Technical Specification 5.5.14

Palo Verde Nuclear
Generating Station

Thomas N. Weber
Department Leader
Regulatory Affairs

Tel. 623-393-5764
Fax 623-393-5442

Mail Station 7636
PO Box 52034
Phoenix, Arizona 85072-2034

102-05885-TNW/CJS
August 13, 2008

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

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Technical Specifications Bases Revision 49 Update

Pursuant to PVNGS Technical Specification (TS) 5.5.14, "Technical Specifications Bases Control Program," Arizona Public Service Company (APS) is submitting changes to the TS Bases incorporated into Revision 49, implemented on August 6, 2008.

The revision insertion instructions and replacement pages are provided in the Enclosure.

No commitments are being made to the NRC by this letter. Should you have any questions regarding this submittal, please contact Russell A. Stroud, Licensing Section Leader, at (623) 393-5111.

Sincerely,

Thomas N. Weber

TNW/RAS/CJS/gat

A001
NRR

Enclosure - PVNGS Technical Specification Bases Revision 49 Insertion Instructions and Replacement Pages

cc:

E. E. Collins Jr.	NRC Region IV Regional Administrator (enclosure)
M. T. Markley	NRC NRR Project Manager (enclosure)
R. I. Treadway	NRC Senior Resident Inspector for PVNGS (enclosure)

ENCLOSURE

PVNGS
Technical Specification Bases
Revision 49

Insertion Instructions and
Replacement Pages

Insertion Instructions for the Technical Specifications Bases
Revision 49

REMOVE PAGES	INSERT PAGES
Cover page	Cover page
List of Effective Pages 1/2 through 7/8	List of Effective Pages 1/2 through 7/8
B 3.0-1 / B 3.0-2	B 3.0-1 / B 3.0-2
B 3.0-13 / B 3.0-14 through B 3.0-19 / B 3.0-20	B 3.0-13 / B 3.0-14 through B 3.0-21 / B 3.0-22
B 3.1.5-7 / B 3.1.5-8	B 3.1.5-7 / B 3.1.5-8
B 3.4.6-3 / B 3.4.6-4	B 3.4.6-3 / B 3.4.6-4
B 3.6.1-1 / B 3.6.1-2	B 3.6.1-1 / B 3.6.1-2
B 3.6.2-1 / B 3.6.2-2	B 3.6.2-1 / B 3.6.2-2
B 3.6.3-3 / B 3.6.3-4	B 3.6.3-3 / B 3.6.3-4

PVNGS

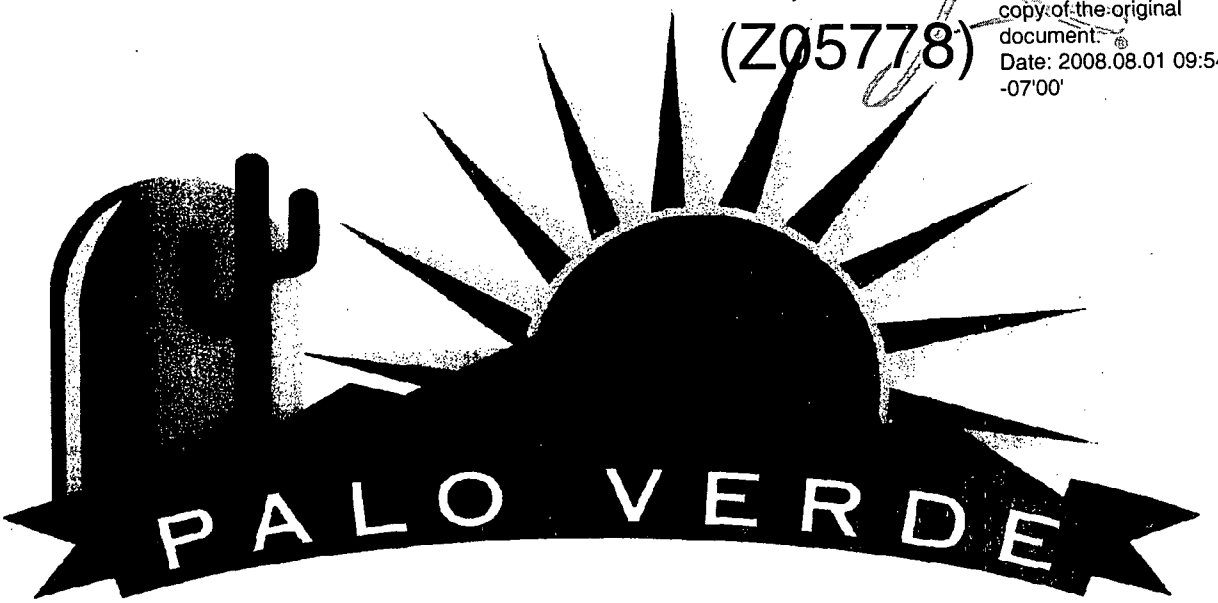
Palo Verde Nuclear Generating Station
Units 1, 2, and 3

Technical Specification Bases

Revision 49
August 6, 2008

Stephenson, Carl J (Z05778)

Digitally signed by Stephenson, Carl J (Z05778)
DN: cn=Stephenson, Carl J (Z05778)
Reason: This is an accurate copy of the original document.
Date: 2008.08.01 09:54:50 -07'00'



