



Energy to Serve Your World<sup>SM</sup>  
FNP-130-NRC-DC  
JANUARY 10, 2002

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MR. FRANK RINALDI  
U. S. NUCLEAR REGULATORY COMMISSION  
MAIL STOP O-8H12 PD II-1  
WASHINGTON, DC 20555

DEAR SIR,

ATTACHED YOU WILL FIND REVISION 11 TO THE TECHNICAL SPECIFICATION BASES.  
PLEASE REPLACE YOUR COPY OF THE EFFECTIVE PAGES WITH THE ATTACHED REVISED  
COPIES.

IF YOU HAVE QUESTIONS PLEASE CALL ME AT 334-899-5156 EXTENSION 3439.

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# Changed Pages List

## For ITS Bases

### Revision 11

Replace the following pages of the Technical Specifications Bases with the attached revised pages. The revised pages are identified as **Revision 11**. They contain vertical lines indicating area of changes (except LOEP has no rev bars).

| <u>Remove</u>          | <u>Instructions</u> |
|------------------------|---------------------|
| LOEP pages 1 Through 5 | Replace             |
| B 3.8.1-1              | Replace             |
| B 3.8.1-4              | Replace             |
| B 3.8.2-3              | Replace             |

UNIT 1 AND UNIT 2  
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| <b>BASES</b>                        |              |                          |              |                          |              |
| <b>Appendix A Bases Cover Sheet</b> |              |                          |              |                          |              |
| i.....                              | 0            | B 3.1.4-3.....           | 0            | B 3.2.2-4.....           | 0            |
| ii.....                             | 0            | B 3.1.4-4.....           | 0            | B 3.2.2-5.....           | 0            |
| iii.....                            | 0            | B 3.1.4-5.....           | 0            | B 3.2.2-6.....           | 0            |
| <b>Section B 2.0 Tab</b>            |              |                          |              |                          |              |
| B 2.1.1-1.....                      | 0            | B 3.1.4-6.....           | 0            | B 3.2.2-7.....           | 0            |
| B 2.1.1-2.....                      | 10           | B 3.1.4-7.....           | 0            | B 3.2.3-1.....           | 0            |
| B 2.1.1-3.....                      | 10           | B 3.1.4-8.....           | 0            | B 3.2.3-2.....           | 0            |
| B 2.1.1-4.....                      | 10           | B 3.1.4-9.....           | 0            | B 3.2.3-3.....           | 0            |
| B 2.1.2-1.....                      | 0            | B 3.1.4-10.....          | 0            | B 3.2.3-4.....           | 0            |
| B 2.1.2-2.....                      | 0            | B 3.1.5-1.....           | 0            | B 3.2.3-5.....           | 0            |
| B 2.1.2-3.....                      | 0            | B 3.1.5-2.....           | 0            | B 3.2.4-1.....           | 0            |
| <b>Section B 3.0 Tab</b>            |              |                          |              |                          |              |
| B 3.0-1.....                        | 0            | B 3.1.5-3.....           | 0            | B 3.2.4-2.....           | 0            |
| B 3.0-2.....                        | 0            | B 3.1.5-4.....           | 0            | B 3.2.4-3.....           | 0            |
| B 3.0-3.....                        | 0            | B 3.1.5-5.....           | 0            | B 3.2.4-4.....           | 0            |
| B 3.0-4.....                        | 0            | B 3.1.6-1.....           | 0            | B 3.2.4-5.....           | 0            |
| B 3.0-5.....                        | 0            | B 3.1.6-2.....           | 0            | B 3.2.4-6.....           | 0            |
| B 3.0-6.....                        | 0            | B 3.1.6-3.....           | 0            | B 3.2.4-7.....           | 0            |
| B 3.0-7.....                        | 0            | B 3.1.6-4.....           | 0            | <b>Section B 3.3 Tab</b> |              |
| B 3.0-8.....                        | 0            | B 3.1.6-5.....           | 0            | B 3.3.1-1.....           | 0            |
| B 3.0-9.....                        | 0            | B 3.1.6-6.....           | 0            | B 3.3.1-2.....           | 0            |
| B 3.0-10.....                       | 0            | B 3.1.6-7.....           | 0            | B 3.3.1-3.....           | 0            |
