



Entergy Operations, Inc.
River Bend Station
5485 J. S. Highway 61
P. O. Box 220
St. Francisville, LA 70775
Tel 225 381 4374
Fax 225 381 4872

Randall K. Edington
Vice President, Operations

January 24, 2001

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: River Bend Station
Docket No. 50-548
License No. NPF-47
License Amendment Request (LAR) 2000-25, "Surveillance
Requirements for Diesel Generator Slow Start Sequence"

File Nos.: G9.5, G9.42

RBEXEC-01-008
RBF1-01-0009
RBG-45631

Gentlemen:

In accordance with the provisions of 10 CFR 50.90, Entergy Operations, Inc. proposes to amend the River Bend Station Unit 1 Technical Specifications (TS), Appendix A to Operating License NPF-47. The proposed changes would affect Surveillance Requirements for TS Limiting Condition for Operation (LCO) 3.8.1 and 3.8.2 and are based on NUREG 1434, "Standard Technical Specifications General Electric Plants, BWR/6" and Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability."

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for these determinations are included in the attached submittal. Attachment 2 includes marked-up TS pages indicating the specific proposed changes and Attachment 3 includes marked-up pages of the Bases for your information.

The proposed change introduces no new commitments.

Entergy Operations requests that the effective date be within 60 days of approval and requests that it be issued by the Fall of 2001 which corresponds to the next scheduled refueling outage for the River Bend Station (RBS). Although this request is neither exigent nor emergency, your prompt review is requested.

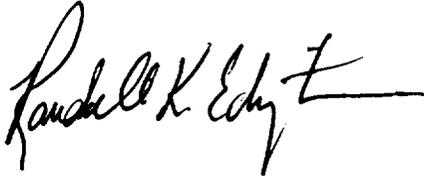
A001

License Amendment Request (LAR) 2000-25
January 24, 2001
RBF1-01-0009
RBEXEC-01-008
RBG-45631
Page 2 of 2

Pursuant to 28 U.S.C.A. Section 1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on January 24, 2001.

Very truly yours,

A handwritten signature in black ink, appearing to read "Randall K. Edy". The signature is fluid and cursive, with a long horizontal stroke at the end.

RKE/RJK/GPN

Attachments (3)

cc: U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

NRC Senior Resident Inspector
P. O. Box 1050
St. Francisville, LA 70775

Mr. Jefferey F. Harold
U.S. Nuclear Regulatory Commission
M/S OWFN 7D1
Washington, DC 20555

Mr. Prosanta Chowdhury
Program Manager – Surveillance Division
Louisiana Department of Environmental Quality
Office of Radiological Emergency Plan and Response
P. O. Box 82215
Baton Rouge, LA 70884-2215

ATTACHMENT 1

TO

LETTER NO. RBF1-01-0009

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

DESCRIPTION OF PROPOSED CHANGES

The proposed changes would revise the following Surveillance Requirements (SR) for TS Limiting Condition for Operation (LCO) 3.8.1 and 3.8.2 and add a new SR to TS LCO 3.8.1 to incorporate the provisions to perform routine diesel generator (DG) monthly testing by gradually accelerating the DG to operating speed as opposed to requiring the DG to attain rated voltage and frequency within 10 seconds for DG 1A and DG 1B and within 13 seconds for DG 1C.

1. SR 3.8.1.2 would be revised to eliminate the start time requirements. Additionally, two Notes would be added to the revised SR 3.8.1.2. Note 1 will indicate that performance of new SR 3.8.1.7 would satisfy the requirements of revised SR 3.8.1.2. The second, added as Note 3, will clarify that if modified procedures that result in gradual acceleration to synchronous speed are not used, then the start time requirements of new SR 3.8.1.7 would apply.
2. Change to SR 3.8.1.3 is an editorial change to reflect the addition of new SR 3.8.1.7, i.e., that SR 3.8.1.2 or SR 3.8.1.7 may be used to start the DG for the purposes of performing SR 3.8.1.3.
3. New SR 3.8.1.7 is being added. New SR 3.8.1.7 is identical to original SR 3.8.1.2 with the exception of the new Frequency of 184 days.
4. SR numbers for existing SRs 3.8.1.7 through 3.8.1.19 are being changed to SRs 3.8.1.8 through 3.8.1.20 to reflect the insertion of new SR 3.8.1.7.
5. Editorial changes to SR 3.8.2.1 are being made to reflect new SR 3.8.1.7 and the resultant renumbering of existing SRs 3.8.1.7 through 3.8.1.18 to SRs 3.8.1.8 through 3.8.1.19.

The TS surveillances which require verification of a fast start on an 18 month frequency are not affected by the proposed changes. In addition, a new surveillance is added to test the fast start on a 184 day frequency. Therefore, the ability of the DGs to achieve the start times assumed in the accident analyses will continue to be periodically verified.