TECHNICAL SPECIFICATION BASES
LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev No.
B 2.1.1-1	0	B 3.1.4-2	31
B 2.1.1-2	0	B 3.1.4-3	0
B 2.1.1-3	37	B 3.1.4-4	0
B 2.1.1-4	21	B 3.1.4-5	0
B 2.1.1-5	23	B 3.1.5-1	0
B 2.1.2-1	0	B 3.1.5-2	28
B 2.1.2-2	31	B 3.1.5-3	28
B 2.1.2-3	0	B 3.1.5-4	28
B 2.1.2-4	23	B 3.1.5-5	28
B 2.1.2-5	0	B 3.1.5-6	28
B 3.0-1	49	B 3.1.5-7	49
B 3.0-2	0	B 3.1.5-8	46
B 3.0-3	0	B 3.1.5-9	46
B 3.0-4	0	B 3.1.5-10	46
B 3.0-5	42	B 3.1.5-11	46
B 3.0-6	48	B 3.1.6-1	0
B 3.0-7	48	B 3.1.6-2	46
B 3.0-8	42	B 3.1.6-3	42
B 3.0-9	42	B 3.1.6-4	42
B 3.0-10	42	B 3.1.6-5	46
B 3.0-11	42	B 3.1.6-6	46
B 3.0-12	42	B 3.1.7-1	0
B 3.0-13	42	B 3.1.7-2	0
B 3.0-14	49	B 3.1.7-3	28
B 3.0-15	49	B 3.1.7-4	48
B 3.0-16	49	B 3.1.7-5	25
B 3.0-17	49	B 3.1.7-6	0
B 3.0-18	49	B 3.1.7-7	0
B 3.0-19	49	B 3.1.7-8	0
B 3.0-20	49	B 3.1.7-9	0
B 3.0-21	49	B 3.1.8-1	28
B 3.0-22	49	B 3.1.8-2	28
B 3.1.1-1	28	B 3.1.8-3	28
B 3.1.1-2	0	B 3.1.8-4	28
B 3.1.1-3	43	B 3.1.8-5	28
B 3.1.1-4	43	B 3.1.9-1	0
B 3.1.1-5	27	B 3.1.9-2	0
B 3.1.1-6	31	B 3.1.9-3	0
B 3.1.2-1	28	B 3.1.9-4	0
B 3.1.2-2	0	B 3.1.9-5	47
B 3.1.2-3	43	B 3.1.9-6	1
B 3.1.2-4	28	B 3.1.10-1	0
B 3.1.2-5	0	B 3.1.10-2	28
B 3.1.2-6	43	B 3.1.10-3	0
B 3.1.2-7	12	B 3.1.10-4	37
B 3.1.2-8	47	B 3.1.10-5	37
B 3.1.2-9	0	B 3.1.10-6	0
B 3.1.3-1	0	B 3.1.11-1	0
B 3.1.3-2	0	B 3.1.11-2	28
B 3.1.3-3	0	B 3.1.11-3	0
B 3.1.3-4	0	B 3.1.11-4	34
B 3.1.3-5	0	B 3.1.11-5	0
B 3.1.3-6	0	B 3.2.1-1	28
B 3.1.4-1	0	B 3.2.1-2	10

Page No.	Rev. No.	Page No.	Rev No.
B 3.2.1-3	28	B 3.3.1-15	35
B 3.2.1-4	0	B 3.3.1-16	35
B 3.2.1-5	0	B 3.3.1-17	35
B 3.2.1-6	0	B 3.3.1-18	35
B 3.2.1-7	0	B 3.3.1-19	35
B 3.2.1-8	0	B 3.3.1-20	35
B 3.2.2-1	28	B 3.3.1-21	35
B 3.2.2-2	10	B 3.3.1-22	35
B 3.2.2-3	0	B 3.3.1-23	35
B 3.2.2-4	28	B 3.3.1-24	35
B 3.2.2-5	1	B 3.3.1-25	35
B 3.2.2-6	0	B 3.3.1-26	35
B 3.2.2-7	0	B 3.3.1-27	35
B 3.2.3-1	28	B 3.3.1-28	35 Corrected
B 3.2.3-2	10	B 3.3.1-29	35
B 3.2.3-3	0	B 3.3.1-30	35 Corrected
B 3.2.3-4	28	B 3.3.1-31	35 Corrected
B 3.2.3-5	0	B 3.3.1-32	35 Corrected
B 3.2.3-6	0	B 3.3.1-33	35
B 3.2.3-7	0	B 3.3.1-34	35
B 3.2.3-8	0	B 3.3.1-35	35
B 3.2.3-9	0	B 3.3.1-36	35
B 3.2.3-10	0	B 3.3.1-37	35
B 3.2.4-1	28	B 3.3.1-38	35
B 3.2.4-2	10	B 3.3.1-39	35
B 3.2.4-3	0	B 3.3.1-40	35
B 3.2.4-4	28	B 3.3.1-41	35
B 3.2.4-5	25	B 3.3.1-42	35
B 3.2.4-6	25	B 3.3.1-43	35
B 3.2.4-7	27	B.3.3.1-44	35
B 3.2.4-8	48	B.3.3.1-45	38
B 3.2.4-9	48	B.3.3.1-46	42
B.3.2.4-10	31	B.3.3.1-47	35
B 3.2.5-1	28	B.3.3.1-48	42
B 3.2.5-2	10	B.3.3.1-49	35
B 3.2.5-3	0	B.3.3.1-50	35
B 3.2.5-4	28	B.3.3.1-51	35
B 3.2.5-5	0	B.3.3.1-52	35
B 3.2.5-6	28	B.3.3.1-53	35
B 3.2.5-7	0	B.3.3.1-54	35
B 3.3.1-1	35	B.3.3.1-55	35
B 3.3.1-2	25	B.3.3.1-56	35
B 3.3.1-3	25	B.3.3.1-57	35
B 3.3.1-4	25	B 3.3.1-58	35
B 3.3.1-5	25	B 3.3.1-59	35
B 3.3.1-6	27	B 3.3.1-60	35
B 3.3.1-7	25	B 3.3.2-1	35
B 3.3.1-8	25	B 3.3.2-2	0
B 3.3.1-9	34	B 3.3.2-3	1
B 3.3.1-10	35	B 3.3.2-4	35
B 3.3.1-11	35	B 3.3.2-5	35
B 3.3.1-12	35	B 3.3.2-6	35
B 3.3.1-13	35	B 3.3.2-7	35
B 3.3.1-14	35	B 3.3.2-8	35

TECHNICAL SPECIFICATION BASES
LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev No.
B 3.3.2-9	35	B 3.3.5-9	0
B 3.3.2-10	38	B 3.3.5-10	0
B 3.3.2-11	42	B 3.3.5-11	0
B 3.3.2-12	42	B 3.3.5-12	1
B 3.3.2-13	35	B 3.3.5-13	0
B 3.3.2-14	35	B 3.3.5-14	0
B 3.3.2-15	35	B 3.3.5-15	35
B 3.3.2-16	35	B 3.3.5-16	35
B 3.3.2-17	35	B 3.3.5-17	35
B 3.3.2-18	35	B 3.3.5-18	35
B 3.3.3-1	25	B 3.3.5-19	35
B 3.3.3-2	27	B 3.3.5-20	35
B 3.3.3-3	25	B 3.3.5-21	35
B 3.3.3-4	25	B 3.3.5-22	35
B 3.3.3-5	25	B 3.3.5-23	38
B 3.3.3-6	25	B 3.3.5-24	38
B 3.3.3-7	27	B 3.3.5-25	42
B 3.3.3-8	27	B 3.3.5-26	35
B 3.3.3-9	27	B 3.3.5-27	35
B 3.3.3-10	46	B 3.3.5-28	35
B 3.3.3-11	25	B 3.3.5-29	35
B.3.3.3-12	25	B 3.3.5-30	35
B.3.3.3-13	25	B 3.3.6-1	0
B.3.3.3-14	46	B 3.3.6-2	0
B.3.3.3-15	27	B 3.3.6-3	0
B.3.3.3-16	25	B 3.3.6-4	0
B.3.3.3-17	25	B 3.3.6-5	31
B.3.3.3-18	25	B 3.3.6-6	0
B.3.3.3-19	27	B 3.3.6-7	27
B.3.3.3-20	27	B 3.3.6-8	27
B.3.3.3-21	27	B 3.3.6-9	0
B 3.3.4-1	0	B 3.3.6-10	0
B 3.3.4-2	0	B 3.3.6-11	0
B 3.3.4-3	0	B 3.3.6-12	0
B 3.3.4-4	0	B 3.3.6-13	0
B 3.3.4-5	0	B 3.3.6-14	0
B 3.3.4-6	31	B 3.3.6-15	0
B 3.3.4-7	0	B 3.3.6-16	0
B 3.3.4-8	0	B 3.3.6-17	27
B 3.3.4-9	0	B 3.3.6-18	0
B 3.3.4-10	0	B 3.3.6-19	0
B 3.3.4-11	0	B 3.3.6-20	0
B 3.3.4-12	0	B 3.3.6-21	1
B 3.3.4-13	0	B 3.3.6-22	46
B 3.3.4-14	0	B 3.3.7-1	2
B 3.3.4-15	0	B 3.3.7-2	2
B 3.3.5-1	0	B 3.3.7-3	0
B 3.3.5-2	0	B 3.3.7-4	0
B 3.3.5-3	0	B 3.3.7-5	0
B 3.3.5-4	35	B 3.3.7-6	42
B 3.3.5-5	0	B 3.3.7-7	0
B 3.3.5-6	0	B 3.3.7-8	0
B 3.3.5-7	0	B 3.3.7-9	2
B 3.3.5-8	31	B 3.3.8-1	0