| B 3.0-11.....                       | 0            | B 3.1.7-1.....           | 0            | B 3.3.1-4.....           | 0            |
| B 3.0-12.....                       | 0            | B 3.1.7-2.....           | 0            | B 3.3.1-5.....           | 0            |
| B 3.0-13.....                       | 0            | B 3.1.7-3.....           | 0            | B 3.3.1-6.....           | 0            |
| B 3.0-14.....                       | 0            | B 3.1.7-4.....           | 0            | B 3.3.1-7.....           | 0            |
| B 3.0-15.....                       | 0            | B 3.1.7-5.....           | 0            | B 3.3.1-8.....           | 0            |
| <b>Section B 3.1 Tab</b>            |              |                          |              |                          |              |
| B 3.1.1-1.....                      | 0            | B 3.1.7-6.....           | 0            | B 3.3.1-9.....           | 0            |
| B 3.1.1-2.....                      | 0            | B 3.1.7-7.....           | 0            | B 3.3.1-10.....          | 0            |
| B 3.1.1-3.....                      | 0            | B 3.1.7-8.....           | 0            | B 3.3.1-11.....          | 0            |
| B 3.1.1-4.....                      | 0            | B 3.1.8-1.....           | 0            | B 3.3.1-12.....          | 0            |
| B 3.1.1-5.....                      | 0            | B 3.1.8-2.....           | 0            | B 3.3.1-13.....          | 0            |
| B 3.1.1-6.....                      | 0            | B 3.1.8-3.....           | 0            | B 3.3.1-14.....          | 0            |
| <b>Section B 3.2 Tab</b>            |              |                          |              |                          |              |
| B 3.1.2-1.....                      | 0            | B 3.1.8-4.....           | 0            | B 3.3.1-15.....          | 0            |
| B 3.1.2-2.....                      | 0            | B 3.1.8-5.....           | 0            | B 3.3.1-16.....          | 0            |
| B 3.1.2-3.....                      | 0            | B 3.1.8-6.....           | 0            | B 3.3.1-17.....          | 0            |
| B 3.1.2-4.....                      | 0            | B 3.1.8-7.....           | 0            | B 3.3.1-18.....          | 0            |
| B 3.1.2-5.....                      | 0            | B 3.1.8-8.....           | 0            | B 3.3.1-19.....          | 0            |
| B 3.1.2-6.....                      | 0            | <b>Section B 3.2 Tab</b> |              | B 3.3.1-20.....          | 9            |
| B 3.1.3-1.....                      | 0            | B 3.2.1-1.....           | 0            | B 3.3.1-21.....          | 0            |
| B 3.1.3-2.....                      | 0            | B 3.2.1-2.....           | 0            | B 3.3.1-22.....          | 0            |
| B 3.1.3-3.....                      | 0            | B 3.2.1-3.....           | 0            | B 3.3.1-23.....          | 0            |
| B 3.1.3-4.....                      | 0            | B 3.2.1-4.....           | 0            | B 3.3.1-24.....          | 0            |
| B 3.1.3-5.....                      | 0            | B 3.2.1-5.....           | 0            | B 3.3.1-25.....          | 0            |
| B 3.1.3-6.....                      | 0            | B 3.2.1-6.....           | 0            | B 3.3.1-26.....          | 0            |
| B 3.1.4-1.....                      | 0            | B 3.2.1-7.....           | 0            | B 3.3.1-27.....          | 0            |
| B 3.1.4-2.....                      | 0            | B 3.2.1-8.....           | 0            | B 3.3.1-28.....          | 0            |
|                                     |              | B 3.2.1-9.....           | 0            | B 3.3.1-29.....          | 0            |
|                                     |              | B 3.2.1-10.....          | 0            | B 3.3.1-30.....          | 0            |
|                                     |              | B 3.2.1-11.....          | 0            | B 3.3.1-31.....          | 0            |
|                                     |              | B 3.2.2-1.....           | 0            | B 3.3.1-32.....          | 0            |
|                                     |              | B 3.2.2-2.....           | 0            | B 3.3.1-33.....          | 0            |
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| B 3.3.1-35 | 0            | B 3.3.2-25 | 0            | B 3.3.5-4         | 0            |