BACKGROUND

At the River Bend Station (RBS), the DG governors for DG 1A and DG 1B are planned on being replaced with a model that will accelerate the engines to operating speed within a range of 15 to 30 seconds in the test mode. This is considered a slow start for these DGs which are designed to start in less than 10 seconds and typically start in less than 8 seconds.

At this time, there are no specific plans for making changes to the operation of DG 1C (HPCS DG) which is manufactured by a different vendor than DG 1A and DG 1B. However, this licensing amendment has been developed to accommodate slow starting of all three DGs if the slow start capability is available. The Technical Specification Surveillance Requirements and accompanying Notes indicate that the fast start shall be utilized if slow start procedures are not employed.

Please note that these requirements previously existed within the River Bend Technical Specifications prior to Amendment 81, which implemented the Improved Standard Technical Specifications at River Bend. Since the existing DG governors did not have the capability to utilize this feature, River Bend chose not to include these provisions in the Technical Specifications at that time.

BASIS FOR PROPOSED CHANGE

As stated above, the DG governors for DG 1A and DG 1B are scheduled to be replaced with a model that has design provisions to allow the engines to be slowly accelerated to operating speed within a range of 15 to 30 seconds in the test mode. When the DGs are in standby for emergency operation, they will continue to fast start in accordance with their emergency function. This is consistent with the NUREG 1434, "Standard Technical Specifications General Electric Plants, BWR/6" and Regulatory Guide (RG) 1.9, Revision 3. Paragraph 2.2.1, "Start Test," of RG 1.9, Revision 3, states that for these tests the emergency diesel generator can be slow started and reach rated speed on a prescribed schedule that is selected to minimize stress and wear. RBS is committed to Revision 2 of RG 1.9 rather than Revision 3, however, the guidance presented in section 2.2.1 of the RG is considered to be prudent by the industry and the NRC in ensuring high reliability and availability of DGs. RBS is following this specific recommendation of RG 1.9, however, this should not be construed as a commitment to the entire body of Revision 3 of RG 1.9.

NRC sponsored aging research work on nuclear service diesel generators, documented in NUREG/CR-5057, "Aging Mitigation and Improved Programs for Nuclear Service Diesel Generators," has identified fast starting and fast loading tests of DGs as an aging stressor. Section 2.4.1 of this report states that a correctly managed monthly testing program involving slow starting and loading would induce little aging effects in the emergency DG. By contrast, a fast starting and loading test program can produce substantial harm and significant aging effects through the production of large mechanical and thermal stresses, inadequate lubrication during initial acceleration, high rotating and sliding pressures, overspeeding, etc. The slow start is also consistent with recommendations of ASME/ANSI Operations and Maintenance Standards and Guides Part 16. (Note that NUREG-1366 states a concern that this feature may be incorporated at the cost of reducing DG reliability by eliminating a redundant overspeed protection in the form of the backup mechanical governor. At RBS, the backup mechanical governor will remain in service during the slow start.)

The governor for DG 1B is scheduled for replacement during the Fall 2001 refueling outage. The governor for DG 1A is scheduled to be replaced during the Spring 2003 refueling outage. There is no established schedule for modifying the governor for DG 1C at this time. Assuming that these proposed changes are approved by the Fall of 2001, routine monthly testing on DG 1A will consist of fast starts until such time as the governor can be replaced and routine monthly testing on DG 1C will consist of fast starts unless the current design is modified in accordance with 10 CFR 50.59.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

Entergy Operations, Inc. is proposing that the River Bend Station Operating License be amended to revise Surveillance Requirements (SR) for TS Limiting Condition for Operation (LCO) 3.8.1 and 3.8.2 and add a new SR to TS LCO 3.8.1 to incorporate the provisions to perform routine diesel generator (DG) monthly testing by gradually accelerating the DG to operating speed as opposed to requiring the DG to attain rated voltage and frequency within 10 seconds for DG 1A and DG 1B and within 13 seconds for DG 1C. New Surveillance Requirement (SR) 3.8.1.7 will require fast start tests on a frequency of 184 days.

An evaluation of the proposed change has been performed in accordance with 10CFR50.91(a)(1) regarding no significant hazards considerations using the standards in 10CFR50.92(c). The evaluation only addresses the proposed changes to the TS surveillance requirements. The design changes to the emergency diesel generator system to allow the alternate method of testing will be evaluated in accordance with 10 CFR 50.59. A discussion of the 10CFR50.92(c) standards as they relate to this amendment request follows:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

The proposed changes affect the surveillance requirements for the emergency diesel generators. The emergency diesel generators are onsite standby power sources intended to provide redundant and reliable power to ESF systems credited as accident mitigating features in design basis analyses. As discussed in Regulatory Guide (RG) 1.9, Revision 3, the proposed changes are intended to allow slower starts of the diesel generators during testing in order to reduce diesel generator aging effects due to excessive testing conditions. As such, the proposed changes should result in improved diesel generator reliability and availability, thereby providing additional assurance that the diesel generators will be capable of performing their safety function. The method of starting the emergency diesel generators for testing purposes does not affect the probability of any previously evaluated accident. Although the changes allow slower starts for the monthly tests, the more rapid start function assumed in the accident analysis is unchanged and will be verified on a 184 day frequency. Therefore the accident analysis consequences are not affected.