Page No.	Rev. No.	Page No.	Rev No.
B 3.3.8-2	44	B 3.4.2-1	7
B 3.3.8-3	0	B 3.4.2-2	1
B 3.3.8-4	0	B 3.4.3-1	0
B 3.3.8-5	0	B 3.4.3-2	0
B 3.3.8-6	1	B 3.4.3-3	0
B 3.3.8-7	0	B 3.4.3-4	2
B 3.3.8-8	44	B 3.4.3-5	2
B 3.3.9-1	48	B 3.4.3-6	0
B 3.3.9-2	48	B 3.4.3-7	0
B 3.3.9-3	21	B 3.4.3-8	2
B 3.3.9-4	10	B 3.4.4-1	0
B 3.3.9-5	1	B 3.4.4-2	38
B 3.3.9-6	0	B 3.4.4-3	7
B 3.3.9-7	0	B 3.4.4-4	0
B 3.3.10-1	0	B 3.4.5-1	0
B 3.3.10-2	0	B 3.4.5-2	38
B 3.3.10-3	0	B 3.4.5-3	38
B 3.3.10-4	0	B 3.4.5-4	0
B 3.3.10-5	18	B 3.4.5-5	6
B 3.3.10-6	0	B 3.4.6-1	0
B 3.3.10-7	0	B 3.4.6-2	6
B 3.3.10-8	14	B 3.4.6-3	49
B 3.3.10-9	14	B 3.4.6-4	6
B 3.3.10-10	14	B 3.4.6-5	6
B 3.3.10-11	14	B 3.4.7-1	0
B 3.3.10-12	14	B 3.4.7-2	6
B 3.3.10-13	14	B 3.4.7-3	6
B 3.3.10-14	32	B 3.4.7-4	38
B 3.3.10-15	32	B 3.4.7-5	0
B 3.3.10-16	32	B 3.4.7-6	0
B 3.3.10-17	42	B 3.4.7-7	27
B 3.3.10-18	32	B 3.4.8-1	0
B 3.3.10-19	32	B 3.4.8-2	6
B 3.3.10-20	32	B 3.4.8-3	6
B 3.3.10-21	33	B 3.4.9-1	41
B.3.3.10-22	32	B 3.4.9-2	31
B 3.3.11-1	0	B 3.4.9-3	41
B 3.3.11-2	2	B 3.4.9-4	41
B 3.3.11-3	2	B 3.4.9-5	0
B 3.3.11-4	42	B 3.4.9-6	0
B 3.3.11-5	42	B 3.4.10-1	0
B 3.3.11-6	2	B 3.4.10-2	7
B 3.3.11-7	2	B 3.4.10-3	0
B 3.3.12-1	15	B 3.4.10-4	0
B 3.3.12-2	15	B 3.4.11-1	0
B 3.3.12-3	37	B 3.4.11-2	7
B 3.3.12-4	37	B 3.4.11-3	0
B 3.3.12-5	6	B 3.4.11-4	0
B 3.3.12-6	6	B 3.4.11-5	0
B 3.4.1-1	10	B 3.4.11-6	0
B 3.4.1-2	28	B 3.4.12-1	1
B 3.4.1-3	0	B 3.4.12-2	34
B 3.4.1-4	0	B 3.4.12-3	48
B 3.4.1-5	0	B 3.4.12-4	0

TECHNICAL SPECIFICATION BASES
LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev No.
B 3.4.12-5	31	B 3.5.1-8	1
B 3.4.13-1	0	B 3.5.1-9	0
B 3.4.13-2	0	B 3.5.1-10	35
B 3.4.13-3	1	B 3.5.2-1	0
B 3.4.13-4	0	B 3.5.2-2	35
B 3.4.13-5	0	B 3.5.2-3	0
B 3.4.13-6	0	B 3.5.2-4	0
B 3.4.13-7	2	B 3.5.2-5	0
B 3.4.13-8	42	B 3.5.2-6	0
B 3.4.13-9	42	B 3.5.2-7	1
B 3.4.13-10	42	B 3.5.2-8	22
B 3.4.13-11	42	B 3.5.2-9	1
B 3.4.14-1	0	B 3.5.2-10	35
B 3.4.14-2	34	B 3.5.3-1	0
B 3.4.14-3	34	B 3.5.3-2	48
B 3.4.14-4	38	B 3.5.3-3	0
B 3.4.14-5	38	B 3.5.3-4	0
B 3.4.14-6	38	B 3.5.3-5	0
B 3.4.14-7	38	B 3.5.3-6	2
B.3.4.14-8	38	B 3.5.3-7	2
B 3.4.15-1	0	B 3.5.3-8	1
B 3.4.15-2	48	B 3.5.3-9	0
B 3.4.15-3	0	B 3.5.3-10	2
B 3.4.15-4	0	B 3.5.4-1	15
B 3.4.15-5	0	B 3.5.4-2	0
B 3.4.15-6	35	B 3.5.4-3	42
B 3.4.15-7	35	B 3.5.5-1	48
B 3.4.16-1	2	B 3.5.5-2	48
B 3.4.16-2	10	B 3.5.5-3	48
B 3.4.16-3	0	B 3.5.5-4	48
B 3.4.16-4	42	B 3.5.5-5	48
B 3.4.16-5	0	B 3.5.5-6	48
B 3.4.16-6	0	B 3.5.5-7	48
B 3.4.17-1	0	B 3.5.5-8	48
B 3.4.17-2	27	B 3.5.5-9	48
B 3.4.17-3	42	B 3.5.5-10	48
B 3.4.17-4	42	B 3.5.5-11	48
B 3.4.17-5	0	B 3.5.5-12	48
B 3.4.17-6	0	B 3.5.5-13	48
B.3.4.18-1	38	B 3.5.5-14	48
B.3.4.18-2	40	B 3.5.5-15	48
B.3.4.18-3	38	B 3.5.5-16	48
B.3.4.18-4	38	B 3.5.6-1	0
B.3.4.18-5	38	B 3.5.6-2	1
B.3.4.18-6	38	B 3.5.6-3	0
B.3.4.18-7	38	B 3.5.6-4	24
B.3.4.18-8	38	B 3.5.6-5	27
B 3.5.1-1	0	B 3.6.1-1	0
B 3.5.1-2	48	B 3.6.1-2	49
B 3.5.1-3	7	B 3.6.1-3	0
B 3.5.1-4	0	B 3.6.1-4	29
B 3.5.1-5	0	B 3.6.1-5	29
B 3.5.1-6	0	B 3.6.2-1	45
B 3.5.1-7	1	B 3.6.2-2	49