| B 3.3.1-36 | 0            | B 3.3.2-26 | 0            | B 3.3.5-5         | 0            |
| B 3.3.1-37 | 0            | B 3.3.2-27 | 0            | B 3.3.5-6         | 0            |
| B 3.3.1-38 | 0            | B 3.3.2-28 | 0            | B 3.3.5-7         | 0            |
| B 3.3.1-39 | 0            | B 3.3.2-29 | 0            | B 3.3.5-8         | 0            |
| B 3.3.1-40 | 0            | B 3.3.2-30 | 0            | B 3.3.6-1         | 0            |
| B 3.3.1-41 | 0            | B 3.3.2-31 | 0            | B 3.3.6-2         | 0            |
| B 3.3.1-42 | 0            | B 3.3.2-32 | 0            | B 3.3.6-3         | 0            |
| B 3.3.1-43 | 0            | B 3.3.2-33 | 0            | B 3.3.6-4         | 0            |
| B 3.3.1-44 | 0            | B 3.3.2-34 | 0            | B 3.3.6-5         | 0            |
| B 3.3.1-45 | 0            | B 3.3.2-35 | 0            | B 3.3.6-6         | 0            |
| B 3.3.1-46 | 0            | B 3.3.2-36 | 0            | B 3.3.6-7         | 0            |
| B 3.3.1-47 | 0            | B 3.3.2-37 | 0            | B 3.3.6-8         | 0            |
| B 3.3.1-48 | 0            | B 3.3.2-38 | 0            | B 3.3.6-9         | 0            |
| B 3.3.1-49 | 0            | B 3.3.2-39 | 0            | B 3.3.7-1         | 0            |
| B 3.3.1-50 | 0            | B 3.3.2-40 | 0            | B 3.3.7-2         | 0            |
| B 3.3.1-51 | 0            | B 3.3.2-41 | 0            | B 3.3.7-3         | 0            |
| B 3.3.1-52 | 0            | B 3.3.2-42 | 0            | B 3.3.7-4         | 0            |
| B 3.3.1-53 | 0            | B 3.3.2-43 | 0            | B 3.3.7-5         | 0            |
| B 3.3.1-54 | 0            | B 3.3.2-44 | 0            | B 3.3.7-6         | 0            |
| B 3.3.1-55 | 0            | B 3.3.2-45 | 0            | B 3.3.7-7         | 0            |
| B 3.3.1-56 | 0            | B 3.3.2-46 | 7            | B 3.3.7-8         | 0            |
| B 3.3.1-57 | 0            | B 3.3.2-47 | 7            | B 3.3.8-1         | 0            |
| B 3.3.1-58 | 7            | B 3.3.2-48 | 7            | B 3.3.8-2         | 0            |
| B 3.3.1-59 | 7            | B 3.3.3-1  | 0            | B 3.3.8-3         | 0            |
| B 3.3.1-60 | 7            | B 3.3.3-2  | 0            | B 3.3.8-4         | 0            |
| B 3.3.2-1  | 0            | B 3.3.3-3  | 0            | B 3.3.8-5         | 0            |
| B 3.3.2-2  | 0            | B 3.3.3-4  | 0            | B 3.3.8-6         | 0            |
| B 3.3.2-3  | 0            | B 3.3.3-5  | 0            | B 3.3.8-7         | 0            |
| B 3.3.2-4  | 0            | B 3.3.3-6  | 0            | B 3.3.8-8         | 0            |
| B 3.3.2-5  | 0            | B 3.3.3-7  | 0            | B 3.3.8-9         | 0            |
| B 3.3.2-6  | 0            | B 3.3.3-8  | 0            | Section B 3.4 Tab |              |
| B 3.3.2-7  | 0            | B 3.3.3-9  | 0            | B 3.4.1-1         | 0            |
| B 3.3.2-8  | 0            | B 3.3.3-10 | 0            | B 3.4.1-2         | 10           |
| B 3.3.2-9  | 0            | B 3.3.3-11 | 0            | B 3.4.1-3         | 10           |
| B 3.3.2-10 | 0            | B 3.3.3-12 | 0            | B 3.4.1-4         | 0            |
| B 3.3.2-11 | 0            | B 3.3.3-13 | 0            | B 3.4.1-5         | 0            |
| B 3.3.2-12 | 0            | B 3.3.3-14 | 0            | B 3.4.2-1         | 0            |
| B 3.3.2-13 | 0            | B 3.3.3-15 | 0            | B 3.4.2-2         | 0            |
| B 3.3.2-14 | 0            | B 3.3.3-16 | 0            | B 3.4.2-3         | 0            |
| B 3.3.2-15 | 0            | B 3.3.3-17 | 0            | B 3.4.3-1         | 0            |
| B 3.3.2-16 | 0            | B 3.3.4-1  | 0            | B 3.4.3-2         | 0            |
| B 3.3.2-17 | 0            | B 3.3.4-2  | 0            | B 3.4.3-3         | 0            |
| B 3.3.2-18 | 0            | B 3.3.4-3  | 0            | B 3.4.3-4         | 0            |
| B 3.3.2-19 | 0            | B 3.3.4-4  | 0            | B 3.4.3-5         | 0            |
| B 3.3.2-20 | 0            | B 3.3.4-5  | 0            | B 3.4.3-6         | 0            |
| B 3.3.2-21 | 0            | B 3.3.4-6  | 0            | B 3.4.3-7         | 0            |
| B 3.3.2-22 | 0            | B 3.3.5-1  | 0            | B 3.4.4-1         | 0            |
| B 3.3.2-23 | 0            | B 3.3.5-2  | 0            | B 3.4.4-2         | 0            |

