US-APWR DCD Revision 3
Tracking Report

April 2012

Revision History

Revision	Page	Description
0	All	Including the following information; 1. RAI responses that were submitted through July 14, 2011 2. Additional list of Technical Reports in Section 1.6 3. Tier 1 changes that were accepted by the NRC 4. Amended RAI responses regarding Section 9.2 submitted by MHI Ref. UAP-HF-11217, 11232, 11235, 11237, 11238, 11239, 11240 5. Deletion of track change mark on the DCD Revision 3 notified from the NRC
1	All	Including the following information; 1. RAI responses that were submitted from July 15, 2011 through December 19, 2011. 2. Appropriate sections for each report are reviewed and identified in Section 1.6 3. Deletion of track change mark on the DCD Revision 3 notified from the NRC 4. GSI-191 markups that were submitted by MHI Ref. UAP-HF-11287. “GSI-191” is identified for each item in the column of “Reason for Change”.
2	ALL	Including the following information; 1. RAI responses that were submitted from December 20, 2011 through March 16, 2012. 2. Result of consistency check for Table 1.8-1 and Table 1.8-2 3. Revision due to NRC meeting dated 1/17/2012

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General Description

This report includes a table that identifies the impact of each response to the Request for Additional Information ("RAI") relative to the Design Control Document ("DCD") Revision 3 of US-APWR. This table shows the RAI responses marked in red which have been submitted from December 20, 2011 through March 16, 2012 and also incorporated into the Tracking Report.

This report also includes a change list and markups for each Chapter in the US-APWR DCD Revision 3. The change list identifies the changes impacted by the responses to RAI, and others which have been informed and accepted by the U.S. Nuclear Regulatory Commission ("NRC"). The report also includes DCD markups except for markups with RAI responses already formally submitted.

Contents

For ease of using this Tracking Report, each chapter is organized in a stand alone fashion that includes a cover sheet and the following relevant information:

- DCD Change List – a list of the changes resulting from RAI responses and other changes. Standard description of list is shown in Table 1.

- DCD Markups – a copy of the DCD pages that have changes except for RAI responses or other changes which have already been attached to formally submitted letters.

Table 1 Change List Standard Description Matrix

<table>
<tr><th>Change due to:</th><th>Change ID No. type:</th><th>“Reason for change” type</th><th>“ Change Summary” type</th></tr>
<tr><td>DCD RAI Response</td><td>DCD_xx.xx-xx
(xx.xx-xx is RAI question number)</td><td>Response to DCD RAI No. xxx-xxxx
MHI Letter
UAP-HF-xxxxx</td><td rowspan="9">[Paragraphs]
-Added second paragraph to reasons(identify xxxxxx/replace xxx)

[Subsections]
-Added Subsection xx.xx.xx
-Deleted Subsection xx.xx.xx
-Revised Subsection for RAI Response
-Added new Subsection xx.xx.xx

[description]
-Added descriptions about xxxxxxx
-Deleted description as follow:
xxxxxxxxxxxxxxxxxxxxxxxxxx
-Replaced “xxxxx” with “xxxxx”.

[Reference]
-Added/Deleted reference to where.

[STD/CP COL xx.xx(xx)]
-Added CP COL x.x(xx)
-Deleted STD COLx.x(xx)

[Tables/Figures]
-Added Table/Figure xx.xx-xxx
-Deleted Table/Figure xx.xx-xxx
-Revised Table xx.xx-xxx to reasons as discussed in xxxxx</td></tr>
<tr><td rowspan="8">MHI identified change

Impact from COL RAI

COL Applicants comment

Industry guides

Technical reasons</td><td>RCOL2_xx.xx-xx
(xx.xx-xx is RAI question number)</td><td>Response to R-COLA RAI No. xxx-xxxx</td></tr>
<tr><td>SCOL3_xx.xx-xx
(xx.xx-xx is RAI question number)</td><td>Response to S-COLA RAI No. xxx-xxxx</td></tr>
<tr><td rowspan="6">MIC-xx-xx-xxxxx
(numbering by ledger)</td><td>Editorial correction</td></tr>
<tr><td>Erratum</td></tr>
<tr><td>Clarification</td></tr>
<tr><td>Commitment to NRC</td></tr>
<tr><td>XXX (i.e DCWG) Meeting (mm/dd/yyyy)</td></tr>
<tr><td>Due to the revision up of industry guides (i.e NEI)</td></tr>
</table>

Chapter:1

SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
1	Introduction and Interfaces	440	1.2-1	2009/9/8	Y	N	N		-	DCD_1.2-1	4	2
		440	1.2-2	2009/9/8	N	N	N		-	-	N/A	N/A
		440	1.2-3	2009/9/8	N	N	N		-	-	N/A	N/A
		440	1.2-4	2009/9/8	Y	N	N		-	DCD_1.2-4	4	2
		440	1.2-5	2009/9/8	Y	N	N		-	DCD_1.2-5	4	2
		531	01-7	2010/2/3	Y	N	N		-	DCD_01-7	2	3

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
2.0	Site Charactoristics and Site	518	02-1	2010/2/15	Y	Y	N		-	DCD_02-1	2	3
	Parameters	819	02-2	2011/10/11	Y	Y	N		-	DCD_02-2	1	
2.2.3	Evaluation of Potential Accidents											
2.3.1	Regional Climatology	23	02.03.01-1	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-1	-	1
		23	02.03.01-2	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-2	-	1
		23	02.03.01-3	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-3	-	1
		23	02.03.01-4	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-4	-	1
		23	02.03.01-5	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-5	-	1
		23	02.03.01-6	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-6	-	1
		23	02.03.01-7	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-7	-	1
		23	02.03.01-8	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-8	-	1
		23	02.03.01-9	2008/7/18	N	N	N	fin.	-			
				2008/8/12	N	N	N	fin.	-	-	N/A	N/A
		23	02.03.01-10	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-10	-	1
		23	02.03.01-11	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-11	-	1
		23	02.03.01-12	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.01-12	-	1
		23	02.03.01-13	2008/7/18	N	N	N	fin.	-			
				2008/8/12	N	N	N	fin.	-	-	N/A	N/A
		23	02.03.01-14	2008/7/18	N	N	N	fin.	-			
				2008/8/12	N	N	N	fin.	-	-	N/A	N/A
		41	02.03.01-15	2008/9/12	Y	N	N	fin.	-	DCD_02.03.01-15	-	1
		59	02.03.01-16	2008/9/10	Y	N	N	fin.	-	DCD_02.03.01-16	0	2
2.3.2	Local Meteorology	22	02.03.02-1	2008/7/18	Y	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.02-1	-	1
		22	02.03.02-2	2008/7/18	N	N	N	fin.	-			
				2008/8/12	N	N	N	fin.	-	-	N/A	N/A
		547	02.03.01-17	2010/4/14	Y	Y	N			DCD_02.03.01-17	3	3
		547	02.03.01-18	2010/4/14	Y	N	N			DCD_02.03.01-18	3	3
		547	02.03.01-19	2010/4/14	Y	N	N			DCD_02.03.01-19	3	3
2.3.3	Onsite Meteorological	21	02.03.03-1	2008/7/18	Y	N	N	fin.	-			
	Measurement Programs			2008/8/12	Y	N	N	fin.	-	DCD_02.03.03-2	-	1
		21	02.03.03-2	2008/7/18	N	N	N	fin.	-			
				2008/8/12	Y	N	N	fin.	-	DCD_02.03.03-2	-	1
2.3.4	Short-term Dispersion Estimates	42	02.03.04-1	2008/9/10	Y	N	N	fin.	-	DCD_02.03.04-1	0	2
	for Accident Releases			2009/6/4	Y	Y	N		-	DCD_02.03.04-1	-	2
		42	02.03.04-2	2008/9/10	Y	N	N	fin.	-	DCD_02.03.04-2	0	2
				2009/6/4	Y	Y	N		-	DCD_02.03.04-2	3	2
		42	02.03.04-3	2008/9/10	N	N	N	fin.	-	-	N/A	N/A
				2009/6/4	Y	N	N		-	DCD_02.03.04-3	-	2
		42	02.03.04-4	2008/9/10	Y	N	N	fin.	-	DCD_02.03.04-4	0	2
				2009/6/4	Y	N	N		-	-	3	2
		43	02.03.04-5	2008/9/10	Y	Y	N	fin.	-	DCD_02.03.04-5	0	2