TECHNICAL SPECIFICATION BASES
LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev No.
B 3.6.2-3	0	B 3.7.2-3	40
B 3.6.2-4	0	B 3.7.2-4	40
B 3.6.2-5	0	B 3.7.2-5	40
B 3.6.2-6	0	B 3.7.2-6	40
B 3.6.2-7	0	B 3.7.2-7	40
B 3.6.2-8	0	B 3.7.2-8	40
B 3.6.3-1	36	B 3.7.2-9	40
B 3.6.3-2	43	B 3.7.3-1	1
B 3.6.3-3	49	B 3.7.3-2	1
B 3.6.3-4	43	B 3.7.3-3	37
B 3.6.3-5	43	B 3.7.3-4	0
B 3.6.3-6	43	B 3.7.3-5	0
B 3.6.3-7	43	B 3.7.4-1	0
B 3.6.3-8	43	B 3.7.4-2	31
B 3.6.3-9	43	B 3.7.4-3	42
B 3.6.3-10	43	B 3.7.4-4	0
B 3.6.3-11	43	B 3.7.5-1	0
B 3.6.3-12	43	B 3.7.5-2	0
B 3.6.3-13	43	B 3.7.5-3	40
B 3.6.3-14	43	B 3.7.5-4	27
B 3.6.3-15	43	B 3.7.5-5	42
B 3.6.3-16	43	B 3.7.5-6	42
B 3.6.3-17	27	B 3.7.5-7	9
B.3.6.3-18	43	B 3.7.5-8	9
B.3.6.3-19	43	B 3.7.5-9	9
B 3.6.4-1	35	B 3.7.5-10	9
B 3.6.4-2	38	B.3.7.5-11	9
B 3.6.4-3	1	B 3.7.6-1	0
B 3.6.5-1	0	B 3.7.6-2	28
B 3.6.5-2	1	B 3.7.6-3	28
B 3.6.5-3	48	B 3.7.6-4	0
B 3.6.5-4	0	B 3.7.7-1	0
B 3.6.6-1	0	B 3.7.7-2	1
B 3.6.6-2	0	B 3.7.7-3	1
B 3.6.6-3	38	B 3.7.7-4	1
B 3.6.6-4	7	B 3.7.7-5	1
B 3.6.6-5	1	B 3.7.8-1	1
B 3.6.6-6	0	B 3.7.8-2	1
B 3.6.6-7	1	B 3.7.8-3	1
B 3.6.6-8	48	B 3.7.8-4	1
B 3.6.6-9	0	B 3.7.9-1	0
B 3.6.7-1	0	B 3.7.9-2	44
B 3.6.7-2	0	B 3.7.9-3	44
B 3.6.7-3	42	B 3.7.10-1	10
B 3.6.7-4	0	B 3.7.10-2	1
B 3.6.7-5	0	B 3.7.10-3	1
B 3.7.1-1	28	B 3.7.10-4	1
B 3.7.1-2	34	B 3.7.11-1	0
B 3.7.1-3	34	B 3.7.11-2	0
B 3.7.1-4	34	B 3.7.11-3	21
B 3.7.1-5	34	B 3.7.11-4	48
B 3.7.1-6	28 Corrected	B 3.7.11-5	48
B 3.7.2-1	40	B 3.7.11-6	10
B 3.7.2-2	42	B 3.7.12-1	1

TECHNICAL SPECIFICATION BASES
LIST OF EFFECTIVE PAGES

Page No.	Rev. No.	Page No.	Rev No.
B 3.7.12-2	21	B 3.8.1-32	45
B 3.7.12-3	21	B 3.8.1-33	48
B 3.7.12-4	10	B 3.8.1-34	45
B 3.7.13-1	0	B 3.8.1-35	48
B 3.7.13-2	0	B 3.8.1-36	45
B 3.7.13-3	0	B 3.8.1-37	45
B 3.7.13-4	0	B 3.8.1-38	45
B 3.7.13-5	0	B 3.8.1-39	45
B 3.7.14-1	0	B 3.8.1-40	48
B 3.7.14-2	21	B 3.8.1-41	45
B 3.7.14-3	21	B 3.8.1-42	45
B 3.7.15-1	3	B 3.8.1-43	45
B 3.7.15-2	3	B 3.8.1-44	45
B 3.7.16-1	7	B 3.8.1-45	45
B 3.7.16-2	0	B.3.8.1-46	45
B 3.7.16-3	0	B.3.8.1-47	45
B 3.7.16-4	0	B.3.8.1-48	45
B 3.7.17-1	23	B 3.8.2-1	0
B 3.7.17-2	3	B 3.8.2-2	0
B 3.7.17-3	3	B 3.8.2-3	0
B 3.7.17-4	3	B 3.8.2-4	21
B 3.7.17-5	3	B 3.8.2-5	21
B 3.7.17-6	3	B 3.8.2-6	0
B 3.8.1-1	35	B 3.8.3-1	0
B 3.8.1-2	2	B 3.8.3-2	0
B 3.8.1-3	34	B 3.8.3-3	38
B 3.8.1-4	34	B 3.8.3-4	0
B 3.8.1-5	20	B 3.8.3-5	34
B 3.8.1-6	27	B 3.8.3-6	41
B 3.8.1-7	42	B 3.8.3-7	41
B 3.8.1-8	42	B 3.8.3-8	41
B 3.8.1-9	42	B 3.8.3-9	41
B 3.8.1-10	43	B 3.8.3-10	48
B 3.8.1-11	43	B 3.8.4-1	0
B 3.8.1-12	48	B 3.8.4-2	37
B 3.8.1-13	48	B 3.8.4-3	0
B 3.8.1-14	48	B 3.8.4-4	2
B 3.8.1-15	48	B 3.8.4-5	2
B 3.8.1-16	41	B 3.8.4-6	2
B 3.8.1-17	41	B 3.8.4-7	35
B 3.8.1-18	41	B 3.8.4-8	35
B 3.8.1-19	41	B 3.8.4-9	35
B 3.8.1-20	41	B 3.8.4-10	37
B 3.8.1-21	41	B 3.8.4-11	48
B 3.8.1-22	41	B 3.8.5-1	1
B 3.8.1-23	41	B 3.8.5-2	1
B 3.8.1-24	41	B 3.8.5-3	21
B 3.8.1-25	41	B 3.8.5-4	21
B 3.8.1-26	45	B 3.8.5-5	2
B 3.8.1-27	45	B 3.8.5-6	2
B 3.8.1-28	41	B 3.8.6-1	0
B 3.8.1-29	41	B 3.8.6-2	0
B 3.8.1-30	45	B 3.8.6-3	0
B 3.8.1-31	45	B 3.8.6-4	6