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| B 3.4.4-4   | 0            | B 3.4.13-2        | 5            | B 3.5.4-2         | 0            |
| B 3.4.5-1   | 0            | B 3.4.13-3        | 5            | B 3.5.4-3         | 0            |
| B 3.4.5-2   | 0            | B 3.4.13-4        | 5            | B 3.5.4-4         | 0            |
| B 3.4.5-3   | 0            | B 3.4.13-5        | 0            | B 3.5.4-5         | 0            |
| B 3.4.5-4   | 0            | B 3.4.13-6        | 0            | B 3.5.4-6         | 0            |
| B 3.4.5-5   | 5            | B 3.4.14-1        | 0            | B 3.5.5-1         | 0            |
| B 3.4.5-6   | 5            | B 3.4.14-2        | 0            | B 3.5.5-2         | 0            |
| B 3.4.6-1   | 0            | B 3.4.14-3        | 0            | B 3.5.5-3         | 0            |
| B 3.4.6-2   | 0            | B 3.4.14-4        | 0            | B 3.5.5-4         | 0            |
| B 3.4.6-3   | 0            | B 3.4.14-5        | 0            | B 3.5.6-1         | 0            |
| B 3.4.6-4   | 0            | B 3.4.14-6        | 6            | B 3.5.6-2         | 0            |
| B 3.4.6-5   | 5            | B 3.4.14-7        | 0            | B 3.5.6-3         | 0            |
| B 3.4.7-1   | 5            | B 3.4.14-8        | 0            | B 3.5.6-4         | 0            |
| B 3.4.7-2   | 5            | B 3.4.15-1        | 0            | B 3.5.6-5         | 0            |
| B 3.4.7-3   | 0            | B 3.4.15-2        | 0            | Section B 3.6 Tab |              |
| B 3.4.7-4   | 5            | B 3.4.15-3        | 0            | B 3.6.1-1         | 0            |
| B 3.4.7-5   | 5            | B 3.4.15-4        | 0            | B 3.6.1-2         | 5            |
| B 3.4.8-1   | 0            | B 3.4.15-5        | 0            | B 3.6.1-3         | 0            |
| B 3.4.8-2   | 0            | B 3.4.15-6        | 0            | B 3.6.1-4         | 4            |
| B 3.4.8-3   | 0            | B 3.4.16-1        | 5            | B 3.6.1-5         | 0            |
| B 3.4.9-1   | 0            | B 3.4.16-2        | 5            | B 3.6.2-1         | 0            |
| B 3.4.9-2   | 0            | B 3.4.16-3        | 5            | B 3.6.2-2         | 5            |
| B 3.4.9-3   | 0            | B 3.4.16-4        | 0            | B 3.6.2-3         | 0            |
| B 3.4.9-4   | 0            | B 3.4.16-5        | 0            | B 3.6.2-4         | 0            |
| B 3.4.9-5   | 0            | B 3.4.16-6        | 0            | B 3.6.2-5         | 0            |
| B 3.4.10-1  | 0            | Section B 3.5 Tab |              | B 3.6.2-6         | 0            |
| B 3.4.10-2  | 0            | B 3.5.1-1         | 0            | B 3.6.2-7         | 0            |
| B 3.4.10-3  | 0            | B 3.5.1-2         | 0            | B 3.6.2-8         | 0            |
| B 3.4.10-4  | 4            | B 3.5.1-3         | 0            | B 3.6.3-1         | 0            |
| B 3.4.10-5  | 0            | B 3.5.1-4         | 0            | B 3.6.3-2         | 0            |
| B 3.4.11-1  | 0            | B 3.5.1-5         | 0            | B 3.6.3-3         | 0            |
| B 3.4.11-2  | 0            | B 3.5.1-6         | 0            | B 3.6.3-4         | 0            |
| B 3.4.11-3  | 0            | B 3.5.1-7         | 0            | B 3.6.3-5         | 0            |
| B 3.4.11-4  | 0            | B 3.5.1-8         | 0            | B 3.6.3-6         | 0            |
| B 3.4.11-5  | 0            | B 3.5.2-1         | 0            | B 3.6.3-7         | 0            |
| B 3.4.11-6  | 0            | B 3.5.2-2         | 0            | B 3.6.3-8         | 0            |
| B 3.4.11-7  | 2            | B 3.5.2-3         | 0            | B 3.6.3-9         | 0            |
| B 3.4.11-8  | 2            | B 3.5.2-4         | 0            | B 3.6.3-10        | 0            |
| B 3.4.12-1  | 0            | B 3.5.2-5         | 0            | B 3.6.3-11        | 0            |
| B 3.4.12-2  | 0            | B 3.5.2-6         | 0            | B 3.6.3-12        | 0            |
| B 3.4.12-3  | 0            | B 3.5.2-7         | 0            | B 3.6.3-13        | 0            |
| B 3.4.12-4  | 0            | B 3.5.2-8         | 0            | B 3.6.3-14        | 0            |
| B 3.4.12-5  | 0            | B 3.5.2-9         | 4            | B 3.6.4-1         | 5            |
| B 3.4.12-6  | 0            | B 3.5.2-10        | 0            | B 3.6.4-2         | 0            |
| B 3.4.12-7  | 0            | B 3.5.3-1         | 0            | B 3.6.4-3         | 0            |
| B 3.4.12-8  | 0            | B 3.5.3-2         | 4            | B 3.6.5-1         | 0            |
| B 3.4.12-9  | 0            | B 3.5.3-3         | 0            | B 3.6.5-2         | 5            |
| B 3.4.12-10 | 0            | B 3.5.3-4         | 0            | B 3.6.5-3         | 5            |
| B 3.4.12-11 | 0            | B 3.5.3-5         | 0            | B 3.6.5-4         | 0            |

