

February 17, 2000

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555-0001

Gentlemen:

ULNRC-04187
TAC NO. MA8052



**DOCKET NUMBER 50-483
CALLAWAY PLANT
UNION ELECTRIC COMPANY
SUPPLEMENT TO REQUEST FOR PROPOSED REVISION
TO TECHNICAL SPECIFICATIONS
TO CORRECT EDITORIAL ERRORS**

- Reference: (1) ULNRC-4172, dated January 14, 2000
(2) ULNRC-4044, dated May 27, 1999
(3) ULNRC-4043, dated May 28, 1999
(4) NRC Letter from J. N. Donohew to
G. L. Randolph dated May 28, 1999

This letter transmits supplements to the application for amendment to Facility Operating License No. NPF-30 for Callaway Plant submitted in Reference 1. The request in Reference 1 proposed to revise various Improved Technical Specifications to correct editorial errors made in the conversion application or in the complete certified copy (References 2 and 3). Reference 4 provided Amendment No. 133 and the associated Safety Evaluation for the conversion of the Callaway Plant Current Technical Specifications to the Improved Technical Specifications.

The Enclosure to this letter provides a description of proposed license changes which supplement those submitted in Reference 1. The no significant hazards evaluation and environmental evaluation provided with Reference 1 are still applicable to the supplemental corrections submitted in this transmittal. Attachment 1 provides marked-up Improved Technical Specification pages with corrected editorial errors. Attachment 2 provides clean copies of the proposed Improved Technical Specification pages.

A001

AmerenUE requests approval of the proposed Technical Specifications to support planned implementation of the improved Technical Specification on April 1, 2000. The proposed changes to the Callaway Plant Technical Specifications will be implemented with the implementation of License Amendment No. 133.

If you should have any questions on the above or attached, please contact Dave Shafer at (314) 554-3104 or Dwyla Walker at (314) 554-2126.

Very truly yours,


for Alan C. Passwater
Manager, Corporate Nuclear Services

DJW/jdg

- Enclosures: 1) Affidavit
2) Description of Proposed License Change
- Attachments: 1) Marked-up Improved Technical Specifications
2) Proposed Improved Technical Specifications – Clean Copy

cc: M. H. Fletcher
Professional Nuclear Consulting, Inc.
19041 Raines Drive
Derwood, MD 20855-2432

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

Senior Resident Inspector
Callaway Resident Office
U.S. Nuclear Regulatory Commission
8201 NRC Road
Steedman, MO 65077

Mr. Jack Donohew (2)
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
1 White Flint, North, Mail Stop OWFN 4D3
11555 Rockville Pike
Rockville, MD 20852-2738

Manager, Electric Department
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102

Ron Kucera
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102

Denny Buschbaum
TU Electric
P.O. Box 1002
Glen Rose, TX 76043

Pat Nugent
Pacific Gas & Electric
Regulatory Services
P.O. Box 56
Avila Beach, CA 93424

ENCLOSURE**DESCRIPTION OF PROPOSED CHANGES**

This license amendment supplements the submittal in Reference 1. Reference 1 proposed to revise various Improved Technical Specifications to correct editorial errors made in the conversion application or in the complete certified copy of Improved Technical Specifications transmitted by letters ULNRC-4043 dated May 28, 1999 and ULNRC-4044 dated May 27, 1999. A list of proposed changes is provided in Reference 1. In this supplement to Reference 1, a list of additional changes is described in the Enclosure to this letter. License Amendment No. 133 and the associated Safety Evaluation was issued on May 28, 1999 for the conversion of the Callaway Plant Current Technical Specifications to the Improved Technical Specifications.

**PROPOSED IMPROVED TECHNICAL SPECIFICATIONS
MARKED-UP COPIES**

See Attachment 1

**PROPOSED IMPROVED TECHNICAL SPECIFICATIONS
CLEAN COPIES**

See Attachment 2

DESCRIPTION OF PROPOSED CHANGES

License Amendment No. 133 and the associated Safety Evaluation was issued on May 28, 1999 for the conversion of the Callaway Plant Current Technical Specifications (CTS) to the Improved Technical Specifications (ITS). During activities associated with the implementation of License Amendment No. 133, a number of editorial corrections were identified. The following list contains additional changes from those provided in the conversion application and associated supplements and submitted for review in Reference 1:

1. **Table of Contents, page 3. Section 3.7.4** - The word "Pump" should be "Dump". The Table of Contents was not originally provided in the ITS submittal in ULNRC-3578 dated May 15, 1997. The Table of Contents was provided in the certified copy of ITS transmitted in ULNRC-4044 dated May 27, 1999. The section title for Section 3.7.4 in the Table of Contents includes the word "Pump", when the correct word should be "Dump".