Page No.	Rev. No.	Page No.	Rev No.
B 3.8.6-5	37	B 3.9.7-2	0
B 3.8.6-6	37	B 3.9.7-3	0
B 3.8.6-7	48		
B 3.8.7-1	48		
B 3.8.7-2	48		
B 3.8.7-3	48		
B 3.8.7-4	0		
B 3.8.8-1	1		
B 3.8.8-2	1		
B 3.8.8-3	21		
B 3.8.8-4	21		
B 3.8.8-5	1		
B 3.8.9-1	34		
B 3.8.9-2	0		
B 3.8.9-3	0		
B 3.8.9-4	0		
B 3.8.9-5	0		
B 3.8.9-6	0		
B 3.8.9-7	0		
B 3.8.9-8	0		
B 3.8.9-9	0		
B 3.8.9-10	0		
B 3.8.9-11	0		
B 3.8.10-1	0		
B 3.8.10-2	21		
B 3.8.10-3	48		
B 3.8.10-4	0		
B 3.9.1-1	34 Corrected		
B 3.9.1-2	0		
B 3.9.1-3	0		
B 3.9.1-4	0		
B 3.9.2-1	48		
B 3.9.2-2	15		
B 3.9.2-3	15		
B 3.9.2-4	15		
B 3.9.3-1	18		
B 3.9.3-2	19		
B 3.9.3-3	27		
B 3.9.3-4	19		
B 3.9.3-5	19		
B 3.9.3-6	19		
B 3.9.4-1	0		
B 3.9.4-2	1		
B 3.9.4-3	0		
B 3.9.4-4	0		
B 3.9.5-1	0		
B 3.9.5-2	16		
B 3.9.5-3	27		
B 3.9.5-4	16		
B 3.9.5-5	16		
B 3.9.6-1	0		
B 3.9.6-2	0		
B 3.9.6-3	0		
B 3.9.7-1	0		

B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs

LCO 3.0.1 through LCO 3.0.8 establish the general requirements applicable to all Specifications and apply at all times unless otherwise stated.

LCO 3.0.1

LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).

LCO 3.0.2

LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:

a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification; and

b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.

There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering

(continued)

BASES

LCO 3.0.2 (continued) ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.

Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Conditions no longer exist. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. Alternatives that would not result in redundant equipment being inoperable should be used instead. Doing so limits the time both subsystems/trains of a safety function are inoperable and limits the time other conditions exist which result in LCO 3.0.3 being entered. Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable and the ACTIONS Condition(s) are entered.

(continued)

BASES

LCO 3.0.7 (continued)

otherwise specified, all other TS requirements remain unchanged and in effect as applicable. This will ensure that all appropriate requirements of the MODE or other specified condition not directly associated with or required to be changed or suspended to perform the special test or operation will remain in effect.

The Applicability of an STE LCO represents a condition not necessarily in compliance with the normal requirements of the TS. Compliance with STE LCOs is optional.

A special test may be performed under either the provisions of the appropriate STE LCO or the other applicable TS requirements. If it is desired to perform the special test under the provisions of the STE LCO, the requirements of the STE LCO shall be followed. This includes the SRs specified in the STE LCO.

Some of the STE LCOs require that one or more of the LCOs for normal operation be met (i.e., meeting the STE LCO requires meeting the specified normal LCOs). The Applicability, ACTIONS, and SRs of the specified normal LCOs, however, are not required to be met in order to meet the STE LCO when it is in effect. This means that, upon failure to meet a specified normal LCO, the associated ACTIONS of the STE LCO apply, in lieu of the ACTIONS of the normal LCO. Exceptions to the above do exist. There are instances when the Applicability of the specified normal LCO must be met, where its ACTIONS must be taken, where certain of its Surveillances must be performed, or where all of these requirements must be met concurrently with the requirements of the STE LCO.

Unless the SRs of the specified normal LCOs are suspended or changed by the special test, those SRs that are necessary to meet the specified normal LCOs must be met prior to performing the special test. During the conduct of the special test, those Surveillances need not be performed unless specified by the ACTIONS or SRs of the STE LCO.

ACTIONS for STE LCOs provide appropriate remedial measures upon failure to meet the STE LCO. Upon failure to meet these ACTIONS, suspend the performance of the special test and enter the ACTIONS for all LCOs that are then not met. Entry into LCO 3.0.3 may possibly be required, but this determination should not be made by considering only the failure to meet the ACTIONS of the STE LCO.

(continued)

BASES

LCO 3.0.8

LCO 3.0.8 establishes conditions under which systems are considered to remain capable of performing their intended safety function when associated snubbers are not capable of providing their associated support function(s). This LCO states that the supported system is not considered to be inoperable solely due to one or more snubbers not capable of performing their associated support function(s). This is appropriate because a limited length of time is allowed for maintenance, testing, or repair of one or more snubbers not capable of performing their associated support function(s) and appropriate compensatory measures are specified in the snubber requirements, which are located outside of the Technical Specifications (TS) under licensee control. The snubber requirements do not meet the criteria in 10 CFR 50.36(c)(2)(ii), and, as such, are appropriate for control by the licensee.

If the allowed time expires and the snubber(s) are unable to perform their associated support function(s), the affected supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

LCO 3.0.8.a applies when one or more snubbers are not capable of providing their associated support function(s) to a single train or subsystem of a multiple train or subsystem supported system or to a single train or subsystem supported system. LCO 3.0.8.a allows 72 hours to restore the snubber(s) before declaring the supported system inoperable. The 72 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function and due to the availability of the redundant train of the supported system.

LCO 3.0.8.b applies when one or more snubbers are not capable of providing their associated support function(s) to more than one train or subsystem of a multiple train or subsystem supported system. LCO 3.0.8.b allows 12 hours to restore the snubber(s) before declaring the supported system inoperable. The 12 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of

(continued)

LCO 3.0.8 (continued)

the supported system occurring while the snubber(s) are not capable of performing their associated support function.