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| B 3.6.6-2 .....   | 0            | B 3.7.5-1 .....  | 0            | B 3.7.15-1 .....  | 0            |
| B 3.6.6-3 .....   | 5            | B 3.7.5-2 .....  | 0            | B 3.7.15-2 .....  | 0            |
| B 3.6.6-4 .....   | 8            | B 3.7.5-3 .....  | 0            | B 3.7.15-3 .....  | 0            |
| B 3.6.6-5 .....   | 8            | B 3.7.5-4 .....  | 0            | B 3.7.15-4 .....  | 0            |
| B 3.6.6-6 .....   | 8            | B 3.7.5-5 .....  | 0            | B 3.7.16-1 .....  | 5            |
| B 3.6.6-7 .....   | 8            | B 3.7.5-6 .....  | 0            | B 3.7.16-2 .....  | 0            |
| B 3.6.6-8 .....   | 8            | B 3.7.5-7 .....  | 0            | B 3.7.16-3 .....  | 0            |
| B 3.6.6-9 .....   | 8            | B 3.7.5-8 .....  | 0            | Section B 3.8 Tab |              |
| B 3.6.6-10 .....  | 8            | B 3.7.5-9 .....  | 0            | B 3.8.1-1 .....   | 11           |
| B 3.6.6-11 .....  | 8            | B 3.7.5-10 ..... | 0            | B 3.8.1-2 .....   | 0            |
| B 3.6.7-1 .....   | 0            | B 3.7.6-1 .....  | 0            | B 3.8.1-3 .....   | 0            |
| B 3.6.7-2 .....   | 0            | B 3.7.6-2 .....  | 0            | B 3.8.1-4 .....   | 11           |
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| B 3.6.7-4 .....   | 0            | B 3.7.6-4 .....  | 0            | B 3.8.1-6 .....   | 0            |
| B 3.6.7-5 .....   | 0            | B 3.7.7-1 .....  | 0            | B 3.8.1-7 .....   | 0            |
| B 3.6.7-6 .....   | 0            | B 3.7.7-2 .....  | 0            | B 3.8.1-8 .....   | 0            |
| B 3.6.8-1 .....   | 0            | B 3.7.7-3 .....  | 0            | B 3.8.1-9 .....   | 0            |
| B 3.6.8-2 .....   | 0            | B 3.7.7-4 .....  | 0            | B 3.8.1-10 .....  | 0            |
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## B 3.8 ELECTRICAL POWER SYSTEMS