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

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed changes affect the surveillance requirements for the onsite ac sources, i.e. the diesel generators. Accordingly, the proposed changes do not involve any change to the configuration or method of operation of any plant equipment that could cause an accident. In addition, no new failure modes have been created nor has any new limiting failure been introduced as a result of the proposed surveillance changes.

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

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

The proposed changes are intended to bring the existing RBS TS requirements for the onsite ac sources in line with regulatory guidance. Under the proposed changes, the emergency diesel generators will remain capable of performing their safety function, and the effects of aging on the diesel generators will be reduced by eliminating unnecessary testing. The diesel generator start times assumed in the current accident analyses are unchanged and will be verified on a 6-month frequency.

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

Therefore, based on the reasoning presented above and the previous discussion of the amendment request, Entergy Operations has determined that the requested changes do not involve a significant hazards consideration.

ENVIRONMENTAL IMPACT EVALUATION

Pursuant to 10CFR51.22(b), an evaluation of the proposed amendment has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10CFR 51.22 (c) (9) of the regulations. The basis for this determination is as follows:

1. The proposed license amendment does not involve a significant hazards consideration as described previously in the evaluation.
2. As discussed in the significant hazards evaluation, this change does not result in a significant change or significant increase in the radiological doses for any Design Basis Accident. The proposed license amendment does not result in a significant change in the types or a significant increase in the amounts of any effluents that may be released off-site.
3. The proposed license amendment does not result in a significant increase to the individual or cumulative occupational radiation exposure because this change is

limited to the testing of the emergency diesel generators which does not result in any radiation exposure in itself.

ATTACHMENT 2

TO

LETTER NO. RBF1-01-0009

PROPOSED TECHNICAL SPECIFICATION MARK-UPS

LICENSE NO. NPF-47

ENERGY OPERATIONS, INC.

DOCKET NO. 50-458

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.1 Verify correct breaker alignment and indicated power availability for each required offsite circuit.</p>	<p>7 days</p>
<p>SR 3.8.1.2</p> <p style="text-align: center;">-----NOTE----- All DG starts may be preceded by an engine prelube period and followed by a warmup period prior to loading.</p> <p>Verify each DG starts from standby conditions and achieves:</p> <p>a. For DG 1A and DG 1B, steady state voltage ≥ 3740 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz, in 10 seconds.</p> <p>b. For DG 1C:</p> <ol style="list-style-type: none"> 1. Maximum of 5400 V, and 66.75 Hz, and 2. Steady state voltage ≥ 3740 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz, in 13 seconds. 	<p style="text-align: right;">← INSERT</p> <p>31 days</p>

(continued)

Insert for TS 3.8.1 (SR 3.8.1.2)

-----NOTES-----

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 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.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.3 -----NOTES-----</p> <ol style="list-style-type: none"> 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by, and immediately follow, without shutdown, a successful performance of SR 3.8.1.2 or SR 3.8.1.7. <p>-----</p> <p>Verify each DG operates for ≥ 60 minutes at a load ≥ 3000 kW and ≤ 3100 kW for DG 1A and DG 1B, and ≥ 2500 kW and ≤ 2600 kW for DG 1C.</p>	<p>31 days</p>
<p>SR 3.8.1.4 Verify each day tank contains ≥ 316.3 gal of fuel oil.</p>	<p>31 days</p>
<p>SR 3.8.1.5 Check for and remove accumulated water from each day tank.</p>	<p>31 days</p>
<p>SR 3.8.1.6 Verify the fuel oil transfer system operates to automatically transfer fuel oil from the storage tank to the day tank.</p>	<p>31 days</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p><i>INSERT</i> → SR 3.8.1⁷⁸ -----NOTE----- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ----- Verify manual transfer of unit power supply from the normal offsite circuit to required alternate offsite circuit.</p>	<p>18 months</p>
<p>SR 3.8.1⁸⁹ -----NOTES----- 1. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. 2. If performed with DG synchronized with offsite power, it shall be performed at a power factor ≤ 0.9. ----- Verify each DG rejects a load greater than or equal to its associated single largest post accident load and following load rejection, the engine speed is maintained less than nominal plus 75% of the difference between nominal speed and the overspeed trip setpoint or 15% above nominal, whichever is lower.</p>	<p>18 months</p>

(continued)

Insert for TS 3.8.1 (SR 3.8.1.7)

SR 3.8.1.7

-----NOTE-----
All DG starts may be preceded by an engine
prelube period.

