on and off via thermostatic control.

In order to reduce stress and wear on diesel engines, the DG manufacturer recommends a modified start in which the starting speed of DGs is limited, warmup is limited to this lower speed, and the DGs are gradually accelerated to synchronous speed prior to loading. This is the intent of Note 3, which is only applicable when such modified start procedures are recommended by the manufacturer.

The steady state voltage and frequency limits in SR 3.8.1.2 have not been adjusted for instrument accuracy. The analyzed values for the steady-state diesel generator voltage limits are ≥ 4000 and ≤ 4377.2 volts and the analyzed values for the steady-state diesel generator frequency limits are ≥ 59.7 and ≤ 60.7 hertz. The indicated steady state diesel generator voltage and frequency limits, using the panel mounted diesel generator instrumentation and adjusted for instrument error, are ≥ 4080 and ≤ 4300 volts (Ref. 12), and ≥ 59.9 and ≤ 60.5 hertz (Ref. 13), respectively. If digital Maintenance and Testing Equipment (M&TE) is used instead of the panel mounted diesel generator instrumentation, the instrument error may be reduced, increasing the range for the indicated steady state voltage and frequency limits.

(continued)

SR 3.8.1.2 Note 4 and

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.2 and SR 3.8.1.7 (continued)

SR 3.8.1.7 Note 2 states that the steady state voltage and frequency limits are analyzed values and have not been adjusted for instrument accuracy. The analyzed values for the steady-state diesel generator voltage limits are ≥ 4000 and ≤ 4377.2 volts and the analyzed values for the steady-state diesel generator frequency limits are ≥ 59.7 and ≤ 60.7 hertz. The indicated steady state diesel generator voltage and frequency limits, using the panel mounted diesel generator instrumentation and adjusted for instrument error, are ≥ 4080 and ≤ 4300 volts (Ref. 12), and ≥ 59.9 and ≤ 60.5 hertz (Ref. 13), respectively. If digital Maintenance and Testing Equipment (M&TE) is used instead of the panel mounted diesel generator instrumentation, the instrument error may be reduced, increasing the range for the indicated steady state voltage and frequency limits.

SR 3.8.1.7 requires that, at a 184 day Frequency, the DG starts from standby conditions with the engine at normal keep-warm conditions and achieves required voltage and frequency within 10 seconds, and subsequently achieves steady state required voltage and frequency ranges. The 10 second start requirement supports the assumptions of the design basis LOCA analysis in the FSAR, Chapter 15 (Ref. 5).

A minimum voltage and frequency is specified rather than an upper and a lower limit because a diesel engine acceleration at full fuel (such as during a fast start) is likely to "overshoot" the upper limit initially and then go through several oscillations prior to a voltage and frequency within the stated upper and lower bounds. The time to reach "steady state" could exceed 10 seconds, and be cause to fail the SR. However, on an actual emergency start, the EDG would reach minimum voltage and frequency in ≤ 10 seconds at which time it would be loaded. Application of the load will dampen the oscillations. Therefore, only specifying the minimum voltage and frequency (at which the EDG can accept load) demonstrates the necessary capability of the EDG to satisfy safety requirements without including a potential for failing the Surveillance.

While reaching minimum voltage and frequency (at which the DG can accept load) in ≤ 10 seconds is an immediate test of OPERABILITY, the ability of the governor and voltage regulator to achieve steady state operation, and the time to do so are important indicators of continued OPERABILITY. Therefore, the time to achieve steady state voltage and

(continued)

BASES

BACKGROUND
(continued)

The DC power distribution system is described in more detail in the Bases for LCO 3.8.9, "Distribution Systems-Operating," and for LCO 3.8.10, "Distribution Systems – Shutdown."

Each battery has adequate storage capacity to carry the required load continuously for at least 2 hours as discussed in the UFSAR, Chapter 8 (Ref. 4).

Each 125 VDC battery 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 subsystem to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant Class 1E subsystems, such as batteries, battery chargers, or distribution panels.

In addition, each DC electrical power subsystem contains a backup battery charger which is manually transferable to either channel of a subsystem. The transfer mechanism is mechanically interlocked to prevent both DC channels of a subsystem from being simultaneously connected to the backup battery charger.

The batteries for Train A and Train B DC electrical power subsystems are sized to produce required capacity at 80% ~~(low specific gravity cells) or 90% (A&I)~~ of nameplate rating. The voltage limit is 2.13 V per cell ~~(low specific gravity cells) or 2.18 V per cell (A&I)~~, which corresponds to a total minimum voltage output of 128 V per battery ~~(low specific gravity cells) or 131 V per battery (A&I)~~ discussed in the Design Basis Manual (Ref. 12).

Each Train A and Train B DC electrical power subsystem 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 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 discussed in the UFSAR, Chapter 8 (Ref. 4).

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.8 (continued)

The modified performance discharge test is a simulated duty cycle consisting of just two rates: the one minute rate published for the battery or the largest current load of the duty cycle (but in no case lower than the performance test rate), followed by the test rate employed for the performance test, both of which 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.

A modified 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.

Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.8. In addition, either of the performance discharge tests may be used to satisfy SR 3.8.4.8 while satisfying the requirements of SR 3.8.4.7 at the same time, because the test parameters envelope the service test described in SR 3.8.4.7.