### B 3.8.1 AC Sources — Operating

#### BASES

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#### BACKGROUND

The unit Class 1E AC Electrical Power Distribution System AC sources consist of the offsite power sources (preferred power sources, normal and alternate), and the onsite standby power sources (Train A and Train B diesel generators (DGs)). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The onsite Class 1E AC Distribution System is divided into redundant load groups (trains) so that the loss of any one group does not prevent the minimum safety functions from being performed. Each train has connections to two preferred offsite power sources and a single DG set. DG set A consists of the 1-2A and 1C DGs. DG set B consists of the 1B DG (Unit 1) and the 2B DG (Unit 2).

Offsite power is supplied to the 230 kV and 500 kV switchyard(s) from the transmission network by six transmission lines. From the 230 kV switchyard, two electrically and physically separated circuits provide AC power, through startup auxiliary transformers, to the 4.16 kV ESF buses. A detailed description of the offsite power network and the circuits to the Class 1E ESF buses is found in the FSAR, Chapter 8 (Ref. 2).

An offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite Class 1E ESF bus(es).

In addition to providing a pre-determined sequence of loading the DGs, the train A and train B automatic load sequencers also function to actuate the required ESF loads on the offsite circuits. When offsite power is available, the automatic load sequencers function to simultaneously start the required ESF loads upon receipt of an SI actuation signal.

The onsite standby power source is provided from 4 DGs (1-2A, 1B, 2B, and 1C). The DGs are of two different sizes. The 1B, 2B, and

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## BASES

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### BACKGROUND (continued)

1-2A DGs are rated at 4075 kW and the 1C DG is rated at 2850 kW. DG 1-2A and 1-C are assigned to the redundant load group train A. The train A load group is supplied from 4160V emergency Buses, F, H, and K. The 4160V H bus does not supply any design basis required loads by itself but is required to support the operation of DG 1C to supply the emergency Buses F and K which in turn supply design basis required loads. DGs 1B and 2B are assigned to the redundant load group train B. The train B load group is supplied from 4160V emergency Buses G, J, and L. The 4160V bus J does not supply any design basis required loads and is only required for the response to a station blackout which is not a design basis accident.

DGs 1B and 2B are dedicated to train B of Unit 1 and Unit 2, respectively, and each DG comprises a required DG set for its associated unit. DGs 1-2A and 1C are dedicated to train A but are shared between both units and together comprise a required DG set for both units. However, there are no design basis events in which DG 1-2A or 1C are required to supply power to the safety loads of both units simultaneously. In all events, DG 1-2A and 1C are assigned to only one of the two units depending on the event.

The 4.16 kV emergency busses required to supply equipment essential for safe shutdown of the plant at F, G, H, J, K, and L for each unit. These are supplied by two startup transformers on each unit connected to the offsite source during normal and emergency operating conditions. In the event one startup transformer on a unit fails, three of the emergency busses on that unit will be de-energized with their loss annunciated in the Main Control Room. The respective busses Diesel Generators will start and LOSP loads will be sequenced on to those busses. In the event Diesels fail, manual action will be required to re-energize the affected busses from the other startup transformer for that unit.

A DG starts automatically on a safety injection (SI) signal (i.e., low pressurizer pressure or high containment pressure signals) or on an ESF bus degraded voltage or undervoltage signal (refer to LCO 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation"). After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with an SI signal. The DGs will also start and operate in the standby mode without tying to the ESF bus on an SI signal alone. Following the trip of offsite power, a sequencer strips nonpermanent loads from the ESF

(continued)

## BASES

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### BACKGROUND (continued)

bus. When the DG is tied to the ESF bus, loads are then sequentially connected to its respective ESF bus by the automatic load sequencer. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application.