Verify each DG starts from standby
conditions and achieves:

- a. For DG 1A and DG 1B, steady state
voltage ≥ 3740 V and ≤ 4580 V and
frequency ≥ 58.8 Hz and ≤ 61.2 Hz, in
 ≤ 10 seconds.
- b. For DG 1C:
 - 1. Maximum of 5400 V, and 66.75 Hz,
and
 - 2. Steady state voltage ≥ 3740 V and
 ≤ 4580 V and frequency ≥ 58.8 Hz
and ≤ 61.2 Hz, in ≤ 13 seconds.

184 days

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1 ¹⁰ -----NOTE----- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. -----</p> <p>Verify each DG operating at a power factor ≤ 0.9 does not trip and voltage is maintained ≤ 4784 V for DG 1A and DG 1B and ≤ 5400 V for DG 1C during and following a load rejection of a load ≥ 3030 kW and ≤ 3130 kW for DGs 1A and 1B and ≥ 2500 kW and ≤ 2600 kW for DG 1C.</p>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1 ¹¹⁰  -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify on an actual or simulated loss of offsite power signal:</p> <ol style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses for Divisions I and II; and c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C, 2. energizes auto-connected shutdown loads, 3. maintains steady state voltage ≥ 3740 V and ≤ 4580 V, 4. maintains steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected shutdown loads for ≥ 5 minutes. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1 ¹¹ ₁₂ -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify on an actual or simulated Emergency Core Cooling System (ECCS) initiation signal each DG auto-starts from standby condition and:</p> <ol style="list-style-type: none"> a. For DG 1C during the auto-start maintains voltage ≤ 5400 V and frequency ≤ 66.75 Hz; b. In ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C after auto-start and during tests, achieves voltage ≥ 3740 V and ≤ 4580 V; c. In ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C after auto-start and during tests, achieves frequency ≥ 58.8 Hz and ≤ 61.2 Hz; and d. Operates for ≥ 5 minutes. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1 ¹² ₁₃ -----NOTE----- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ----- Verify each DG's automatic trips are bypassed on an actual or simulated ECCS initiation signal except:</p> <ul style="list-style-type: none"> a. Engine overspeed; and b. Generator differential current. 	<p>18 months</p>
<p>SR 3.8.1 ¹³ ₁₄ -----NOTES----- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. Credit may be taken for unplanned events that satisfy this SR. ----- Verify each DG operating at a power factor ≤ 0.9, operates for ≥ 24 hours:</p> <ul style="list-style-type: none"> a. For DG 1A and DG 1B loaded ≥ 3030 kW and ≤ 3130 kW; and b. For DG 1C: <ul style="list-style-type: none"> 1. For ≥ 2 hours loaded ≥ 2750 kW and ≤ 2850 kW, and 2. For the remaining hours of the test loaded ≥ 2500 kW and ≤ 2600 kW. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.14 ¹⁵ -----NOTES-----</p> <p>1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ 1 hour loaded ≥ 3000 kW and ≤ 3100 kW for DG 1A and DG 1B, and ≥ 2500 kW and ≤ 2600 for DG 1C, or operating temperatures have stabilized, whichever is longer.</p> <p> Momentary transients outside of the load range do not invalidate this test.</p> <p>2. All DG starts may be preceded by an engine prelube period.</p> <p>-----</p> <p>Verify each DG starts and achieves, in ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C, voltage ≥ 3740 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</p>	<p>18 months</p>
<p>SR 3.8.1.15 ¹⁶ -----NOTE-----</p> <p>This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR.</p> <p>-----</p> <p>Verify each DG:</p> <p>a. Synchronizes with offsite power source while loaded with emergency loads upon a simulated restoration of offsite power;</p> <p>b. Transfers loads to offsite power source; and</p> <p>c. Returns to ready-to-load operation.</p>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.16  -----NOTE----- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ----- Verify, with a DG operating in test mode and connected to its bus, an actual or simulated ECCS initiation signal overrides the test mode by:</p> <ul style="list-style-type: none"> a. Returning DG to ready-to-load operation; and b. Automatically energizing the emergency loads from offsite power. 	<p>18 months</p>
<p>SR 3.8.1.17  -----NOTE----- This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. ----- Verify sequence time is within $\pm 10\%$ of design for each load sequencer timer.</p>	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.18  -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, or 3. However, credit may be taken for unplanned events that satisfy this SR. <p>-----</p> <p>Verify, on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ECCS initiation signal:</p> <ol style="list-style-type: none"> a. De-energization of emergency buses; b. Load shedding from emergency buses for Divisions I and II; and c. DG auto-starts from standby condition and: <ol style="list-style-type: none"> 1. energizes permanently connected loads in ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C, 2. energizes auto-connected emergency loads, 3. achieves steady state voltage ≥ 3740 V and ≤ 4580 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes. 	<p>18 months</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.8.1.1¹⁸  -----NOTE----- All DG starts may be preceded by an engine prelube period. -----</p> <p>Verify, when started simultaneously from standby condition, each DG achieves, in ≤ 10 seconds for DG 1A and DG 1B and ≤ 13 seconds for DG 1C, voltage ≥ 3740 V and ≤ 4580 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</p>	<p>10 years</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY																		
<p>SR 3.8.2.1</p> <p style="text-align: center;">-----NOTE-----</p> <p>The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.8 through SR 3.8.1.10, SR 3.8.1.12 through SR 3.8.1.15, SR 3.8.1.17, and SR 3.8.1.18.</p> <p>For AC sources required to be OPERABLE, the following SRs are applicable:</p> <table border="0"> <tr> <td>SR 3.8.1.1</td> <td>SR 3.8.1.8⁷</td> <td>SR 3.8.1.14</td> </tr> <tr> <td>SR 3.8.1.2</td> <td>SR 3.8.1.9</td> <td>SR 3.8.1.15</td> </tr> <tr> <td>SR 3.8.1.3</td> <td>SR 3.8.1.10</td> <td>SR 3.8.1.16</td> </tr> <tr> <td>SR 3.8.1.4</td> <td>SR 3.8.1.11</td> <td>SR 3.8.1.18</td> </tr> <tr> <td>SR 3.8.1.5</td> <td>SR 3.8.1.12</td> <td>SR 3.8.1.19</td> </tr> <tr> <td>SR 3.8.1.6</td> <td>SR 3.8.1.13</td> <td></td> </tr> </table>	SR 3.8.1.1	SR 3.8.1.8 ⁷	SR 3.8.1.14	SR 3.8.1.2	SR 3.8.1.9	SR 3.8.1.15	SR 3.8.1.3	SR 3.8.1.10	SR 3.8.1.16	SR 3.8.1.4	SR 3.8.1.11	SR 3.8.1.18	SR 3.8.1.5	SR 3.8.1.12	SR 3.8.1.19	SR 3.8.1.6	SR 3.8.1.13		<p style="text-align: center;">Insert</p> <p>In accordance with applicable SRs</p>
SR 3.8.1.1	SR 3.8.1.8 ⁷	SR 3.8.1.14																	
SR 3.8.1.2	SR 3.8.1.9	SR 3.8.1.15																	
SR 3.8.1.3	SR 3.8.1.10	SR 3.8.1.16																	
SR 3.8.1.4	SR 3.8.1.11	SR 3.8.1.18																	
SR 3.8.1.5	SR 3.8.1.12	SR 3.8.1.19																	
SR 3.8.1.6	SR 3.8.1.13																		