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		OI	02.03.04-1	2009/6/4	Y	Y	N		-	DCD_02.03.04-1	-	2
		OI	02.03.04-2	2009/6/4	Y	N	N		-	DCD_02.03.04-2	-	2
		OI	02.03.04-3	2009/6/4	Y	Y	N		-	DCD_02.03.04-3	-	2
		OI	02.03.04-4	2009/6/4	Y	N	N		-	DCD_02.03.04-4	-	2
		OI	02.03.04-5	2009/6/4	Y	Y	N		-	DCD_02.03.04-5	-	2
		OI	02.03.04-6	2009/6/4	Y	Y	N		-	DCD_02.03.04-6	-	2
		OI	02.03.04-7	2009/6/4	Y	N	N		-	DCD_02.03.04-7	-	2
		562	02.03.04-6	2010/4/28	Y	N	N		-	DCD_02.03.04-6	3	3
		562	02.03.04-7	2010/4/28	Y	N	N		-	DCD_02.03.04-7	3	3
		562	02.03.04-8	2010/4/28	Y	N	N		-	DCD_02.03.04-8	3	3
		562	02.03.04-9	2010/4/28	Y	Y	N		-	DCD_02.03.04-9	3	3
				2010/7/14	Y	N	N		-	DCD_02.03.04-9	4	3
2.3.5	Long-Term Atmospheric Dispersion	44	02.03.05.-1	2008/9/10	Y	N	N	fin.	-	DCD_02.03.05-1	0	2
	Estimates for Routine Releases											
2.4	Hydrology	13	02.04-1	2008/7/18	Y	N	N	fin.	-	DCD_0.2.04-1	-	1
		13	02.04-2	2008/7/18	Y	N	N	fin.	-	DCD_0.2.04-2	-	1
2.4.1	Hydrologic Description	14	02.04.01-1	2008/7/18	Y	N	N	fin.	-	DCD_0.2.04.01-1	-	1
		14	02.04.01-2	2008/7/18	Y	N	N	fin.	-	DCD_0.2.04.01-2	-	1
2.4.2	Floods											
2.4.3	Probable Maximum Flood (PMF)											
	on Streams and Rivers											
2.4.4	Potential Dam Failures	15	02.04.04-1	2008/7/18	Y	N	N	fin.	-	DCD_02.04.04-1	-	1
		15	02.04.04-2	2008/7/18	Y	N	N	fin.	-	DCD_02.04.04-2	-	1
2.4.5	Probable Maximum Surge	16	02.04.05-1	2008/7/18	Y	N	N	fin.	-	DCD_02.04.05-1	-	1
	and Seiche Flooding											
2.4.6	Probable Maximum	17	02.04.06-1	2008/7/18	Y	N	N	fin.	-	DCD_02.04.06-1	-	1
	Tsunami Hazards	17	02.04.06-2	2008/7/18	Y	N	N	fin.	-	DCD_02.04.06-2	-	1

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
2.4.7	Ice Effects											
2.4.8	Cooling Water Canals and Reservoirs											
2.4.9	Channel Diversions											
2.4.10	Flooding Protection Requirements											
2.4.11	Low Water Considerations	18	02.04.11-1	2008/7/18	Y	N	N	fin.	-	DCD_02.04.11-1	-	1
2.4.12	Groundwater	19	02.04.12-1	2008/7/18	Y	N	N	fin.	-	DCD_02.04.12-1	0	2
2.4.13	Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters	20	02.04.13-1	2008/7/18	Y	N	N	fin.	-	DCD_02.04.13-1	-	1
2.4.14	Technical Specifications and Emergency Operation Requirements	24	02.04.14-1	2008/7/18	Y	N	N	fin.	-	DCD_02.04.14-1	-	1
2.5.1	Technical Specifications and Emergency Operation Requirements											
2.5.2	Vibratory Ground Motion	96	02.05.02-01	2008/12/3	Y	N	N	fin.	-	DCD_02.05.02-1	0	2
2.5.3	Surface Faulting											
2.5.4	Stability of Subsurface Materials	94	02.05.04-01	2008/12/3	Y	N	N	fin.	-	DCD-02.05.04-1	0	2

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
	and Foundations	94	02.05.04-02	2008/12/3	N	N	N	fin.	-	-	N/.A	N/A
		OI	02.05.04-1	2009/6/22	Y	N	N		-	DCD_02.05.04-1	3	2
		OI	02.05.04-01A	2010/2/22	Y	N	N		-	DCD_02.05.04-01A	2	3
2.5.5	Stability fo Slopes	95	02.05.05-01	2008/12/3	Y	N	N	fin.	-	DCD_02.05-1	0	2
		95	02.05.05-02	2008/12/3	N	N	N	fin.	-	-	N/.A	N/A

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
3.2.1	Seismic Classification	287	03.02.01-1	2009/5/8	Y	N	N		-	DCD_03.02.01-1	3	2
		287	03.02.01-2	2009/5/8	Y	N	N		-	DCD_03.02.01-2	3	2
		287	03.02.01-3	2009/5/21	Y	N	N		-	DCD_03.02.01-3	3	2
		287	03.02.01-4	2009/5/21	N	N	N		-	-	N/A	N/A
		287	03.02.01-5	2009/5/8	N	N	N		-	-	N/A	N/A
		287	03.02.01-6	2009/5/21	Y	Y Table 3.2-201	N		-	DCD_03.02.01-6	3	2
		287	03.02.01-7	2009/5/21	Y	N	N		-	DCD_03.02.01-7	3	2
		287	03.02.01-8	2009/5/8	N	N	N		-	-	N/A	N/A
		287	03.02.01-9	2009/5/21	Y	N	N		-	DCD_03.02.01-9	3	2
		287	03.02.01-10	2009/5/21	Y	N	N		-	DCD_03.02.01-10	3	2
		287	03.02.01-11	2009/5/21	N	N	N		-	-	N/A	N/A
		287	03.02.01-12	2009/5/21	N	N	N		-	-	N/A	N/A
		287	03.02.01-13	2009/5/8	N	N	N		-	-	N/A	N/A
		287	03.02.01-14	2009/5/21	Y	N	N		-	DCD_03.02.01-14	3	2
		581	03.02.01-15	2010/7/21	Y	N	N		-	DCD_03.02.01-15	4	3
		581	03.02.01-16	2010/7/21	Y	N	N		-	DCD_03.02.01-16	4	3
		581	03.02.01-17	2010/7/21	N	N	N		-	-	N/A	N/A
		581	03.02.01-18	2010/7/21	N	N	N		-	-	N/A	N/A
		684	03.02.01-19	XX/YY/2011								
		684	03.02.01-20	XX/YY/2011								
		723	03.02.01-21	2011/4/21	Y	N	N		-	DCD_03.02.02-20	0	
3.2.2	System Quality Group	276	03.02.02-1	2009/4/24	Y	N	N		-	DCD_03.02.02-1	3	2
	Classification	276	03.02.02-2	2009/4/24	Y	N	N		-	DCD_03.02.02-2	3	2
		276	03.02.02-3	2009/5/8	Y	N	N		-	DCD_03.02.02-3	3	2
		276	03.02.02-4	2009/4/24	Y	N	N		-	DCD_03.02.02-4	3	2
		276	03.02.02-5	2009/5/8	Y	N	N		-	DCD_03.02.02-5	3	2
		276	03.02.02-6	2009/5/8	N	N	N		-	-	N/A	N/A
		276	03.02.02-7	2009/5/8	N	N	N		-	-	N/A	N/A
		276	03.02.02-8	2009/5/8	N	N	N		-	-	N/A	N/A
		276	03.02.02-9	2009/4/24	Y	N	N		-	DCD_03.02.02-9	3	2
									CP RAI 67	CP_03.02.02-3	0	3
		580	03.02.02-10	2010/7/21	Y	Y	N		-	DCD_03.02.02-10	4	3
		580	03.02.02-11	2010/7/21	N	N	N		-	-	N/A	N/A
		580	03.02.02-12	2010/7/21	Y	N	N		-	DCD_03.02.02-12	4	3
		580	03.02.02-13	2010/7/21	N	N	N		-	-	N/A	N/A
		580	03.02.02-14	2010/7/21	N	N	N		-	-	N/A	N/A
		580	03.02.02-15	2010/7/21	N	N	N		-	-	N/A	N/A
		580	03.02.02-16	2010/7/21	N	N	N		-	-	N/A	N/A
		667	03.02.02-17	XX/YY/2010								
		667	03.02.02-18	XX/YY/2010								
		667	03.02.02-19	XX/YY/2010								
		724	03.02.02-20	2011/4/21	Y	N	N		-	DCD_03.02.02-20	0	
3.3.1	Wind Loadings	215	3.3.1-01	2009/4/9	N	N	N		-	-	N/A	N/A
		215	3.3.1-02	2009/4/9	N	N	N		-	-	N/A	N/A
		215	3.3.1-03	2009/4/9	N	N	N		-	-	N/A	N/A
		215	3.3.1-04	2009/4/9	Y	N	N		-	DCD_3.3.1-04	3	2
		215	3.3.1-05	2009/4/9	Y	N	N		-	DCD_3.3.1-05	3	2
		215	3.3.1-06	2009/4/9	N	N	N		-	-	N/A	N/A
3.3.2	Tornado Loadings	218	3.3.2-01	2009/4/9	N	N	N		-	-	N/A	N/A
		218	3.3.2-02	2009/4/9	Y	N	N		-	DCD_3.3.2-02	3	2
		218	3.3.2-03	2009/4/9	Y	N	N		-	DCD_3.3.2-03	3	2
		218	3.3.2-04	2009/4/9	Y	N	N		-	DCD_3.3.2-04	3	2
		817	03.03.02-5	9/26/2011	Y	Y	N		-	DCD_3.3.2-05	1	
3.4.1	Internal Flood Protection for	220	3.4.1-01	2009/4/8	Y	N	N		-			
	Onsite Equipment Failures			2009/5/21	Y	N	N		-	DCD_3.4.1-01	3	2
		220	3.4.1-02	2009/4/23	Y	N	N		-	DCD_3.4.1-02	3	2
		220	3.4.1-03	2009/4/8	Y	N	N		-	DCD_3.4.1-03	3	2