2. **Page 5.0-29.** Under 5.6 Reporting Requirements, 5.6.5 CORE OPERATING LIMITS REPORT (COLR), item a.7, section “**3.1.8**”

should be added to the list of Specifications requiring Shutdown Margin Limits.

“Shutdown Margin Limits for Specifications 3.1.1, 3.1.4, 3.1.5, 3.1.6 and **3.1.8.**”

Item a.7 under 5.6 Reporting Requirements, 5.6.5 CORE OPERATING LIMITS REPORT (COLR), is included in Reference 1 for a punctuation error. This is a typographical error. However, the additional change incorporates Specification 3.1.8 which should have been included in the list of specifications for completeness.

During activities associated with the implementation of License Amendment No. 133, corrections were identified that were attributed to errors associated with the submittal of the certified copy of the ITS. These corrections were submitted in Reference 1. The below list contains additional corrections based on errors in the certified copy of the ITS transmitted by the letters identified in References 2 and 3. This list supplements Reference 1:

1. **Page 1.1-6.** Under 1.1 Definitions, the Term, STAGGERED TEST BAIS, the word “BAIS” should be corrected to “BASIS”. This word is misspelled in the certified copy due to a typographical error.
2. **Page 3.4-37.** Under REQUIRED ACTION, CONDITION B, the label “**B 1.2**” is missing the period between the B and the 1. The REQUIRED ACTION label is corrected to “**B.1.2**”. The omission of the period in the certified copy is due to typographical error.
3. **Page 3.7-1.** Under ACTIONS, CONDITION B, the letters “MSSV’s” should be “MSSVs”. The apostrophe included in the certified copy is due to typographical error.
4. **Page 3.8-25.** Under ACTIONS, REQUIRED ACTION, A.2.4, the word “subsystems” should be “subsystem”. The strike-through on the letter “s” contained in the certified copy is incorrect. It should have been deleted in the final typing. The strike-through in the certified copy is due to typographical error.

In summary, the proposed additional changes supplement the changes submitted in Reference 1 and involve corrections to the ITS that are associated with the original conversion application and supplements or the certified copy of ITS. As such, the changes are considered as administrative changes and do not modify, add, delete, or relocate any technical requirements of the Improved Technical Specifications.

CONCLUSION

The proposed changes supplement those submitted in Reference 1. The changes are editorial in nature. Based on the evaluations presented in Reference 1, these proposed supplemental changes to the Improved Technical Specifications do not involve a significant hazard consideration pursuant to 10CFR50.92. Additionally, AmerenUE has determined that this license amendment meets the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement. The proposed supplemental changes will not endanger the health and safety of the general public.