Insert for TS 3.8.2 (SR 3.8.2.1)

-----NOTE-----
The following SRs are not required to be
performed: SR 3.8.1.3, SR 3.8.1.9 through
SR 3.8.1.11, SR 3.8.1.13 through
SR 3.8.1.16, SR 3.8.1.18, and SR 3.8.1.19.

ATTACHMENT 3

TO

LETTER NO. RBF1-01-0009

PROPOSED TECHNICAL SPECIFICATION BASES MARK-UPS

(FOR INFORMATION ONLY)

LICENSE NO. NPF-47

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-458

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.1

This SR ensures proper circuit continuity for the two qualified circuits between the offsite transmission network and the onsite Class 1E Distribution System and availability of offsite AC electrical power. The breaker alignment verifies that each breaker is in its correct position to ensure that Division 1 and 2 distribution buses and loads are connected to their preferred power source and that appropriate independence of offsite circuits is maintained. The 7 day Frequency is adequate since breaker position is not likely to change without the operator being aware of it and because its status is displayed in the control room.

SR 3.8.1.2 and SR 3.8.1.7

These This SR helps to ensure the availability of the standby electrical power supply to mitigate DBAs and transients and 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 have been* ~~this SR is~~ modified by a Note to indicate that all DG starts for this Surveillance may be preceded by an engine prelube period and followed by a warmup period prior to loading. *these* *5*

Notes (the Note for SR 3.8.1.7 and Note 2 for SR 3.8.1.2) to

For the purposes of this testing, the DGs are started from standby conditions. Standby conditions for a DG mean that the diesel engine coolant and oil are being continuously circulated and temperature is being maintained consistent with manufacturer recommendations for DG 1A and DG 1B. For DG 1C, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation.