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		220	3.4.1-04	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-04	3	2
		220	3.4.1-05	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-05	3	2
		220	3.4.1-06	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-06	3	2
		220	3.4.1-07	2009/4/23	N	N	N		-	-		
				2009/5/21	N	N	N		-	-	N/A	N/A
		220	3.4.1-08	2009/4/23	N	N	N		-	-		
				2009/5/21	N	N	N		-	-	N/A	N/A
		220	3.4.1-09	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-09	3	2
		220	3.4.1-10	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-10	3	2
		220	3.4.1-11	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-11	3	2
		220	3.4.1-12	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-12	3	2
		220	3.4.1-13	2009/4/23	Y	N	N		-			
				2009/5/21	N	N	N		-	-	N/A	N/A
		220	3.4.1-14	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-14	3	2
		220	3.4.1-15	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-15	3	2
		220	3.4.1-16	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-16	3	2
		220	3.4.1-17	2009/4/23	Y	N	N		-			
				2009/5/21	Y	N	N		-	DCD_3.4.1-17	3	2
		220	3.4.1-18	2009/4/8	Y	N	N		-	DCD_3.4.1-18	3	2
		220	3.4.1-19	2009/4/8	Y	N	N		-	DCD_3.4.1-19	3	2
		220	3.4.1-20	2009/4/8	N	N	N		-	-	N/A	N/A
		579	03.04.01-21	2010/5/27	Y	Y	N		-	DCD_03.04.01-21	4	3
		579	03.04.01-22	2010/5/27	Y	N	N		-	DCD_03.04.01-22	4	3
				2010/12/9	Y	N	N		-		6	3
		579	03.04.01-23	2010/5/27	Y	N	N		-	DCD_03.04.01-23	4	3
		579	03.04.01-24	2010/6/21	Y	N	N		-	DCD_03.04.01-24	4	3
		579	03.04.01-25	2010/5/27	Y	N	N		-	DCD_03.04.01-25	4	3
		579	03.04.01-26	2010/6/21	Y	N	N		-	DCD_03.04.01-26	4	3
		579	03.04.01-27	2010/6/21	Y	N	N		-	DCD_03.04.01-27	4	3
		579	03.04.01-28	2010/6/21	Y	N	N		-	DCD_03.04.01-28	4	3
		842	03.04.01-31	12/19/2011	Y	N	N		-	DCD_03.04.01-31	1	
		842	03.04.01-32	12/19/2011	Y	N	N		-	DCD_03.04.01-32	1	
3.4.2	Analysis Procedures	219	3.4.2-01	2009/4/9	N	N	N		-	-	N/A	N/A
		219	3.4.2-02	2009/4/9	N	N	N		-	-	N/A	N/A
		219	3.4.2-03	2009/4/9	N	N	N		-	-	N/A	N/A
		219	3.4.2-04	2009/4/9	Y	N	N		-	DCD_3.4.2-04	3	2
			03.04.02-1									
			03.04.02-2									
			03.04.02-3									
			03.04.02-4									
		489	03.04.02-5	12/26/2009	N	N	N		-	-	N/A	N/A
		546	03.04.02-6	2010/4/16	N	N	N		-	-	N/A	N/A
3.5.1.1	Internally Generated Missiles	127	3.5.1.1-01	2009/1/28	Y	N	N		-	DCD_3.5.1.1-01	1	2
	(Outside Containment)	127	3.5.1.1-02	2009/1/28	Y	N	N		-	DCD_3.5.1.1-02	1	2
		127	3.5.1.1-03	2009/1/28	Y	N	N		-	DCD_3.5.1.1-03	1	2
		127	3.5.1.1-04	2009/1/28	Y	Y	N		-	DCD_3.5.1.1-04	1	2
		127	3.5.1.1-05	2009/1/28	Y	N	N		-	DCD_3.5.1.1-05	1	2
		359	3.5.1.1.3-S01	2009/6/5	Y	Y	N		-	DCD_3.5.1.1.3-S01	3	2
3.5.1.2	Internally-Generated Missiles	152	3.5.1.2-01	2009/2/4	Y	N	N		-	DCD_3.5.1.2-01	1	2
	(Inside Containment)	152	3.5.1.2-02	2009/2/4	Y	N	N		-	DCD_3.5.1.2-02	1	2

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		152	3.5.1.2-03	2009/2/4	Y	N	N		-	DCD_3.5.1.2-03	1	2
3.5.1.3	Turbine Missiles	323	03.05.01.03-1/3.5.1.3-1	2009/5/20	N	N	N		-	-	N/A	N/A
		323	03.05.01.03-2/3.5.1.3-2	2009/5/20	Y	N	N		-	D_03.05.01.03-2/3.5.1.	3	2
		323	03.05.01.03-3/3.5.1.3-3	2009/5/20	Y	N	N		-	D_03.05.01.03-3/3.5.1.	3	2
		324	03.05.01.03-1/3.5.1.3-1	2009/5/20	Y	N	N		-	D_03.05.01.03-1/3.5.1.	-	2
		324	03.05.01.03-2/3.5.1.3-2	2009/5/20	N	N	N		-	-	N/A	N/A
		324	03.05.01.03-3/3.5.1.3-3	2009/5/20	N	N	N		-	-	N/A	N/A
		324	03.05.01.03-4/3.5.1.3-4	2009/5/20	N	N	N		-	-	N/A	N/A
		324	03.05.01.03-5/3.5.1.3-5	2009/5/20	N	N	N		-	-	N/A	N/A
		324	03.05.01.03-6/3.5.1.3-6	2009/5/20	N	N	N		-	-	N/A	N/A
		324	03.05.01.03-7/3.5.1.3-7	2009/5/20	N	N	N		-	-	N/A	N/A
		323	03.05.01.03-3	2010/5/24	Y	N	N		-	DCD_03.05.01.03-3	4	3
3.5.1.4	Missiles Generated by	154	3.5.1.4-01	2009/2/4	Y	N	N		-	DCD_3.5.1.4-01	1	2
	Tornadoes and Extreme Winds	154	3.5.1.4-02	2009/2/4	N	N	N		-		N/A	N/A
		154	3.5.1.4-03	2009/2/4	Y	N	N		-	DCD_3.5.1.4-03	1	2
		154	3.5.1.4-04	2009/2/4	Y	N	N		-	DCD_3.5.1.4-04	1	2
		154	3.5.1.4-05	2009/2/4	Y	N	N		-	DCD_3.5.1.4-05	1	2
		357	3.5.1.4-02-S01	2009/6/4	Y	Y	N		-	DCD_3.5.1.4-02-S01	3	2
3.5.1.5	Site Proximity Missiles											
	(Except Aircraft)											
3.5.1.6	Aircraft Hazards											
3.5.2	Structures, Systems, and	153	3.5.2-01	2009/2/4	Y	N	N		-	DCD_3.5.2-01	1	2
	Components to be Protected											
	from Externally-Generated											
	Missiles											
3.5.3	Barrier Design Procedures	221	3.5.3-01	2009/4/8	N	N	N		-	-	N/A	N/A
		221	3.5.3-02	2009/4/8	Y	N	N		-	DCD-3.5.3-02	3	2
		221	3.5.3-03	2009/4/8	Y	N	N		-	DCD-3.5.3-03	3	2
		221	3.5.3-04	2009/4/8	Y	N	N		-	DCD-3.5.3-04	3	2
		221	3.5.3-05	2009/4/8	N	N	N		-	-	N/A	N/A
		221	3.5.3-06	2009/4/8	N	N	N		-	-	N/A	N/A
		482	03.05.03-7	2009/12/9	N	N	N		-	-	N/A	N/A
		482	03.05.03-8	2009/12/9	Y	N	N		-	DCD_03.05.03-8	1	3
		686	03.05.03-9	2011/2/28	Y	N	N		-	DCD_03.05.03-9	TBD	
		758	03.05.03-10	12/09/2011	Y	N	N		-	DCD_03.05.03-10	1	