LCO 3.0.8 requires that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of LCO 3.0.8 should be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule process to the extent possible so that maintenance on any unaffected train or subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.

In order to utilize LCO 3.0.8, the restrictions listed below shall be met.

1. When LCO 3.0.8 is used, confirm that at least one train (or subsystem) of systems supported by the non-functional snubber(s) would remain capable of performing their required safety or support functions for postulated design loads other than seismic loads. LCO 3.0.8 does not apply to non-seismic snubbers.

2. When LCO 3.0.8 is used, a record of the design function of the nonfunctional snubber(s) (i.e., seismic vs. non-seismic), implementation of the applicable LCO 3.0.8 restrictions, and the associated plant configuration shall be available on a recoverable basis for NRC inspection.

3. When LCO 3.0.8.a is used, at least one AFW train (including a minimum set of supporting equipment required for its successful operation) not associated with the non-functional snubber(s), must be available.

4. When LCO 3.0.8.b is used, at least one AFW train (including a minimum set of supporting equipment required for its successful operation) not associated with the non-functional snubber(s), or some alternative means of core cooling (e.g., fire water system or "aggressive secondary cooldown" using the steam generators) must be available.

(continued)

BASES

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

SRs

SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.

SR 3.0.1

SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO.

Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when:

a. The systems or components are known to be inoperable, although still meeting the SRs; or

b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances.

Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a Special Test Exception (STE) are only applicable when the STE is used as an allowable exception to the requirements of a Specification.

Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given SR. In this case, the unplanned event may be credited as fulfilling the performance of the SR. This allowance includes those SRs whose performance is normally precluded in a given MODE or other specified condition.

(continued)

BASES

SR 3.0.1 (continued)

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

Some examples of this process are:

a. Auxiliary Feedwater (AFW) pump turbine maintenance during refueling that requires testing at steam pressures > 800 psi. However, if other appropriate testing is satisfactorily completed, the AFW System can be considered OPERABLE. This allows startup and other necessary testing to proceed until the plant reaches the steam pressure required to perform the testing.

b. High Pressure Safety Injection (HPSI) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with HPSI considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.

(continued)

BASES

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g., transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. An example of where SR 3.0.2 does not apply is the Containment Leak Rate Testing Program.

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

(continued)

BASES

SR 3.0.2 (continued)

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met. Reference Bases Section 3.0.2 for discussion and applicability of Frequency and 25% extension.

This delay period provides an adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions, operating situations, or requirements of regulations (e.g., prior to entering MODE 1 after each fuel loading, or in accordance with 10 CFR 50, Appendix J, as modified by approved exemptions, etc.) is discovered to not have been performed when specified, SR 3.0.3 allows for the full delay period of up to the specified Frequency to perform the Surveillance. However, since there is not a time interval

(continued)

BASES

SR 3.0.3 (continued)

specified, the missed Surveillance should be performed at the first reasonable opportunity.

SR 3.0.3 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals. While up to 24 hours or the limit of the specified Frequency is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required or shutting the plant down to perform the Surveillance) and impact on any analysis assumptions, in addition to unit conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance, NRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management action up to and including plant shutdown. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed quantitatively. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the licensee's Corrective Action Program.

(continued)

BASES

SR 3.0.3 (continued)

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified Condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

A provision is included to allow entry into a MODE or other specified condition in the Applicability when an LCO is not met due to a Surveillance not being met in accordance with LCO 3.0.4.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) are not required to be performed, per SR 3.0.1, which states that surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s) since the requirement for the

(continued)

BASES

SR 3.0.4 (continued)

SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes.

SR 3.0.4 does not restrict changing MODES or other specified conditions of the Applicability when a Surveillance has not been performed within the specified Frequency, provided the requirement to declare the LCO not met has been delayed in accordance with SR 3.0.3.

The provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown.

In this context, a unit shutdown is defined as a change in MODE or other specified condition in the Applicability associated with transitioning from MODE 1 to MODE 2, MODE 2 to MODE 3, MODE 3 to MODE 4, and MODE 4 to MODE 5.

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO Applicability, would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of SRs' annotation is found in Section 1.4, Frequency.

ACTIONS

A.1 and A.2 (continued)

In both cases, a 2 hour time period is sufficient to:

a. Identify cause of a misaligned CEA;

b. Take appropriate corrective action to realign the CEAs; and

c. Minimize the effects of xenon redistribution.

The CEA must be returned to OPERABLE status within 2 hours. If a CEA misalignment results in the COLSS programs being declared INOPERABLE, refer to Section 3.2 Power Distribution Limits for applicable actions.

B.1 and B.2

At least two of the following three CEA position indicator channels shall be OPERABLE for each CEA:

a. CEA Reed Switch Position Transmitter (RSPT 1) with the capability of determining the absolute CEA positions within 5.2 inches,

b. CEA Reed Switch Position Transmitter (RSPT 2) with the capability of determining the absolute CEA positions within 5.2 inches, and

c. The CEA pulse counting position indicator channel.

If only one CEA position indicator channel is OPERABLE for one CEA per CEA Group, continued operation in MODES 1 and 2 may continue, provided, within 6 hours, at least two position indicator channels are returned to OPERABLE status; or within 6 hours and once per 12 hours, verify that the CEA group with the inoperable position indicators are either fully withdrawn or fully inserted while maintaining the insertion limits of LCO 3.1.6, LCO 3.1.7 and LCO 3.1.8. CEAs are fully withdrawn when the requirements of LCO 3.1.6 and 3.1.7 are met.

Additionally, the Upper Electrical Limit (UEL) CEA reed switches provide an acceptable indication of CEA position for a fully withdrawn condition.

(continued)

ACTIONS

C.1

If a Required Action or associated Completion Time of Condition A or Condition B is not met, or if one or more regulating or shutdown CEAs are untrippable (immovable as a result of excessive friction or mechanical interference or known to be untrippable), the unit is required to be brought to MODE 3. By being brought to MODE 3, the unit is brought outside its MODE of applicability.

When a Required Action cannot be completed within the required Completion Time, a controlled shutdown should be commenced. The allowed Completion Time of 6 hours is reasonable, based on operating experience, for reaching MODE 3 from full power conditions in an orderly manner and without challenging plant systems.

If a full strength CEA is untrippable, it is not available for reactivity insertion during a reactor trip. With an untrippable CEA, meeting the insertion limits of LCO 3.1.6, "Shutdown Control Element Assembly (CEA) Insertion Limits," and LCO 3.1.7, "Regulating Control Element Assembly (CEA) Insertion Limits," does not ensure that adequate SDM exists. Therefore, the plant must be shut down in order to evaluate the SDM required boron concentration and power level for critical operation. Continued operation is allowed with untrippable part length or part strength CEAs if the alignment and insertion limits are met.