INSERT

SR 3.8.1.2 *7* requires that the DG starts from standby conditions, achieves and maintains the required steady-state (i.e., after any overshoot) voltage and frequency within 10 seconds for DG 1A and DG 1B and 13 seconds for DG 1C. The start requirements for each DG support the assumptions in the design basis LOCA analysis (Ref. 5). *at a 184 day Frequency,* The start requirements may not be applicable to (continued)

Insert for Bases 3.8.1 (SR 3.8.1.2 and SR 3.8.1.7)

In order to reduce stress and wear on diesel engines, the manufacturer recommends that the DGs be gradually accelerated to synchronous speed prior to loading. These modified start procedures are the intent of Note 3, which is only applicable when such procedures are used.

BASES

and SR 3.8.1.7

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.2 (continued)

These Frequencies

INSERT

The normal 31 day Frequency for SR 3.8.1.2 is consistent with the industry guidelines for assessment of diesel generator performance (Refs. 14 and 15). This Frequency provides adequate assurance of DG OPERABILITY, while minimizing degradation resulting from testing.

The 184 day Frequency for SR 3.8.1.7 is a reduction in cold testing consistent with Generic Letter 84-15 (Ref. 7).

SR 3.8.1.3

This Surveillance demonstrates that the DGs are capable of synchronizing and accepting the surveillance test load of 3.000 - 3.100 kW. These Technical Specification load values were selected in view of human engineering considerations that the smallest graduation on the watt meter is 100 kW. The minimum run time of 60 minutes is required to stabilize engine temperatures, while minimizing the time that the DG is connected to the offsite source.

Although no power factor requirements are established by this SR, the DG is normally operated at a power factor between 0.8 lagging and 1.0. The 0.8 value is the design rating of the machine, while 1.0 is an operational limitation to ensure circulating currents are minimized. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The 31 day Frequency for this Surveillance is consistent with the industry guidelines for assessment of diesel generator performance (Refs. 14 and 15).

Note 1 modifies this Surveillance to indicate that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized.

Note 2 modifies this Surveillance by stating that momentary transients because of changing bus loads do not invalidate this test.

(continued)

Insert for Bases 3.8.1 (SR 3.8.1.2 and SR 3.8.1.7 (continued))

3.8.1.2 (see Note 3 of SR 3.8.1.2), when a modified start procedure as described above is used. If a modified start is not used, the start requirements of SR 3.8.1.7 apply. Since SR 3.8.1.7 does require a 10 second start for DG1A and DG 1B and 13 seconds for DG 1C, it is more restrictive than SR 3.8.1.2, and it may be performed in lieu of SR 3.8.1.2. This is the intent of Note 1 of SR 3.8.1.2. Similarly, the performance of SR 3.8.1.12 or SR 3.8.1.19 also satisfies the requirements of SR 3.8.1.2 and SR 3.8.1.7.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.5 (continued)

Guide 1.137 (Ref. 10). This SR is for preventive maintenance. The presence of water does not necessarily represent a failure of this SR provided that accumulated water is removed during performance of this Surveillance.

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. It is required to support the continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

The design of the fuel transfer systems is such that pumps operate automatically in order to maintain an adequate volume of fuel oil in the day tanks during or following DG testing. Therefore, a 31 day Frequency is specified to correspond to the maximum interval for DG testing.

SR 3.8.1.7

SR 3.8.1.7 8

See SR 3.8.1.2.

Transfer of each 4.16 kV ESF bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit. The 18 month Frequency of the Surveillance is based on engineering judgment taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed on the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

(continued)

BASES

SURVEILLANCE
REQUIREMENTSSR 3.8.1 ⁷⁸ (continued)

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1 ⁸⁹

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine overspeed, which, if excessive, might result in a trip of the engine. This Surveillance demonstrates the DG load response characteristics and capability to reject the largest single load while maintaining a specified margin to the overspeed trip. The referenced load for DG 1A is the 917.5 kW low pressure core spray pump; for DG 1B, the 462.2 kW residual heat removal (RHR) pump; and for DG 1C the 1995 kW HPCS pump. The Standby Service Water (SSW) pump values are not used as the largest load since the SSW supplies cooling to the associated DG. If this load were to trip, it would result in the loss of the DG. As required by IEEE-308 (Ref. 13), the load rejection test is acceptable if the increase in diesel speed does not exceed 75% of the difference between synchronous speed and the overspeed trip

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.89 (continued)

setpoint, or 15% above synchronous speed, whichever is lower. For the River Bend Station the lower value results from the first criteria. The 18 month frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9).

This SR has been modified by two Notes. The reason for Note 1 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, Note 2 requires that, if synchronized to offsite power, testing be performed using a power factor ≤ 0.9 . This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience.