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3.6.1	Plant Design for Protection	180	3.6.1-1	2009/3/3	Y	N	N		-	DCD_3.6.1-1	2	2
	Against Postulated Piping Failures	180	3.6.1-2	2009/3/3	N	N	N		-	DCD_3.6.1-2	N/A	N/A
	in Fluid Systems	180	3.6.1-3	2009/3/3	N	N	N		-	DCD_3.6.1-3	N/A	N/A
	Outside Containment	180	3.6.1-4	2009/3/3	Y	N	N		-	DCD_3.6.1-4	3	2
		180	3.6.1-5	2009/3/3	Y	N	N		-	DCD_3.6.1-5	3	2
		180	3.6.1-6	2009/3/3	Y	N	N		-	DCD_3.6.1-6	3	2
		795	03.06.01-7	10/26/2011	Y	N	N		-	DCD_3.6.1-7	1	
		795	03.06.01-8	10/26/2011	N	N	N		-	-	N/A	N/A
		795	03.06.01-9	10/26/2011	Y	Y	Y		-	DCD_3.6.1-9	1	
		884	03.06.01-10	03/09/2012	Y	N	N		-	DCD_3.6.1-10	2	
3.6.2	Determination of Rupture Locations	71	03.06.02-1	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
	and Dynamic Effects Associated	71	03.06.02-2	2008/10/7	Y	N	N	fin.	-	DCD_03.06.02-2	0	2
				2011/12/27	Y	N	N		-	DCD_03.06.02-2	2	
	with the Postulated Rupture	71	03.06.02-3	2008/10/7	Y	N	N	fin.	-	DCD_03.06.02-3	0	2
	of Piping	71	03.06.02-4	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-5	2008/10/7	Y	N	N	fin.	-	DCD_03.06.02-5	0	2
		71	03.06.02-6	2008/10/7	Y	N	N	fin.	-	DCD_03.06.02-6	0	2
		71	03.06.02-7	2008/10/7	Y	N	N	fin.	-	DCD_03.06.02-7	0	2
		71	03.06.02-8	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-9	2008/10/7	Y	N	N	fin.	-	DCD_03.06.02-9	0	2
		71	Intro for 03.06.02-10 thru 15	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-10	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-11	2008/11/7	Y	N	N	fin.	-	DCD_03.06.02-11	0	2
		71	03.06.02-12	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-13	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-14	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-15	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-16	2008/10/7	Y	N	N	fin.	-	DCD_03.06.02-16	0	2
		71	03.06.02-17	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-18	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		71	03.06.02-19	2008/10/7	Y	N	N	fin.	-	-	-	1
		459	03.06.02-20	2009/10/16	Y	N	N		-	DCD_03.06.02-20	-	2
		459	03.06.02-21	2009/10/16	N	N	N		-	-	N\A	N\A
		459	03.06.02-22	2009/10/16	Y	N	N		-	DCD_03.06.02-22	-	2
		459	03.06.02-23	2009/10/16	Y	N	N		-	DCD_03.06.02-23	-	2
		459	03.06.02-24	2009/10/16	Y	N	N		-	DCD_03.06.02-24	-	2
		459	03.06.02-25	2009/10/16	Y	N	N		-	DCD_03.06.02-25	0	3
		459	03.06.02-26	2009/10/16	N	N	N		-	-	N\A	N\A
		459	03.06.02-27	2009/10/16	Y	N	N		-	DCD_03.06.02-27	-	2
		459	03.06.02-28	2009/12/1	N	N	N		-	-	N\A	N\A
		459	03.06.02-29	2009/12/1	N	N	N		-	-	N\A	N\A
		459	03.06.02-30	2009/12/1	N	N	N		-	-	N\A	N\A
		459	03.06.02-31	2009/12/1	N	N	N		-	-	N\A	N\A
		459	03.06.02-32	2009/12/1	N	N	N		-	-	N\A	N\A
		459	03.06.02-33	2009/12/1	N	N	N		-	-	N\A	N\A
		459	03.06.02-34	2009/12/1	N	N	N		-	-	N\A	N\A

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		459	03.06.02-35	2009/12/1	N	N	N		-	-	N\A	N\A
		459	03.06.02-36	2009/10/16	N	N	N		-	-	N\A	N\A
		459	03.06.02-37	10/16/2009	Y	N	N		-	DCD_03.06.02-37	-	2
		459	03.06.02-38	10/16/2009	Y	N	N		-	DCD_03.06.02-38	-	2
		459	03.06.02-39	2009/12/1	Y	N	N		-	DCD_03.06.02-39	1	3
		636	03.06.02-40	11/24/2010	N	N	N		-	-	N\A	N\A
				12/15/2010	Y	N	N		-	DCD_03.06.02-40	7	3
		636	03.06.02-41	11/24/2010	Y	N	N		-	DCD_03.06.02-41	7	3
				12/15/2010	Y	N	N		-		7	3
		636	03.06.02-42	11/24/2010	Y	N	N		-	DCD_03.06.02-42	7	3
				12/15/2010	Y	N	N		-		7	3
		636	03.06.02-43	11/24/2010	Y	N	N		-	DCD_03.06.02-43	7	3
				12/15/2010	Y	N	N		-		7	3
		636	03.06.02-44	11/24/2010	N	N	N		-	-	N\A	N\A
				12/15/2010	Y	N	N		-	DCD_03.06.02-44	7	3
		636	03.06.02-45	11/24/2010	N	N	N		-	-	N\A	N\A
				12/15/2010	Y	N	N		-	DCD_03.06.02-44	7	3
		636	03.06.02-46	11/24/2010	N	N	N		-	-	N\A	N\A
				12/15/2010	N	N	N		-	-	N\A	N\A
		636	03.06.02-47	11/24/2010	Y	N	N		-	DCD_03.06.02-47	7	3
				12/15/2010	Y	N	N		-	DCD_03.06.02-47	7	3
				11/22/2011	Y	N	N		-	DCD_03.06.02-47	1	
		636	03.06.02-48	11/24/2010	Y	N	N		-	DCD_03.06.02-48	7	3
				12/15/2010	Y	N	N		-		7	3
3.6.3	Leak-Before-Break	210	3.6.3-1	2009/4/9	Y	N	N		-	DCD_3.6.3-1	3	2
	Evaluation Procedures	210	3.6.3-2	2009/4/23	N	N	N		-	-	N/A	N/A
		210	3.6.3-3	2009/4/23	N	N	N		-	-	N/A	N/A
		210	3.6.3-4	2009/4/9	Y	N	N		-	DCD_3.6.3-4	3	2
		210	3.6.3-5	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-6	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-7	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-8	2009/4/9	Y	N	N		-	DCD_3.6.3-8	3	2
		210	3.6.3-9	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-10	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-11	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-12	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-13	2009/4/9	N	N	N		-	-	N/A	N/A
		210	3.6.3-14	2009/4/9	N	N	N		-	-	N/A	N/A
		217	3.6.3-15	2009/3/24	Y	¥ part4	N		-	DCD_3.6.3-15	-	2
		217	3.6.3-16	2009/4/23	Y	¥ part4	N		-	DCD_3.6.3-16	3	2
		415	3.6.3-17	2009/8/3	Y	N	N			DCD_3.6.3-17	4	2
		485	3.6.3-18	2010/1/18	N	N	N		-	-	N/A	N/A
		485	3.6.3-19	2010/1/18	Y	Y	N		-	DCD_3.6.3-19	2	3
		485	3.6.3-20	2010/1/18	N	N	N		-	-	N/A	N/A
		485	3.6.3-21	2010/1/18	Y	N	N		-	DCD_3.6.3-21	2	3
		485	3.6.3-22	2010/1/18	N	N	N		-	-	N/A	N/A
		485	3.6.3-23	2010/1/18	N	N	N		-	-	N/A	N/A
		485	3.6.3-24	2010/1/18	Y	N	N		-	DCD_3.6.3-24	2	3
		485	3.6.3-25	2010/1/18	N	N	N		-	-	N/A	N/A
		849	03.06.03-26	2011/11/21	N	N	N		-	-	N/A	N/A
3.7.1	Seismic Design Parameters	211	3.7.1-1	2009/3/25	N	N	N		-	-	N/A	N/A
		211	3.7.1-2	2009/3/25	N	N	N		-	-	N/A	N/A
		211	3.7.1-3	2009/4/23	N	N	N		-	-	N/A	N/A
		211	3.7.1-4	2009/3/25	Y	N	N		-	DCD_3.7.1-4	2	2
		211	3.7.1-5	2009/4/23	Y	N	N		-	DCD_3.7.1-5	3	2
		211	3.7.1-6	2009/4/23	N	N	N		-	-	N/A	N/A
		211	3.7.1-7	2009/4/23	N	N	N		-	-	N/A	N/A
		494	03.07.01-2	2010/1/29	N	N	N		-	-	N/A	N/A
		494	03.07.01-3	2010/1/29	N	N	N		-	-	N/A	N/A
		494	03.07.01-4	2010/1/29	Y	Y	N		-	DCD_03.07.01-4	2	3