The acceptance criteria for this Surveillance are consistent with IEEE-450 (Ref. 9) and IEEE-485 (Ref. 5). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer rating. A capacity of 80% ~~(Low specific gravity cells) or 90% (A&T)~~ shows that the battery rate of deterioration is increasing, even if there is ample capacity to meet the load requirements.

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 manufacturer's rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.4.8 (continued)

life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity $\geq 100\%$ of the manufacturer's rating. Degradation is indicated when the battery capacity drops by more than 10% ~~(low specific gravity cells)~~ or 5% (A&T) relative to its capacity on the previous performance test, or when it is $\geq 10\%$ ~~(low specific gravity cells)~~ or $\geq 5\%$ (A&T) below the manufacturer's rating.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems.

REFERENCES

1. 10 CFR.50, Appendix A, GDC 17.
 2. Regulatory Guide 1.6, March 10, 1971.
 3. IEEE-308-1974.
 4. UFSAR, Chapter 8.3.2.
 5. IEEE-485-1983, June 1983.
 6. UFSAR, Chapter 6.
 7. UFSAR, Chapter 15.
 8. Regulatory Guide 1.93, December 1974.
 9. IEEE-450-1980.
 10. Regulatory Guide 1.32, Revision 0, August 11, 1972.
 11. Regulatory Guide 1.129, Revision 1, February 1978.
 12. Design Basis Manual "Class 1E 125 VDC Power System".
 13. Calculation 1.2.3ECPK207
-
-

BASES

SURVEILLANCE
REQUIREMENTS

Table 3.8.6-1 (continued)

effects. In addition to this allowance, footnote (a) to Table 3.8.6-1 permits the electrolyte level to be above the specified maximum level during equalizing charge, provided it is not overflowing. These limits ensure that the plates suffer no physical damage, and that adequate electron transfer capability is maintained in the event of transient conditions. IEEE-450 (Ref. 3) recommends that electrolyte level readings should be made only after the battery has been at float charge for at least 72 hours.

The Category A limit specified for float voltage is ≥ 2.13 V per cell ~~(low specific gravity cells) or ≥ 2.18 V per cell~~ (AT&T). This value is based on the battery vendor recommendation which states that prolonged operation of cells < 2.13 V ~~(low specific gravity cells) or < 2.18 V~~ (AT&T) can reduce the life expectancy of cells.

The Category A limit specified for specific gravity for each pilot cell is ≥ 1.200 ~~(low specific gravity cells) or ≥ 1.290~~ (AT&T) (0.015 ~~(low specific gravity cells) or 0.010~~ (AT&T) below the vendor fully charged nominal specific gravity or a battery charging current that had stabilized at a low value). This value is characteristic of a charged cell with adequate capacity. According to IEEE-450 (Ref. 3), the specific gravity readings are based on a temperature of 77°F (25°C).

The specific gravity readings are corrected for actual electrolyte temperature and level. For each 3°F (1.67°C) above 77°F (25°C), 1 point (0.001) is added to the reading; 1 point is subtracted for each 3°F below 77°F. The specific gravity of the electrolyte in a cell increases with a loss of water due to electrolysis or evaporation.

Category B defines the normal parameter limits for each connected cell. The term "connected cell" excludes any battery cell that may be jumpered out.

The Category B limits specified for electrolyte level and float voltage are the same as those specified for Category A and have been discussed above. Footnote (d) to Table 3.8.6-1 is applicable to Category B float voltage. Footnote (d) requires correction for average electrolyte temperature. The Category B limit specified for specific gravity for each connected cell is ≥ 1.195 ~~(low specific gravity cells) or ≥ 1.280~~ (AT&T) (0.020 below the vendor fully charged, nominal

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

Table 3.8.6-1 (continued)

specific gravity) with the average of all connected cells ≥ 1.205 (~~low specific gravity cells~~) or ≥ 1.290 (A&T) (0.010 below the vendor fully charged, nominal specific gravity). These values are based on vendor's recommendations. The minimum specific gravity value required for each cell ensures that the effects of a highly charged or newly installed cell will not mask overall degradation of the battery.

Category C defines the limit for each connected cell. These values, although reduced, provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When any battery parameter is outside the Category C limit, the assurance of sufficient capacity described above no longer exists and the battery must be declared inoperable.

The Category C limit specified for electrolyte level (above the top of the plates and not overflowing) ensures that the plates suffer no physical damage and maintain adequate electron transfer capability. The Category C Allowable Value for float voltage is based on vendor recommendations which state that a cell voltage of 2.07 V or below (~~low specific gravity cells~~) or 2.14 V or below (A&T), under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and may require cell replacement.

The Category C limit of average specific gravity ≥ 1.195 (~~low specific gravity cells~~) or ≥ 1.280 (A&T) is based on vendor recommendations (0.020 below the vendor recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must be no less than 0.020 below the average of all connected cells. This limit ensures that the effect of a highly charged or new cell does not mask overall degradation of the battery.

Footnotes (b) and (c) to Table 3.8.6-1 are applicable to Category A, B, and C specific gravity. Footnote (b) to Table 3.8.6-1 requires specific gravity correction for electrolyte level and temperature, with the exception that level correction is not required when battery charging current is < 2 amps on float charge. This current provides, in general, an indication of overall battery condition.

(continued)