SR 3.8.1.9 10

This Surveillance demonstrates the DG capability to reject a full load, i.e., maximum expected accident load, without overspeed tripping or exceeding the predetermined voltage limits. The DG full load rejection may occur because of a system fault or inadvertent breaker tripping. This Surveillance ensures proper engine generator load response

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1(9/10) (continued)

under the simulated test conditions. This test simulates the loss of the total connected load that the DG experiences following a full load rejection and verifies that the DG does not trip upon loss of the load. These acceptance criteria provide DG damage protection. While the DG is not expected to experience this transient during an event and continue to be available, this response ensures that the DG is not degraded for future application, including reconnection to the bus if the trip initiator can be corrected or isolated.

In order to ensure that the DG is tested under load conditions that are as close to design basis conditions as possible, testing must be performed using a power factor ≤ 0.9 . This power factor is chosen to be representative of the actual design basis inductive loading that the DG would experience.

The 18 month Frequency is consistent with the recommendation of Regulatory Guide 1.108 (Ref. 9) and is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by a Note. The reason for the Note is that during operation with the reactor critical, performance of this SR could cause perturbation to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1 ~~10~~ 11

As required by Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), this Surveillance demonstrates the as designed operation of the standby power sources during loss of the offsite source. This test verifies all actions encountered from the loss of offsite power, including shedding of the Division I and II nonessential loads and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to automatically achieve the required voltage and frequency within the specified time.

The DG auto-start time of 10 seconds for DG 1A and DG 1B and 13 seconds for DG 1C is derived from requirements of the accident analysis to respond to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability has been achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, ECCS injection valves are not desired to be stroked open, systems are not capable of being operated at full flow, or RHR systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation. In lieu of actual demonstration of the connection and loading of these loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(1), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

(continued)

BASES

SURVEILLANCE
REQUIREMENTSSR 3.8.1.10 (continued)

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations for DG 1A and DG 1B. For DG 1C, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.11 12

This Surveillance demonstrates that the DG automatically starts and achieves the required voltage and frequency within the specified time (10 seconds for DG 1A and DG 1B and 13 seconds for DG 1C) from the design basis actuation signal (LOCA signal) and operates for ≥ 5 minutes. The 5 minute period provides sufficient time to demonstrate stability.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1/11,12 (continued)

The Frequency of 18 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with the expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations for DG 1A and DG 1B. For DG 1C, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation. The reason for Note 2 is that during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1/12, 13

This Surveillance demonstrates that DG non-critical protective functions (e.g., high jacket water temperature)

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1/12/13 (continued)

are bypassed on an ECCS initiation test signal and critical protective functions trip the DG to avert substantial damage to the DG unit. The non-critical trips are bypassed during DBAs and provide alarms on abnormal engine conditions. These alarms provide the operator with necessary information to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

The 18 month Frequency is based on engineering judgment, taking into consideration plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed at the 18 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

The SR is modified by a Note. The reason for the Note is that performing the Surveillance removes a required DG from service. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1/14/14⁹

Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3), requires demonstration once per 18 months that the DGs can start and run continuously at full load capability for an interval of not less than 24 hours—22 hours of which is at a load

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.13 (continued)

equivalent to the continuous rating of the DG, and 2 hours of which is at a load equivalent to 110% of the continuous duty rating of the DG. An exception to the loading requirements is made for DG 1A and DG 1B. DG 1A and DG 1B are operated for 24 hours at a load greater than or equal to the maximum expected post accident load. Load carrying capability testing of the Transamerica Delaval Inc. (TDI) diesel generators (DG 1A and DG 1B) has been limited to a load less than that which corresponds to 201 psig brake mean effective pressure (BMEP). Therefore, full load testing is performed at a load ≥ 3030 kW but < 3130 kW. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelube and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor ≤ 0.9 . This power factor is chosen to be representative of the actual design basis inductive loading that the DG could experience.

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. Similarly, momentary power factor transients above the limit do not invalidate the test. The reason for Note 2 is that credit may be taken for unplanned events

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.13 14 (continued)

that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1.14 15

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within 10 seconds for DG 1A and DG 1B and within 13 seconds for DG 1C. The time requirements are derived from the requirements of the accident analysis to respond to a design basis large break LOCA.

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(5).

This SR has been modified by two Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The requirement that the diesel has operated for at least 1 hour at full load conditions prior to performance of this Surveillance and longer if necessary to stabilize the operating temperature, is based on manufacturer recommendations for achieving hot conditions. The load band is provided to avoid routine overloading of the DG. Routine overloads may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1 ~~15~~ 16

As required by Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), this Surveillance ensures that the manual synchronization and load transfer from the respective DG to each required offsite power source can be made and that the respective DG can be returned to ready-to-load status when offsite power is restored. It also ensures that the undervoltage logic is reset to allow the DG to reload if a subsequent loss of offsite power occurs. The DG is considered to be in ready-to-load status when the DG is at rated speed and voltage, the output breaker is open and can receive an auto-close signal on bus undervoltage, and the load sequence timers are reset.