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		602	03.07.01-5	2010/7/27	N	N	N		-	-	N/A	N/A
		643	03.07.01-6	XX/YY/2010								
		643	03.07.01-7	XX/YY/2010								
		643	03.07.01-8	XX/YY/2010								
		643	03.07.01-9	XX/YY/2010								
		643	03.07.01-10	XX/YY/2010								
		643	03.07.01-6	2010/11/11	Y	Y	N		-	DCD_03.07.01-12	6	3
		643	03.07.01-7	2010/11/11	N	N	N		-	-	N/A	N/A
		643	03.07.01-8	2010/11/11	N	N	N		-	-	N/A	N/A
		643	03.07.01-9	2010/11/11	N	N	N		-	-	N/A	N/A
		643	03.07.01-10	2010/11/11	N	N	N		-	-	N/A	N/A
		659	03.07.01-11 RAI 3.7.1-17	2010/12/28	N	N	N		-	-	N/A	N/A
				2011/6/23	N	N	N		-	-	N/A	N/A
		659	03.07.01-12 RAI 3.7.1-18	2010/12/28	N	N	N		-	-	N/A	N/A
		709	03.07.01-13 RAI 3.7.1-17	2011/4/19	Y	N	N		-	DCD_03.07.01-13	0	
		798	03.07.01-14	2011/9/7	Y	N	N		-	DCD_03.07.01-14	2	
		798	03.07.01-15	2011/9/7	Y	N	N		-	DCD_03.07.01-15	2	
		798	03.07.01-16	2011/9/7	N	N	N		-	-	N/A	N/A
		798	03.07.01-17	2011/12/7	N	N	N		-	-	N/A	N/A
		850	03.07.01-19	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-20	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-21	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-22	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-23	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-24	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-25	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-26	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-27	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-28	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-29	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-30	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-31	12/01/2011	N	N	N		-	-	N/A	N/A
		850	03.07.01-32	12/01/2011	N	N	N		-	-	N/A	N/A
		886	03.07.01-33	02/24/2012	N	N	N		-	-	N/A	N/A
3.7.2	Seismic System Analysis	212	3.7.2-1/ RAI 3.7.2-1	2009/5/7	Y	N	N		-	DCD_3.7.2-1	3	2
		212	3.7.2-1/ RAI 3.7.2-2	2009/3/30	Y	N	N		-	DCD_3.7.2-2	2	2
		212	3.7.2-1/ RAI 3.7.2-3	2009/5/7	Y	N	N		-	DCD_3.7.2-3	6	3
		212	3.7.2-1/ RAI 3.7.2-4	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-5	2009/5/7	Y	N	N		-	DCD_3.7.2-5	3	2
		212	3.7.2-1/ RAI 3.7.2-6	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-7	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-8	2009/3/30	Y	N	N		-	DCD_3.7.2-8	-	2
		212	3.7.2-1/ RAI 3.7.2-9	2009/3/30	Y	N	N		-	DCD_3.7.2-9	2	2
		212	3.7.2-1/ RAI 3.7.2-10	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-11	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-12	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-13	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-14	2009/3/30	N	N	N		-	-	N/A	N/A
		212	3.7.2-1/ RAI 3.7.2-15	2009/5/7	Y	N	N		-	DCD_3.7.2-15	-	2
		212	3.7.2-1/ RAI 3.7.2-16	2009/3/30	N	N	N		-	-	N/A	N/A
		495	03.07.02-2	2010/2/2	N	N	N		-	-	N/A	N/A
		495	03.07.02-3A	2010/2/2	N	N	N		-	-	N/A	N/A
		495	03.07.02-4	2010/2/2	Y	N	N		-	DCD_03.07.02-4	TBD	
		495	03.07.02-5	2010/2/2	Y	N	N		-	DCD_03.07.02-5	2	3
		542	03.07.02-6	2010/3/30	N	N	N		-	-	N/A	N/A
		542	03.07.02-7	2010/3/30	N	N	N		-	-	N/A	N/A
		542	03.07.02-8	2010/3/30	N	N	N		-	-	N/A	N/A
				2011/6/30	Y	N	Y		-	DCD_03.07.02-35	0	
		603	03.07.02-9	2010/7/27	N	N	N		-	-	N/A	N/A
		603	03.07.02-10	2010/8/30	N	N	N		-	-	N/A	N/A
		625	03.07.02-11/RAI 3.7.2-38	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-12/RAI 3.7.2-39	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-13/RAI 3.7.2-40	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-14/RAI 3.7.2-41	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-15/RAI 3.7.2-42	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-16/RAI 3.7.2-43	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-17/RAI 3.7.2-44	2010/11/4	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		625	03.07.02-18/RAI 3.7.2-45	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-19/RAI 3.7.2-46	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-20/RAI 3.7.2-47	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-21/RAI 3.7.2-48	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-22/RAI 3.7.2-49	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-23/RAI 3.7.2-50	2010/11/4	N	N	N		-	-	N/A	N/A
		625	03.07.02-24/RAI 3.7.2-51	2010/11/4	N	N	N		-	-	N/A	N/A
		212	03.07.02-17	2009/5/7	N	N	N		-	-	N/A	N/A
		212	03.07.02-18	2009/5/7	N	N	N		-	-	N/A	N/A
		212	03.07.02-19	2009/5/7	N	N	N		-	-	N/A	N/A
		212	03.07.02-20	2009/5/7	Y	N	N		-	-	3	2
		212	03.07.02-21	2009/3/30	N	N	N		-	-	N/A	N/A
		212	03.07.02-22	2009/3/30	Y	N	N		-	-	2	2
		212	03.07.02-23	2009/3/30	N	N	N		-	-	N/A	N/A
		212	03.07.02-24	2009/5/7	Y	N	N		-	-	3	2
		212	03.07.02-25	2009/3/30	N	N	N		-	-	N/A	N/A
		212	03.07.02-26	2009/3/30	Y	N	N		-	-	2	2
		212	03.07.02-27	2009/5/7	Y	N	N		-	-	3	2
		212	03.07.02-28	2009/3/30	Y	N	N		-	-	2	2
		660	03.07.02-25 /RAI 3.7.2-52	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-26 /RAI 3.7.2-53	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-27 /RAI 3.7.2-54	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-28 /RAI 3.7.2-55	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-29 /RAI 3.7.2-56	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-30 /RAI 3.7.2-57	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-31 /RAI 3.7.2-58	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-32 /RAI 3.7.2-59	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-33 /RAI 3.7.2-60	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-34 /RAI 3.7.2-61	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-35 /RAI 3.7.2-62	2010/12/28	N	N	N		-	-	N/A	N/A
		660	03.07.02-36 /RAI 3.7.2-63	2010/12/28	Y	N	N			DCD_03.07.02-63	7	3
		660	03.07.02-37 /RAI 3.7.2-64	2010/12/28	N	N	N		-		N/A	N/A
		660	03.07.02-38 /RAI 3.7.2-65	2010/12/28	Y	N	N			DCD_03.07.02-65	7	3
		660	09.07.02-39/RAI 3.7.2-68	2010/12/28	N	N	N		-	-	N/A	N/A
		766	03.07.02-40	2011/8/1	N	N	N		-	-	N/A	N/A
				2011/11/116	N	N	N		-	-	N/A	N/A
		766	03.07.02-41	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.02-42	2011/11/116	N	N	N		-	-	N/A	N/A
		766	03.07.02-43	2011/11/116	N	N	N		-	-	N/A	N/A
		766	03.07.02-44	2011/8/1	N	N	N		-	-	N/A	N/A
				2011/11/116	N	N	N		-	-	N/A	N/A
		766	03.07.02-45	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-46	2011/8/1	N.	N	N		-	-	N/A	N/A
				2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-47	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.02-48	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.03-49	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-50	2011/8/1	N	N	N		-	-	N/A	N/A
				2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.03-51	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-52	2011/8/1	N	N	N		-	-	N/A	N/A
				2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-53	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.02-54	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-55	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-56	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.03-57	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-58	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.03-59	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-60	2011/8/1	N	N	N		-	-	N/A	N/A
				2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-61	2011/8/1	N	N	N		-	-	N/A	N/A
				2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-62	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.03-63	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-64	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.02-65	2011/8/1	N	N	N		-	-	N/A	N/A
		766	03.07.02-66	2011/8/1	N	N	N		-	-	N/A	N/A