Continued operation is not allowed with one or more full length CEAs untrippable. This is because these cases are indicative of a loss of SDM and power distribution, and a loss of safety function, respectively.

D.1

Continued operation is not allowed in the case of more than one CEA misaligned from any other CEA in its group by > 9.9 inches. For example, two CEAs in a group misaligned from any other CEA in that group by > 9.9 inches, or more than one CEA group that has a least one CEA misaligned from any other CEA in that group by > 9.9 inches. This is indicative of a loss of power distribution and a loss of safety function, respectively. Multiple CEA misalignments should result in automatic protective action. Therefore, with two or more CEAs misaligned more than 9.9 inches, this

(continued)

BASES

LCO (continued)

Note 2 requires, that before an RCP may be started with any RCS cold leg temperature ≤ 214°F during cooldown, or ≤ 291°F during heatup, that secondary side water temperature (saturation temperature corresponding to SG pressure) in each SG is < 100°F above each of the RCS cold leg temperatures. The numerical values for RCS cold leg temperature at which this Note is applicable do not account for all instrument uncertainty. Use of an indicated value of 217°F or below during cooldown and 294°F or below during heatup ensures that the actual limits will not be exceeded. These values, which include appropriate instrument uncertainty, are established within the applicable plant procedures.

Satisfying the above condition will preclude a large pressure surge in the RCS when the RCP is started.

Note 3 restricts RCP operation to no more than 2 RCPs with RCS cold leg temperature ≤ 200°F, and no more than 3 RCPs with RCS cold leg temperature >200°F but ≤ 500°F. Satisfying these conditions will maintain the analysis assumptions of the flow induced pressure correction factors due to RCP operation (Ref. 1)

An OPERABLE RCS loop consists of at least one OPERABLE RCP and an SG that is OPERABLE and has the minimum water level specified in SR 3.4.6.2.

Similarly, for the SDC System, an OPERABLE SDC train is composed of an OPERABLE SDC pump (LPSI) capable of providing flow to the SDC heat exchanger for heat removal. RCPs and SDC pumps are OPERABLE if they are capable of being powered and are able to provide flow, if required.

APPLICABILITY

In MODE 4, this LCO applies because it is possible to remove core decay heat and to provide proper boron mixing with either the RCS loops and SGs or the SDC System.

Operation in other MODES is covered by:

LCO 3.4.4 "RCS Loops-MODES 1 and 2";
LCO 3.4.5, "RCS Loops – MODE 3";

(continued)

BASES

APPLICABILITY (continued)

LCO 3.4.7, "RCS Loops – MODE 5, Loops Filled";
LCO 3.4.8, "RCS Loops – MODE 5, Loops Not Filled";
LCO 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation – High Water Level" (MODE 6); and
LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation – Low Water Level" (MODE 6).

ACTIONS

A.1

If only one required RCS loop is OPERABLE and in operation, redundancy for heat removal is lost. Action must be initiated immediately to restore a second loop to OPERABLE status. The immediate Completion Time reflects the importance of maintaining the availability of two paths for decay heat removal.

B.1

If only one required SDC train is OPERABLE and in operation, redundancy for heat removal is lost. The plant must be placed in MODE 5 within the next 24 hours. Placing the plant in MODE 5 is a conservative action with regard to decay heat removal. With only one SDC train OPERABLE, redundancy for decay heat removal is lost and, in the event of a loss of the remaining SDC train, it would be safer to initiate that loss from MODE 5 (≤ 210°F) rather than MODE 4 (210°F to 350°F). The Completion Time of 24 hours is reasonable, based on operating experience, to reach MODE 5 from MODE 4, with only one SDC train operating, in an orderly manner and without challenging plant systems.

C.1 and C.2

If no RCS loops or SDC trains are OPERABLE, or in operation, all operations involving reduction of RCS boron concentration must be suspended and action to restore one RCS loop or SDC train to OPERABLE status and operation must be initiated. Boron dilution requires forced circulation for proper mixing, and the margin to criticality must not be reduced in this type of operation. The immediate Completion Times reflect the importance of decay heat removal. The action to restore must continue until one loop or train is restored to operation.

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.1 Containment

BASES

BACKGROUND

The containment consists of the concrete Containment Building (CB), its steel liner, and the penetrations through this structure. The structure is designed to contain radioactive material that may be released from the reactor core following a design basis Loss of Coolant Accident. Additionally, this structure provides shielding from the fission products that may be present in the containment atmosphere following accident conditions.

The containment is a reinforced concrete structure with a cylindrical wall, a flat foundation mat, and a shallow dome roof. The cylinder wall is prestressed with a post tensioning system in the vertical and horizontal directions, and the dome roof is prestressed utilizing a two way pattern of tendons, which are an extension of the continuous vertical tendons. The inside surface of the containment is lined with a carbon steel liner to ensure a high degree of leak tightness during operating and accident conditions.

The concrete CB is required for structural integrity of the containment under Design Basis Accident (DBA) conditions. The steel liner and its penetrations establish the leakage limiting boundary of the containment. Maintaining the containment OPERABLE limits the leakage of fission product radioactivity from the containment to the environment. SR 3.6.1.1 leakage rate requirements comply with 10 CFR 50, Appendix J, Option B (Ref. 1), as modified by approved exemptions.

The isolation devices for the penetrations in the containment boundary are a part of the containment leak tight barrier. To maintain this leak tight barrier:

a. All penetrations required to be closed during accident conditions are either:

   1. capable of being closed by an OPERABLE automatic containment isolation system, or

(continued)

BASES (continued)

BACKGROUND (continued)

2. closed by manual valves, blind flanges, or de-activated automatic valves secured in their closed positions, except as provided in LCO 3.6.3, "Containment Isolation Valves";

b. Each air lock is OPERABLE, except as provided in LCO 3.6.2, "Containment Air Locks"; and

c. All equipment hatches are closed.

APPLICABLE SAFETY ANALYSES

The safety design basis for the containment is that the containment must withstand the pressures and temperatures of the limiting DBA without exceeding the design leakage rate.

The limiting DBAs that result in a large release of radioactive material within containment are a Loss Of Coolant Accident (LOCA), a Main Steam Line Break (MSLB), a feedwater line break, and a control element assembly ejection accident (Ref. 2). In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of 0.1% of containment air mass per day (Ref. 3). This leakage rate is defined in 10 CFR 50, Appendix J, Option B (Ref. 1), as L_a: the maximum allowable containment leakage rate at the calculated maximum peak containment pressure (P_a) of 52.0 psig for units 1 and 3, 58.0 psig for unit 2, which results from the limiting design basis LOCA.

Satisfactory leakage rate test results are a requirement for the establishment of containment OPERABILITY.