Portions of the synchronization circuit are associated with the DG and portions with the respective offsite circuit. If a failure in the synchronization requirement of the Surveillance occurs, depending on the specific affected portion of the synchronization circuit, either the DG or the associated offsite circuit is declare inoperable.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(6), and takes into consideration plant conditions required to perform the Surveillance.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

(continued)

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.8.1.16 17

Demonstration of the test mode override ensures that the DG availability under accident conditions is not compromised as the result of testing. Interlocks to the LOCA sensing circuits cause the DG to automatically reset to ready-to-load operation if an ECCS initiation signal is received during operation in the test mode. Ready-to-load operation is defined as the DG running at rated speed and voltage with the DG output breaker open. These provisions for automatic switchover are required by IEEE-308 (Ref. 13), paragraph 6.2.6(2).

13
18

The requirement to automatically energize the emergency loads with offsite power is essentially identical to that of SR 3.8.1.12. The intent in the requirement associated with SR 3.8.1.17, b is to show that the emergency loading is not affected by the DG operation in test mode. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the emergency loads to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The 18 month Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(8); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This SR has been modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1(16) (continued)

- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1(17) 18

Under accident conditions, loads are sequentially connected to the bus by the load sequencing logic. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the bus power supply due to high motor starting currents. The 10% load sequence time tolerance ensures that sufficient time exists for the bus power supply to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. (Note that this surveillance requirement pertains only to the load sequence-timer itself, and not to the interposing logic which comprises the remainder of the circuit.) Reference 2 provides a summary of the automatic loading of ESF buses.

The Frequency of 18 months is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(2); takes into consideration plant conditions required to perform the Surveillance; and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance during these MODES would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1 ¹⁷18 (continued)

- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1 ¹⁸19

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates ¹²the DG operation, as discussed in the Bases for SR 3.8.1 ¹¹, during a loss of offsite power actuation test signal in conjunction with an ECCS initiation signal. In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The Frequency of 18 months takes into consideration plant conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 18 months.

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil being continuously circulated and temperature maintained consistent with manufacturer recommendations for DG 1A and DG 1B. For DG 1C, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation. The reason for Note 2 is that performing the Surveillance would remove a required offsite circuit from

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1 19 (continued)

service, perturb the electrical distribution system, and challenge plant safety systems. Credit may be taken for unplanned events that satisfy this SR. Examples of unplanned events may include:

- 1) Unexpected operational events which cause the equipment to perform the function specified by this Surveillance, for which adequate documentation of the required performance is available; and
- 2) Post corrective maintenance testing that requires performance of this Surveillance in order to restore the component to OPERABLE, provided the maintenance was required, or performed in conjunction with maintenance required to maintain OPERABILITY or reliability.

SR 3.8.1 19 20

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously.

The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9).

This SR is modified by a Note. The reason for the Note is to minimize wear on the DG during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations for DG 1A and DG 1B. For DG 1C, standby conditions mean that the lube oil is heated by the jacket water and continuously circulated through a portion of the system as recommended by the vendor. Engine jacket water is heated by an immersion heater and circulates through the system by natural circulation.

(continued)

BASES

ACTIONS

A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3, and B.4
(continued)

minimize the time during which the plant safety systems may be without sufficient power.

Pursuant to LCO 3.0.6, the Distribution System ACTIONS are not entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A have been modified by a Note to indicate that when Condition A is entered with no AC power to any required ESF bus, ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit whether or not a division is de-energized. LCO 3.8.10 provides the appropriate restrictions for the situation involving a de-energized division.

C.1

When the HPCS is required to be OPERABLE, and the additional required Division III AC source is inoperable, the required diversity of AC power sources to the HPCS is not available. Since these sources only affect the HPCS, the HPCS is declared inoperable and the Required Actions of the affected Emergency Core Cooling Systems LCO entered.

In the event all sources of power to Division III are lost, Condition A will also be entered and direct that the ACTIONS of LCO 3.8.10 be taken. If only the Division III additional required AC source is inoperable, and power is still supplied to HPCS, 72 hours is allowed to restore the additional required AC source to OPERABLE. This is reasonable considering HPCS will still perform its function, absent an additional single failure.

SURVEILLANCE
REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, and 3. SR 3.8.1.7 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.16 is not required to be met because the required OPERABLE DG(5) is not required to undergo periods

8

17

(continued)

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.2.1 (continued)

of being synchronized to the offsite circuit. SR 3.8.1 is excepted because starting independence is not required with the DG(s) that is not required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR. 20
19e

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of SRs, and preclude de-energizing a required 4.16 KV ESF bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG is required to be OPERABLE.

REFERENCES

None.