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		766	03.07.02-66	2011/11/16	N	N	N		-	-	N/A	N/A
		766	03.07.02-67	2011/8/1	N	N	N		-	-	N/A	N/A
		776	03.07.02-68	2011/8/12	N	N	N		-	-	N/A	N/A
		776	03.07.02-77	2011/8/12	N	N	N		-	-	N/A	N/A
		776	03.07.02-81	8/12/2011	N	N			-	-	N/A	N/A
		776	03.07.02-83	8/12/2011	N	N			-	-	N/A	N/A
		800	03.07.02-86	9/7/2011	N	N	N		-	-	N/A	N/A
		800	03.07.02-87	9/7/2011	N	N	N		-	-	N/A	N/A
		800	03.07.02-88	9/7/2011	Y	Y	N		-	DCD_03.07.02-88	2	
		800	03.07.02-89	9/7/2011	N	N	N		-	-	N/A	N/A
		800	03.07.02-90	11/01/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-91	11/22/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-92	11/22/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-93	11/22/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-94	11/22/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-95	11/22/2011	Y	N	N		-	DCD_03.07.02-95	2	
		810	03.07.02-96	11/22/2011	Y	N	N		-	DCD_03.07.02-96	2	
		810	03.07.02-97	2011/9/22	Y	N	N		-	DCD_03.07.02-97	2	
		810	03.07.02-98	11/22/2011	Y	N	N		-	DCD_03.07.02-98	2	
		810	03.07.02-99	2011/9/22	N	N	N		-	-	N/A	N/A
		810	03.07.02-100	11/22/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-101	11/22/2011	Y	N	N		-	DCD_03.07.02-101	2	
		810	03.07.02-102	2011/9/22	Y	Y	Y		-	DCD_03.07.02-102	2	
		810	03.07.02-103	11/22/2011	Y	N	N		-	DCD_03.07.02-103	2	
		810	03.07.02-104	11/22/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-105	11/22/2011	N	N	N		-	-	N/A	N/A
		810	03.07.02-106	2011/9/22	Y	N	N		-	DCD_03.07.02-106	2	
		810	03.07.02-107	2011/9/22	Y	Y	Y		-	DCD_03.07.02-107	2	
		810	03.07.02-108-1	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-2	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-3	2011/11/30	Y	N	N		-	DCD_03.07.02-108(3)	2	
		810	03.07.02-108-4	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-5	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-6	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-7	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-8	2011/11/30	Y	N	N		-	DCD_03.07.02-108(8)	2	
		810	03.07.02-108-9	2011/11/30	Y	N	N		-	DCD_03.07.02-108(9)	2	
		810	03.07.02-108-10	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-11	2011/11/30	N	N	N		-	DCD_03.07.02-108(11	2	
		810	03.07.02-108-12	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-13	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-14	2011/11/30	N	N	N		-	-	N/A	N/A
		810	03.07.02-108-15	2011/11/30	Y	N	N		-	DCD_03.07.02-108(15	2	
		812	03.07.02-109	9/22/2011	N	N	N		-	-	N/A	N/A
3.7.3	Seismic Subsystem Analysis	213	03.07.03-1 RAI 3.7.3-01	2009/3/27	Y	N	N		-	DCD_3.7.3-01	2	2
		213	03.07.03-1 RAI 3.7.3-02	2009/3/27	N	N	N		-	-	N/A	N/A
		213	03.07.03-1 RAI 3.7.3-03	2009/4/24	Y	N	N		-	DCD_3.7.3-03	3	2
		213	03.07.03-1 RAI 3.7.3-04	2009/4/24	Y	N	N		-	DCD_3.7.3-04	3	2
		213	03.07.03-1 RAI 3.7.3-05	2009/3/27	Y	N	N		-	DCD_3.7.3-05	2	2
		213	03.07.03-1 RAI 3.7.3-06	2009/4/24	N	N	N		-	-	N/A	N/A
		213	03.07.03-1 RAI 3.7.3-07	2009/3/27	N	N	N		-	-	N/A	N/A
		213	03.07.03-1 RAI 3.7.3-08	2009/3/27	Y	N	N		-	DCD_3.7.3-08	2	2
		213	03.07.03-1 RAI 3.7.3-09	2009/3/27	Y	N	N		-	DCD_3.7.3-09	2	2
		213	03.07.03-1 RAI 3.7.3-10	2009/3/27	N	N	N		-	-	N/A	N/A
		213	03.07.03-1 RAI 3.7.3-11	2009/3/27	Y	N	N		-	DCD_3.7.3-11	2	2
		213	03.07.03-1 RAI 3.7.3-12	2009/4/24	Y	N	N		-	DCD_3.7.3-12	3	2
		213	03.07.03-1 RAI 3.7.3-13	2009/3/27	Y	N	N		-	DCD_3.7.3-13	-	2
		213	03.07.03-1 RAI 3.7.3-14	2009/4/24	N	N	N		-	-	N/A	N/A
		213	03.07.03-1 RAI 3.7.3-15	2009/4/24	N	N	N		-	-	N/A	N/A
		493	03.07.03-2	2010/1/28	Y	N	N		-	DCD_03.07.03-2	2	3
		493	03.07.03-3	2010/1/28	N	N	N		-	-	N/A	N/A
		493	03.07.03-4	2010/1/28	N	N	N		-	-	N/A	N/A
		493	03.07.03-5	2010/1/28	Y	N	N		-	DCD_03.07.03-5	2	3
		799	03.07.03-6	2011/9/7	Y	N	N		-	DCD_3.7.3-6	2	
		799	03.07.03-7	2011/10/7	Y	N	N		-	DCD_03.07.03-7	2	

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		799	03.07.03-8	2011/9/7	N	N	N		-	-	N/A	N/A
		799	03.07.03-9	2011/9/7	N	N	N		-	-	N/A	N/A
		799	03.07.03-10	2011/10/7	Y	N	N		-	DCD_03.07.03-10	2	
		799	03.07.03-11	2011/10/7	Y	N	N		-	DCD_03.07.03-10	2	
		213	3.7.3-09 SUPP	2010/6/30	Y	N	N		-	DCD_3.7.3-09	4	3
3.7.4	Seismic Instrumentation	55	03.07.04-1	2008/9/1	Y	N	N	fin.	-	DCD_03.07.04-1	0	2
		55	03.07.04-2	2008/9/1	Y	N	N	fin.	-	DCD_03.07.04-2	0	2
		538	03.07.04-03	2010/3/30	Y	N	N		-	DCD_03.07.04-03	6	3
		632	03.07.04-04	2010/10/19	Y	Y	N		-	DCD_03.07.04-04	6	3
		-	-	-	-	-	-	-	COL3.7(15) deleted	MAP-03-001	-	2
		-	-	-	-	-	-	-	COL3.7(18) deleted	MAP-03-002	-	2
3.8.1	Concrete Containment	223	3.8.1-1	2009/4/14	Y	N	N		-	DCD_3.8.1-1	3	2
		223	3.8.1-2	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-3	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-4	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-5	2009/4/14	Y	N	N		-	DCD_3.8.1-5	3	2
		223	3.8.1-6	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-7	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-8	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-9	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-10	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-11	2009/4/14	N	N	N		-	-	N/A	N/A
		223	3.8.1-12	2009/4/24	Y	N	N		-	DCD_3.8.1-12	3	2
		223	3.8.1-13	2009/4/24	Y	N	N		-	DCD_3.8.1-13	3	2
		223	3.8.1-14	2009/4/14	Y	N	N		-	DCD_3.8.1-14	3	2
		-	-	-	-	-	-	-	COL3.8(1) deleted	MAP-03-003	-	2
		-	-	-	-	-	-	-	COL3.8(2) deleted	MAP-03-004	0	2, 3
		-	-	-	-	-	-	-	COL3.8(4) deleted	MAP-03-005	-	2
		-	-	-	-	-	-	-	COL3.8(5) deleted	MAP-03-006	-	2
		-	-	-	-	-	-	-	COL3.8(6) deleted	MAP-03-007	-	2
		-	-	-	-	-	-	-	COL3.8(8) deleted	MAP-03-008	-	2
		-	-	-	-	-	-	-	COL3.8(9) deleted	MAP-03-009	-	2
		-	-	-	-	-	-	-	COL3.8(12) deleted	MAP-03-010	-	2
		-	-	-	-	-	-	-	COL3.8(13) deleted	MAP-03-011	-	2
		490	03.08.01-2	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-3	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-4	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-5	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-6	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-7	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-8	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-9	2010/2/4	N	N	N		-	-	N/A	N/A
		490	03.08.01-10	2010/2/4	N	N	N		-	-	N/A	N/A
		661	03.08.01-11	XX/YY/2010								
		661	03.08.01-12	XX/YY/2010								
		661	03.08.01-13	XX/YY/2010								
		768	03.08.01-14	2011/7/25	Y	N	N		-	DCD_03.08.01-14	1	