ULNRC- 04187

ATTACHMENT 1

MARKED-UP PROPOSED IMPROVED TECHNICAL SPECIFICATIONS

Table of Contents, Page 3

T/S 1.1, page 1.1-6

T/S 3.4.15, page 3.4-37

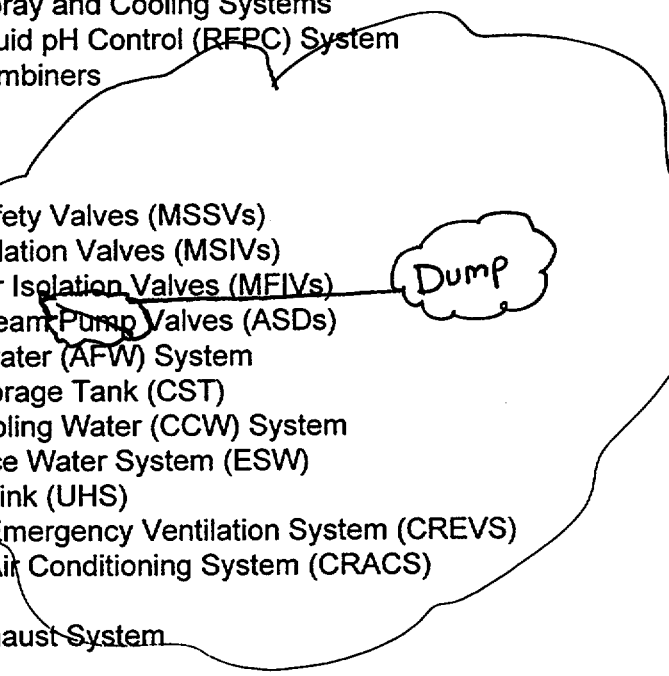
T/S 3.7.1, page 3.7-1

T/S 3.8.5, page 3.8-25

T/S 5.6.5, page 5.0-29

TABLE OF CONTENTS

3.6	CONTAINMENT SYSTEMS (continued)	
3.6.4	Containment Pressure	3.6-16
3.6.5	Containment Air Temperature	3.6-17
3.6.6	Containment Spray and Cooling Systems	3.6-18
3.6.7	Recirculation Fluid pH Control (RFPC) System	3.6-21
3.6.8	Hydrogen Recombiners	3.6-22
3.7	PLANT SYSTEMS	3.7-1
3.7.1	Main Steam Safety Valves (MSSVs)	3.7-1
3.7.2	Main Steam Isolation Valves (MSIVs)	3.7-5
3.7.3	Main Feedwater Isolation Valves (MFIVs)	3.7-7
3.7.4	Atmospheric Steam Pump Valves (ASDs)	3.7-9
3.7.5	Auxiliary Feedwater (AFW) System	3.7-12
3.7.6	Condensate Storage Tank (CST)	3.7-16
3.7.7	Component Cooling Water (CCW) System	3.7-18
3.7.8	Essential Service Water System (ESW)	3.7-20
3.7.9	Ultimate Heat Sink (UHS)	3.7-22
3.7.10	Control Room Emergency Ventilation System (CREVS)	3.7-24
3.7.11	Control Room Air Conditioning System (CRACS)	3.7-27
3.7.12	Not Used	3.7-30
3.7.13	Emergency Exhaust System	3.7-31
3.7.14	Not Used	3.7-34
3.7.15	Fuel Storage Pool Water Level	3.7-35
3.7.16	Fuel Storage Pool Boron Concentration	3.7-36
3.7.17	Spent Fuel Assembly Storage	3.7-38
3.7.18	Secondary Specific Activity	3.7-40
3.8	ELECTRICAL POWER SYSTEMS	3.8-1
3.8.1	AC Sources - Operating	3.8-1
3.8.2	AC Sources - Shutdown	3.8-16
3.8.3	Diesel Fuel Oil, Lube Oil, and Starting Air	3.8-19
3.8.4	DC Sources - Operating	3.8-22
3.8.5	DC Sources - Shutdown	3.8-25
3.8.6	Battery Cell Parameters	3.8-27
3.8.7	Inverters - Operating	3.8-31
3.8.8	Inverters - Shutdown	3.8-33
3.8.9	Distribution Systems - Operating	3.8-35
3.8.10	Distribution Systems - Shutdown	3.8-37

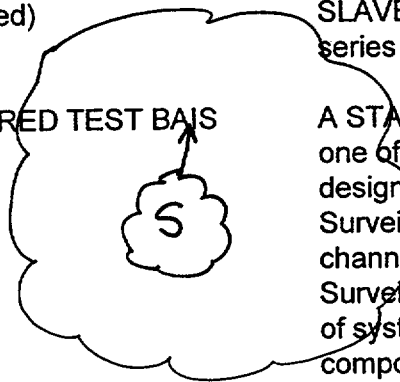


1.1 Definitions

SLAVE RELAY TEST
(continued)

check of associated required testable actuation devices. The SLAVE RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.

STAGGERED TEST BASIS



A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during n Surveillance Frequency intervals, where n is the total number of systems, subsystems, channels, or other designated components in the associated function.

THERMAL POWER

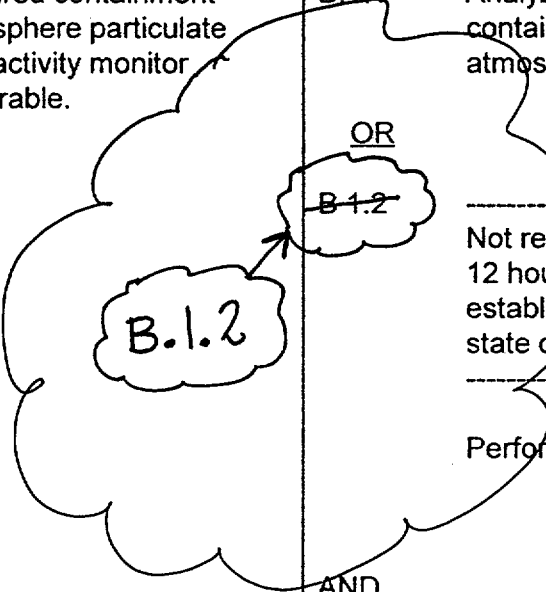
THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

TRIP ACTUATING DEVICE
OPERATIONAL TEST
(TADOT)