The containment satisfies Criterion 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

Containment OPERABILITY is maintained by limiting leakage to $\leq 1.0\ L_a$, except prior to the first startup after performing a required Containment Leakage Rate Testing Program leakage test. At this time, the applicable leakage limits must be met.

(continued)

B 3.6 CONTAINMENT SYSTEMS

B 3.6.2 Containment Air Locks

BASES

BACKGROUND

Containment air locks form part of the containment pressure boundary and provide a means for personnel access during all MODES of operation.

Each air lock is nominally a right circular cylinder, 9 ft.-6 inches in diameter, with a door at each end. The doors are interlocked to prevent simultaneous opening. During periods when containment is not required to be OPERABLE, the door interlock mechanism may be disabled, allowing both doors of an air lock to remain open for extended periods when frequent containment entry is necessary. Each air lock door has been designed and tested to certify its ability to withstand a pressure in excess of the maximum expected pressure following a Design Basis Accident (DBA) in containment. As such, closure of a single door supports containment OPERABILITY. Each of the doors contains double gasketed seals and local leakage rate testing capability to ensure pressure integrity. To effect a leak tight seal, the air lock design uses pressure seated doors (i.e., an increase in containment internal pressure results in increased sealing force on each door).

The containment air locks form part of the containment pressure boundary. As such, air lock integrity and leak tightness is essential for maintaining the containment leakage rate within limit in the event of a DBA. Not maintaining air lock integrity or leak tightness may result in a leakage rate in excess of that assumed in the unit safety analysis.

(continued)

BASES (continued)

APPLICABLE SAFETY ANALYSES

The limiting DBAs that result in a large release of radioactive material within containment are a Loss Of Coolant Accident (LOCA), a Main Steam Line Break (MSLB), a feedwater line break, and a control element assembly (CEA) ejection accident (Ref. 2). In the analysis of each of these accidents, it is assumed that containment is OPERABLE such that release of fission products to the environment is controlled by the rate of containment leakage. The containment was designed with an allowable leakage rate of 0.1% of containment air mass per day (Ref. 3). This leakage rate is defined in 10 CFR 50, Appendix J, Option B, as the maximum allowable containment leakage rate at the calculated peak containment internal pressure P_a [52.0 psig for units operating at 3876 MWt RTP, and 58.0 psig for unit operating at 3990 MWt RTP], following a design basis LOCA. This allowable leakage rate forms the basis for the acceptance criteria imposed on the SRs associated with the air lock.

The containment air locks satisfy Criterion 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

Each containment air lock forms part of the containment pressure boundary. As part of the containment pressure boundary, the air lock safety function is related to control of the containment leakage rate resulting from a DBA. Thus, each air lock's structural integrity and leak tightness are essential to the successful mitigation of such an event.

Each air lock is required to be OPERABLE. For the air lock to be considered OPERABLE, the air lock interlock mechanism must be OPERABLE, the air lock must be in compliance with the Type B air lock leakage test, and both air lock doors must be OPERABLE. The interlock allows only one air lock door of an air lock to be opened at one time. This provision ensures that a gross breach of containment does not exist when containment is required to be OPERABLE. Closure of a single door in each air lock is sufficient to provide a leak tight barrier following postulated events. Nevertheless, both doors are kept closed when the air lock is not being used for normal entry into or exit from containment.

(continued)

BASES

APPLICABLE SAFETY ANALYSES

The containment isolation valve LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during major accidents. As part of the containment boundary, containment isolation valve OPERABILITY supports leak tightness of the containment. Therefore, the safety analysis of any event requiring isolation of containment is applicable to this LCO.

The DBAs that result in a release of radioactive material within containment are documented in UFSAR Chapters 6 and 15. In the analysis for each of these accidents, it is assumed that containment isolation valves are either closed or function to close within the required isolation time following event initiation. This ensures that potential paths to the environment through containment isolation valves (including containment purge valves) are minimized. The safety analysis assumes that the refueling purge valves are closed at event initiation.

The DBA analysis assumes that, within 60 seconds after the accident, isolation of the containment is complete and leakage terminated except for the design leakage rate, L_a. The power access purge valves are assumed to close within 12 seconds of the DBA. The containment isolation response time includes signal delay, diesel generator startup (for loss of offsite power), and containment isolation valve stroke times.

The single failure criterion required to be imposed in the conduct of unit safety analyses was considered in the original design of the containment purge valves. Two valves in series on each purge line provide assurance that both the supply and exhaust lines could be isolated even if a single failure occurred. The inboard and outboard isolation valves on each line are provided with diverse power sources.

The refueling purge valves may be unable to close in the environment following a LOCA. Therefore, each of the refueling purge valves is required to remain sealed closed during MODES 1, 2, 3, and 4 or the flow paths of the refueling purge valves are required to be isolated with blind flanges. In this case, the single failure criterion remains applicable to the containment refueling purge valves due to failure in the control circuit associated with each valve. Again, the purge system valve design precludes a single failure from compromising the containment boundary as long as the system is operated in accordance with the subject LCO.

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

The power access purge valves are capable of closing under accident conditions. Therefore, they are allowed to be open for limited periods during power operation.

The OPERABILITY of main steam safety valves, main steam isolation valves, main feedwater isolation valves, and main steam atmospheric dump valves is covered by Specifications 3.7.1, 3.7.2, 3.7.3 and 3.7.4 respectively.

The containment isolation valves satisfy Criterion 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

Required containment isolation valves, (CIVs) form a part of the containment boundary. A containment penetration is considered to be the area bounded by the inboard and outboard CIVs and includes all valves, piping, and connections within this boundary (e.g., vents, drains, and test connections) (Ref. 7). The containment isolation valve safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA. The automatic power operated isolation valves are required to have isolation times within limits and to actuate on an automatic isolation signal. The refueling purge valves must be maintained sealed closed. All manual vent, drain, and test valves within a Containment Penetration (i.e., between the Containment Isolation Valves) will be maintained locked closed per the locked valve administrative program or surveilled closed per Technical Specification SR 3.6.3.3 or SR 3.6.3.4. The valves covered by this LCO are listed with their associated stroke times in the UFSAR (Ref. 1). The analyses assume the containment is isolated within 60 seconds following an isolation signal (CIAS).

All containment isolation valves are considered to be required except for each 42 inch refueling purge valve when its flow path is isolated with a blind flange tested in accordance with SR 3.6.1.1 as allowed by Note 5 under LCO 3.6.3. This is allowed because the blind flange, instead of the valve, provides the function of the containment boundary.

Required CIVs are considered OPERABLE for LCO 3.6.3 when they are closed (i.e., manual valves are closed, automatic valves are de-activated and secured in their closed position), blind flanges are in place, and closed systems are intact. The Steam Generating System and the Containment Pressure Monitoring System are the only credited closed systems at PVNGS. Placement of CIVs in this configuration may impact the operability of the associated system. If the required valve surveillances have lapsed for a CIV secured in its closed

(continued)