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		661	03.08.01-24	2010/12/28	Y	N	N		-	DCD_03.08.01-24	7	3
		661	03.08.01-25	2010/12/28	N	N	N		-	-	N/A	N/A
		661	03.08.01-26	2010/12/28	N	N	N		-	-	N/A	N/A
3.8.3	Concrete and Steel	322	3.8.3-1	2009/6/4	N	N	N		-	-	N/A	N/A
	Internal Structures			2009/9/17	N	N	N		-	-	N/A	N/A
	of Steel or Concrete Containments	322	3.8.3-2	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-3	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-4	2009/5/21	Y	N	N		-	DCD_3.8.3-4	3	2
				2009/9/17	Y	N	N		-	DCD_3.8.3-4	3	2
		322	3.8.3-5	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-6	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-7	2009/6/4	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-8	2009/6/4	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-9	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-10	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-11	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-12	2009/5/21	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-13	2009/6/4	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-14	2009/6/4	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		322	3.8.3-15	2009/6/4	N	N	N		-	-	N/A	N/A
				2009/9/17	N	N	N		-	-	N/A	N/A
		491	03.08.03-16	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-17	2010/3/3	N	N	N		-	-	N/A	N/A
				2011/4/12	N	N	N		-	-	N/A	N/A
				2011/7/5	N	N	N		-	-	N/A	N/A
		491	03.08.03-18	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-19	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-20	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-21	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-22	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-23	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-24	2010/3/3	N	N	N		-	-	N/A	N/A
		491	03.08.03-25	2010/3/3	N	N	N		-	-	N/A	N/A
		662	03.08.03-26	2010/12/28	Y	N	N		-	DCD_03.08.03-26	TBD	
		662	03.08.03-27	2010/12/28	N	N	N		-	-	N/A	N/A
		662	03.08.03-28	2010/12/28	N	N	N		-	-	N/A	N/A
		662	03.08.03-29	2010/12/28	N	N	N		-	-	N/A	N/A
		662	03.08.03-30	2010/12/28	N	N	N		-	-	N/A	N/A
		662	03.08.03-31	2010/12/28	N	N	N		-	-	N/A	N/A
		662	03.08.03-32	2010/12/28	Y	N	N		-	DCD_03.08.03-32	TBD	
		676	03.08.03-33	XX/YY/2010								
		676	03.08.03-34	XX/YY/2010								
		676	03.08.03-35	XX/YY/2010								

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		858	03.08.03-36	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-37	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-38	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-39	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-40	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-41	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-42	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-43	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-44	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-45	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-46	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-47	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-48	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-49	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-50	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-51	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-52	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-53	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-54	2/24/2012	N	N	N		-	-	N/A	N/A
		858	03.08.03-55	2/24/2012	N	N	N		-	-	N/A	N/A
3.8.4	Other Seismic Category I Structures	342	3.8.4-1	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-2	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-3	2009/7/3	Y	N	N		-	DCD_3.8.4-3	4	2
		342	3.8.4-4	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-5	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-6	2009/7/3	Y	N	N		-	DCD_3.8.4-6	4	2
		342	3.8.4-7	2009/7/3	Y	N	N		-	DCD_3.8.4-7	4	2
		342	3.8.4-8	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-9	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-10	2009/7/3	Y	N	N		-	DCD_3.8.4-10	4	2
		342	3.8.4-11	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-12	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-13	2009/7/3	Y	N	N		-	DCD_3.8.4-13	4	2
		342	3.8.4-14	2009/7/3	Y	N	N		-	DCD_3.8.4-14	4	2
		342	3.8.4-15	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-16	2009/7/3	Y	N	N		-	DCD_3.8.4-16	4	2
		342	3.8.4-17	2009/7/3	Y	N	N		-	DCD_3.8.4-17	4	2
		342	3.8.4-18	2009/7/3	Y	N	N		-	DCD_3.8.4-18	4	2
		342	3.8.4-19	2009/7/3	Y	N	N		-	DCD_3.8.4-19	4	2
		342	3.8.4-20	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-21	2009/7/3	Y	Y	N		-	DCD_3.8.4-21	4	2
		342	3.8.4-22	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-23	2009/7/3	Y	N	N		-	DCD_3.8.4-23	4	2
		342	3.8.4-24	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-25	2009/7/3	Y	N	N		-	DCD_3.8.4-25	4	2
		342	3.8.4-26	2009/7/3	N	N	N		-	-	N/A	N/A
		342	3.8.4-27	2009/7/3	Y	N	N		-	DCD_3.8.4-27	4	2
		342	3.8.4-28	2009/7/3	Y	N	N		-	DCD_3.8.4-28	4	2
		342	3.8.4-29	2009/7/3	Y	N	N		-	DCD_3.8.4-29	4	2
		342	3.8.4-30	2009/7/3	Y	N	N		-	DCD_3.8.4-30	4	2
		342	3.8.4-31	2009/7/3	Y	N	N		-	DCD_3.8.4-31	4	2
		497	03.08.04-32	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-33	2010/2/19	Y	N	N		-	DCD_03.08.04-33	TBD	
		497	03.08.04-34	2010/2/19	Y	N	N		-	DCD_03.08.04-34	2	3
		497	03.08.04-35	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-36	2010/2/19	Y	N	N		-	DCD_03.08.04-36	2	3

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		497	03.08.04-37	2010/2/19	N	N	N		-	-	N/A	N/A
				2011/1/27	N	N	N		-	-	N/A	N/A
		497	03.08.04-38	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-39	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-40	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-41	2010/2/19	Y	N	N		-	DCD_03.08.04-41	2	3
		497	03.08.04-42	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-43	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-44	2010/2/19	N	N	N		-	-	N/A	N/A
				2011/1/27	N	N	N		-	-	N/A	N/A
		497	03.08.04-45	2010/2/19	N	N	N		-	-	N/A	N/A
		497	03.08.04-46	2010/2/19	Y	N	N		-	DCD_03.08.04-46	2	3
		497	03.08.04-47	2010/2/19	N	N	N		-	-	N/A	N/A
		-	-	-	-	-	-	-	COL3.8(22) revised	MAP-03-012	-	2
		658	03.08.04-48	2010/12/28	N	N	N		-	-	N/A	N/A
		658	03.08.04-49	2010/12/28	N	N	N		-	-	N/A	N/A
		767	03.08.04-50	2011/11/16	N	N	N		-	-	N/A	N/A
		767	03.08.04-51	2011/8/1	N	N	N		-	-	N/A	N/A
				2011/11/16	N	N	N		-	-	N/A	N/A
		879	03.08.04-52	02/28/2012	N	N	N		-	-	N/A	N/A
				03/26/2012	N	N	N		-	-	N/A	N/A
3.8.5	Foundations	340	03.08.05-01	2009/7/3	Y	N	N		-	DCD_03.08.05-01	4	2
		340	03.08.05-02	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-03	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-04	2009/7/3	Y	N	N		-	DCD_03.08.05-04	4	2
		340	03.08.05-05	2009/7/3	Y	N	N		-	DCD_03.08.05-05	4	2
		340	03.08.05-06	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-07	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-08	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-09	2009/7/3	Y	N	N		-	DCD_03.08.05-09	4	2
		340	03.08.05-10	2009/7/3	Y	N	N		-	DCD_03.08.05-10	4	2
		340	03.08.05-11	2009/7/3	Y	N	N		-	DCD_03.08.05-11	4	2
		340	03.08.05-12	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-13	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-14	2009/7/3	Y	N	N		-	DCD_03.08.05-14	4	2
		340	03.08.05-15	2009/7/3	Y	N	N		-	DCD_03.08.05-15	4	2
		340	03.08.05-16	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-17	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-18	2009/7/3	Y	N	N		-	DCD_03.08.05-18	4	2
		340	03.08.05-19	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-20	2009/7/3	Y	N	N		-	DCD_03.08.05-20	4	2
		340	03.08.05-21	2009/7/3	N	N	N		-	-	N/A	N/A
		340	03.08.05-22	2009/7/3	Y	N	N		-	DCD_03.08.05-22	4	2
		496	03.08.05-23	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-24	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-25	2010/2/4	Y	N	N		-	DCD_03.08.05-25	6	3
		496	03.08.05-26	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-27	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-28	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-29	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-30	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-31	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-32	2010/2/4	Y	N	N		-	DCD_03.08.05-32	2	3
		496	03.08.05-33	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-34	2010/2/4	N	N	N		-	-	N/A	N/A
		496	03.08.05-35	2010/2/4	Y	Y	N		-	DCD_03.08.05-35	6	3
		657	03.08.05-36	2010/12/28	N	N	N		-	-	N/A	N/A
		657	03.08.05-37	2010/12/28	N	N	N		-	-	N/A	N/A
		657	03.08.05-38	2010/12/28	Y	N	N		-	DCD_03.08.05-38	7	3
		657	03.08.05-39	2010/12/28	N	N	N		-	-	N/A	N/A
		657	03.08.05-40	2010/12/28	N	N	N		-	-	N/A	N/A
		657	03.08.05-41	2010/12/28	Y	Y	N		-	DCD_03.08.05-41	7	3