A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>B. Required containment atmosphere particulate radioactivity monitor inoperable.</p>	<p>B.1.1 Analyze samples of the containment atmosphere.</p> <p style="text-align: center;"><u>OR</u></p> <p>B.1.2 -----NOTE----- Not required until 12 hours after establishment of steady state operation.</p> <p>Perform SR 3.4.13.1</p> <p style="text-align: center;"><u>AND</u></p> <p>B.2 Restore required containment atmosphere particulate radioactivity monitor to OPERABLE status.</p>	<p>Once per 24 hours</p> <p>Once per 24 hours</p> <p>30 days</p>
<p>C. Required containment atmosphere gaseous radioactivity monitor inoperable.</p> <p><u>AND</u></p> <p>Required containment cooler condensate monitoring system inoperable.</p>	<p>C.1.1 Analyze samples of the containment atmosphere.</p> <p style="text-align: center;"><u>OR</u></p> <p>C.1.2 -----NOTE----- Not required until 12 hours after establishment of steady state operation.</p> <p>Perform SR 3.4.13.1.</p> <p style="text-align: center;"><u>AND</u></p>	<p>Once per 24 hours</p> <p>Once per 24 hours</p> <p>(continued)</p>



3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 Five MSSVs per steam generator shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

NOTE

Separate Condition entry is allowed for each MSSV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more steam generators with one MSSV inoperable and the Moderator Temperature Coefficient (MTC) zero or negative at all power levels.	A.1 Reduce THERMAL POWER to $\leq 87\%$ RTP.	4 hours
B. One or more steam generators with two or more MSSVs inoperable. <u>OR</u> One or more steam generators with one MSSV inoperable, and the MTC positive at any power level.	B.1 Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs. <u>AND</u>	4 hours

Delete apostrophe

MSSVs

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 The Train A or Train B DC electrical power subsystem shall be OPERABLE to support one train of the DC electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Required DC electrical power subsystem inoperable.</p>	<p>A.1 Declare affected required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>A.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
<p><u>AND</u></p>		
<p>A.2.3 Initiate action to suspend operations involving positive reactivity additions.</p>	<p>Immediately</p>	
<p><u>AND</u></p>		
<p>A.2.4 Initiate action to restore required DC electrical power subsystems to OPERABLE status.</p>	<p>Immediately</p>	

Handwritten notes:

- Delete "s" with Strike-Through
- subsystem

5.6 Reporting Requirements

5.6.2 Annual Radiological Environmental Operating Report (continued)

reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit during the previous year shall be submitted prior to May 1 of each year, in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

1. Moderator Temperature Coefficient limits in Specification 3.1.3,
2. Shutdown Bank Insertion Limit for Specification 3.1.5,
3. Control Bank Insertion Limits for Specification 3.1.6,
4. Axial Flux Difference Limits for Specification 3.2.3,
5. Heat Flux Hot Channel Factor, $F_Q(Z)$, F_Q^{RTP} , $K(Z)$, $W(Z)$ and F_Q Penalty Factors for Specification 3.2.1,
6. Nuclear Enthalpy Rise Hot Channel Factor $F_{\Delta H}$, $F_{\Delta H}^{RTP}$, and Power Factor Multiplier, $PF_{\Delta H}$, limits for Specification 3.2.2.
7. Shutdown Margin Limits for Specifications 3.1.1, 3.1.4, ~~3.1.5~~, and ~~3.1.6~~

for "3.1.5"
replace as
"3.1.5"

3.1.5, 3.1.6, and 3.1.8.

(continued)