In the event of a loss of preferred power, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the DG in the process. Within 1 minute after the initiating signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service.

Ratings for Train A and Train B DGs satisfy the requirements of Regulatory Guide 1.9 (Ref. 3). The continuous service rating of each DG is 2850 kW for DG 1C and 4075 kW for DGs 1-2A, 1B, and 2B. DG 1C has a 2000 hour rating of 3100 kW and overload permissible up to 3250 kW for 300 hours per year. DGs 1-2A, 1B, and 2B have a 2000 hour rating of 4353 kW and overload permissible up to 4474 kW for 2 hours in any 24 hour period with a maximum of 300 hours cumulative per year. The ESF loads that are powered from the 4.16 kV ESF buses are listed in Reference 2.

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### APPLICABLE SAFETY ANALYSES

The initial conditions of DBA and transient analyses in the FSAR, Chapter 6 (Ref. 4) and Chapter 15 (Ref. 5), assume ESF systems are OPERABLE. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System (RCS), and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

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## BASES

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### APPLICABLE SAFETY ANALYSES (continued)

The OPERABILITY of the AC electrical power sources is consistent with the initial assumptions of the Accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least one train of the onsite or offsite AC sources OPERABLE during Accident conditions in the event of:

- a. An assumed loss of all offsite power or all onsite AC power; and
- b. A worst case single failure.

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

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### LCO

Two qualified circuits (i.e., consistent with the requirements of GDC 17) consisting of two physically independent transmission lines from the offsite transmission network to the switchyard and two independent circuits between the switchyard and the onsite Class 1E Electrical Power System along with separate and independent DG sets for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit.

In addition, one automatic load sequencer per train must be OPERABLE (B1F, B2F, B1G, and B2G).

Each offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ESF buses.

Two physically independent circuits between the transmission network and the onsite system may consist of any combination that includes two of the six transmission lines normally supplying the 230 and 500 kV switchyards and both independent circuits from the 230 kV switchyard to the Class 1E buses via Startup Auxiliary Transformers 1A (2A) and 1B (2B). The two of six combination of transmission lines may be shared between Unit 1 and 2. If either of the transmission lines are 500 kV, one 500/230 kV Autotransformer connecting the 500 and 230 kV switchyards is available. If both of the transmission lines are 500 kV, both 500/230 kV Autotransformers

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**BASES**

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**LCO**  
(continued)

The qualified offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the Engineered Safety Feature (ESF) bus(es). Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit.

Two physically independent circuits between the transmission network and the onsite system may consist of any combination that includes two of the six transmission lines normally supplying the 230 and 500 kV switchyards and both independent circuits from the 230 kV switchyard to the Class 1E buses via Startup Auxiliary Transformers 1A (2A) and 1B (2B). The two of five combination of transmission lines may be shared between Unit 1 and 2. If either of the transmission lines are 500 kV, one 500/230 kV Autotransformer connecting the 500 and 230 kV switchyards is available. If both of the transmission lines are 500 kV, both 500/230 kV Autotransformers connecting the 500 and 230 kV switchyards are available. Any combination of 500 and 230 kV circuit breakers required to complete the independent circuits is permissible.

The DG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage. This sequence must be accomplished within 12 seconds. The DG must be capable of accepting the required loads manually, and continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with the engine hot and DG in standby at ambient conditions.

Proper sequencer operation to sense loss of power or degraded voltage, initiate tripping of ESF bus offsite breakers and initiate DG start and DG output breaker closure and sequencing of shutdown loads are required functions for a DG to be considered OPERABLE.

It is acceptable for trains to be cross tied during shutdown conditions, allowing a single offsite power circuit to supply both required trains.

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**APPLICABILITY**

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

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(continued)

BASES

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APPLICABILITY  
(continued)

- a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;
- b. Systems needed to mitigate a fuel handling accident are available;
- c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and
- d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

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ACTIONS

A.1

An offsite circuit would be considered inoperable if it were not available to one required ESF train. Although two trains are required by LCO 3.8.10, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

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

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions. The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained.

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