ULNRC- 04187

ATTACHMENT 2

PROPOSED IMPROVED TECHNICAL SPECIFICATIONS – CLEAN COPY

Table of Contents, Page 3

T/S 1.1, page 1.1-6

T/S 3.4.15, page 3.4-37

T/S 3.7.1, page 3.7-1

T/S 3.8.5, page 3.8-25

T/S 5.6.5, page 5.0-29

TABLE OF CONTENTS

3.6	CONTAINMENT SYSTEMS (continued)	
3.6.4	Containment Pressure	3.6-16
3.6.5	Containment Air Temperature	3.6-17
3.6.6	Containment Spray and Cooling Systems	3.6-18
3.6.7	Recirculation Fluid pH Control (RFPC) System	3.6-21
3.6.8	Hydrogen Recombiners	3.6-22
3.7	PLANT SYSTEMS	3.7-1
3.7.1	Main Steam Safety Valves (MSSVs)	3.7-1
3.7.2	Main Steam Isolation Valves (MSIVs)	3.7-5
3.7.3	Main Feedwater Isolation Valves (MFIVs)	3.7-7
3.7.4	Atmospheric Steam Dump Valves (ASDs)	3.7-9
3.7.5	Auxiliary Feedwater (AFW) System	3.7-12
3.7.6	Condensate Storage Tank (CST)	3.7-16
3.7.7	Component Cooling Water (CCW) System	3.7-18
3.7.8	Essential Service Water System (ESW)	3.7-20
3.7.9	Ultimate Heat Sink (UHS)	3.7-22
3.7.10	Control Room Emergency Ventilation System (CREVS)	3.7-24
3.7.11	Control Room Air Conditioning System (CRACS)	3.7-27
3.7.12	Not Used	3.7-30
3.7.13	Emergency Exhaust System	3.7-31
3.7.14	Not Used	3.7-34
3.7.15	Fuel Storage Pool Water Level	3.7-35
3.7.16	Fuel Storage Pool Boron Concentration	3.7-36
3.7.17	Spent Fuel Assembly Storage	3.7-38
3.7.18	Secondary Specific Activity	3.7-40
3.8	ELECTRICAL POWER SYSTEMS	3.8-1
3.8.1	AC Sources - Operating	3.8-1
3.8.2	AC Sources - Shutdown	3.8-16
3.8.3	Diesel Fuel Oil, Lube Oil, and Starting Air	3.8-19
3.8.4	DC Sources - Operating	3.8-22
3.8.5	DC Sources - Shutdown	3.8-25
3.8.6	Battery Cell Parameters	3.8-27
3.8.7	Inverters - Operating	3.8-31
3.8.8	Inverters - Shutdown	3.8-33
3.8.9	Distribution Systems - Operating	3.8-35
3.8.10	Distribution Systems - Shutdown	3.8-37

1.1 Definitions

SLAVE RELAY TEST (continued)	RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during n Surveillance Frequency intervals, where n is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)	A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps.

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 Five MSSVs per steam generator shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more steam generators with one MSSV inoperable and the Moderator Temperature Coefficient (MTC) zero or negative at all power levels.</p>	<p>A.1 Reduce THERMAL POWER to $\leq 87\%$ RTP.</p>	<p>4 hours</p>
<p>B. One or more steam generators with two or more MSSVs inoperable.</p> <p><u>OR</u></p> <p>One or more steam generators with one MSSV inoperable and the MTC positive at any power level.</p>	<p>B.1 Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs.</p> <p><u>AND</u></p>	<p>4 hours</p>

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.5 DC Sources - Shutdown

LCO 3.8.5 The Train A or Train B DC electrical power subsystem shall be OPERABLE to support one train of the DC electrical power distribution subsystems required by LCO 3.8.10, "Distribution Systems - Shutdown."

APPLICABILITY: MODES 5 and 6

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. Required DC electrical power subsystem inoperable.</p>	<p>A.1 Declare affected required feature(s) inoperable.</p>	<p>Immediately</p>
	<p><u>OR</u></p>	
	<p>A.2.1 Suspend CORE ALTERATIONS.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.2 Suspend movement of irradiated fuel assemblies.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.3 Initiate action to suspend operations involving positive reactivity additions.</p>	<p>Immediately</p>
	<p><u>AND</u></p>	
	<p>A.2.4 Initiate action to restore required DC electrical power subsystem to OPERABLE status.</p>	<p>Immediately</p>

5.6 Reporting Requirements

5.6.2 Annual Radiological Environmental Operating Report (continued)

reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

5.6.3 Radioactive Effluent Release Report

The Radioactive Effluent Release Report covering the operation of the unit during the previous year shall be submitted prior to May 1 of each year, in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:
 - 1. Moderator Temperature Coefficient limits in Specification 3.1.3,
 - 2. Shutdown Bank Insertion Limit for Specification 3.1.5,
 - 3. Control Bank Insertion Limits for Specification 3.1.6,
 - 4. Axial Flux Difference Limits for Specification 3.2.3,
 - 5. Heat Flux Hot Channel Factor, $F_Q(Z)$, F_Q^{RTP} , $K(Z)$, $W(Z)$ and F_Q Penalty Factors for Specification 3.2.1,
 - 6. Nuclear Enthalpy Rise Hot Channel Factor $F_{\Delta H}$, $F_{\Delta H}^{RTP}$, and Power Factor Multiplier, $PF_{\Delta H}$, limits for Specification 3.2.2.
 - 7. Shutdown Margin Limits for Specifications 3.1.1, 3.1.4, 3.1.5, 3.1.6, and 3.1.8.

(continued)