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3.9.1	Special Topics for	296	03.09.01-1	2009/5/14	Y	N	N		-	DCD_03.09.01-1	3	2
	Mechanical Components	296	03.09.01-2	2009/5/14	N	N	N		-	-	N/A	N/A
		296	03.09.01-3	2009/5/14	N	N	N		-	-	N/A	N/A
		296	03.09.01-4	2009/5/14	Y	N	N		-	DCD_03.09.01-4	3	2
				2011/12/13	N	N	N		-	-	N/A	N/A
		296	03.09.01-5	2009/5/14	Y	N	N		-	DCD_03.09.01-5	3	2
				2011/12/13	N	N	N		-	-	N/A	N/A
		770	03.09.01-6	201/7/26	Y	N	N		-	DCD_03.09.01-6	TBD	
				2011/12/2	Y	N	N		-	DCD_03.09.01-6	1	
		802	03.09.01-7	11/01/2011	Y	N	N		-	DCD_03.09.01-7	1	
3.9.2	Dynamic Testing and Analysis	204	3.9.2-01	2009/3/25	Y	N	N		-	DCD_3.9.2-01	2	2
	of Systems, Structures,	204	3.9.2-02	2009/3/25	Y	N	N		-	DCD_3.9.2-02	2	2
	and Components	204	3.9.2-03	2009/3/25	Y	N	N		-	DCD_3.9.2-03	2	2
		204	3.9.2-04	2009/3/25	Y	N	N		-	DCD_3.9.2-04	2	2
				12/13/2011	N	N	N		-	-	N/A	N/A
		204	3.9.2-05	2009/3/25	Y	N	N		-	DCD_3.9.2-05	2	2
				12/13/2011	N	N	N		-	-	N/A	N/A
		204	3.9.2-06	2009/3/25	N	N	N		-	-	N/A	N/A
		204	3.9.2-07	2009/3/25	Y	N	N		-	DCD_3.9.2-07	2	2
		204	3.9.2-08	2009/3/25	Y	N	N		-	DCD_3.9.2-08	2	2
		204	3.9.2-09	2009/3/25	Y	N	N		-	DCD_3.9.2-09	2	2
		205	3.9.2-10	2009/4/30	N	N	N		-	-	N/A	N/A
		205	3.9.2-11	2009/4/30	Y	N	N		-	DCD_3.9.2-11	3	2
		205	3.9.2-12	2009/4/30	N	N	N		-	-	N/A	N/A
		205	3.9.2-13	2009/4/30	N	N	N		-	-	N/A	N/A
		205	3.9.2-14	2009/4/30	Y	N	N		-	DCD_3.9.2-14	-	2
		205	3.9.2-15	2009/4/30	N	N	N		-	-	N/A	N/A
		205	3.9.2-16	2009/4/30	N	N	N		-	-	N/A	N/A
		205	3.9.2-17	2009/4/30	N	N	N		-	-	N/A	N/A
		205	3.9.2-18	2009/4/30	Y	N	N		-	DCD_3.9.2-18	3	2
		272	3.9.2-19	2009/4/9	Y	N	N		-	DCD_3.9.2-19	-	2
		272	3.9.2-20	2009/4/9	N	N	N		-	-	N/A	N/A
		272	3.9.2-21	2009/4/9	Y	N	N		-	DCD_3.9.2-21	3	2
		272	3.9.2-22	2009/4/9	Y	N	N		-	DCD_3.9.2-22	3	2
		272	3.9.2-23/ RAI 3.9.2-50	2009/4/9	Y	N	N		-	DCD_3.9.2-23	3	2
		272	3.9.2-24/ RAI 3.9.2-51	2009/4/9	Y	N	N		-	DCD_3.9.2-24	3	2
		272	3.9.2-25/ RAI 3.9.2-52	2009/4/9	Y	N	N		-	DCD_3.9.2-25	3	2
		272	3.9.2-26/ RAI 3.9.2-53	2009/4/9	N	N	N		-	-	N/A	N/A
		272	3.9.2-27/ RAI 3.9.2-54	2009/4/9	Y	N	N		-	DCD_3.9.2-27	3	2
		272	3.9.2-28/ RAI 3.9.2-55	2009/4/9	Y	N	N		-	DCD_3.9.2-28	3	2
		272	3.9.2-29/ RAI 3.9.2-56	2009/4/9	Y	N	N		-	DCD_3.9.2-29	3	2
		272	3.9.2-30/ RAI 3.9.2-57	2009/4/9	N	N	N		-			
				2009/7/29	N	N	N		-	-	N/A	N/A
		272	3.9.2-31/ RAI 3.9.2-59	2009/4/9	N	N	N		-	-	N/A	N/A
		272	3.9.2-32/ RAI 3.9.2-58	2009/4/9	N	N	N		-	-	N/A	N/A
		272	3.9.2-33	2009/5/13	N	N	N		-	-	N/A	N/A
		272	3.9.2-34	2009/4/9	N	N	N		-	-	N/A	N/A
		272	3.9.2-35	2009/4/9	N	N	N		-	-	N/A	N/A
		214	3.9.2-34	2009/4/30	N	N	N		-	-	N/A	N/A
		214	3.9.2-35	2009/4/30	N	N	N		-	-	N/A	N/A
		214	3.9.2-36	2009/4/30	N	N	N		-	-	N/A	N/A
		214	3.9.2-37	2009/4/30	N	N	N		-	-	N/A	N/A
		214	3.9.2-38	2009/4/30	Y	N	N		-	DCD_3.9.2-38	3	2
		214	3.9.2-39	2009/4/30	N	N	N		-	-	N/A	N/A
		214	3.9.2-40	2009/4/30	N	N	N		-	-	N/A	N/A
		214	3.9.2-41	2009/4/30	N	N	N		-	-	N/A	N/A
		206	3.9.2-40	2009/3/27	Y	N	N		-	DCD_3.9.2-40	-	2
		206	3.9.2-41	2009/3/27	N	N	N		-	-	N/A	N/A
		206	3.9.2-42	2009/3/27	Y	N	N		-	DCD_3.9.2-42	2	2
		206	3.9.2-43	2009/3/27	Y	N	N		-	DCD_3.9.2-43	2	2
		207	3.9.2-50	2009/3/27	Y	N	N		-	DCD_3.9.2-50	2	2
		207	3.9.2-51	2009/3/27	Y	N	N		-	DCD_3.9.2-51	2	2
		207	3.9.2-52	2009/3/27	Y	N	N		-	DCD_3.9.2-52	2	2
		207	3.9.2-53	2009/3/27	Y	N	N		-	DCD_3.9.2-53	2	2
		207	3.9.2-54	2009/3/27	N	N	N		-	-	N/A	N/A

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		207	3.9.2-55	2009/3/27	Y	N	N		-	DCD_3.9.2-55	2	2
		207	3.9.2-56	2009/3/27	Y	N	N		-	DCD_3.9.2-56	2	2
		207	3.9.2-57	2009/3/27	Y	N	N		-	DCD_3.9.2-57	2	2
		207	3.9.2-58	2009/3/27	Y	N	N		-	DCD_3.9.2-58	2	2
		207	3.9.2-59	2009/3/27	N	N	N		-	-	N/A	N/A
		208	3.9.2-70	2009/3/27	Y	N	N		-	DCD_3.9.2-70	3	2
3.9.2	Dynamic Testing and Analysis	498	03.09.02-59	2010/1/15	N	N	N		-	-	N/A	N/A
	of Systems, Structures,	498	03.09.02-60	2010/1/15	N	N	N		-	-	N/A	N/A
	and Components	498	03.09.02-61	2010/2/3	Y	N	N		-	DCD_03.09.02-61	TBD	
		498	03.09.02-62	2010/2/3	Y	N	N		-	DCD_03.09.02-62	TBD	
		498	03.09.02-63	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-64	2010/2/3	Y	N	N		-	DCD_03.09.02-64	2	3
		498	03.09.02-65	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-66	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-67	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-68	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-69	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-70	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-71	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-72	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-73	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-74	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-75	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-76	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-77	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-78	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-79	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-80	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-81	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-82	2010/2/3	N	N	N		-	-	N/A	N/A
		498	03.09.02-83	2010/1/15	N	N	N		-	-	N/A	N/A
		498	03.09.02-84	2010/2/3	N	N	N		-	-	N/A	N/A
		614	03.09.02-85	2010/9/16	N	N	N		-	-	N/A	N/A
		614	03.09.02-86	2010/9/16	N	N	N		-	-	N/A	N/A
		614	03.09.02-87	2010/9/16	N	N	N		-	-	N/A	N/A
		614	03.09.02-88	2010/9/29	N	N	N		-	-	N/A	N/A
		614	03.09.02-89	2010/9/29	Y	N	N		-	DCD_03.09.02-89	6	3
		614	03.09.02-90	2010/9/29	Y	N	N		-	DCD_03.09.02-90	6	3
		614	03.09.02-91	2010/10/28	N	N	N		-	-	N/A	N/A
				2011/12/2	N	N	N		-	-	N/A	N/A
		646	03.09.02-92	2010/11/11	N	N	N		-	-	N/A	N/A
				2010/12/14	N	N	N		-	-	N/A	N/A
				2011/10/14	N	N	N		-	-	N/A	N/A
3.9.3	ASME Code Class 1, 2, and 3	209	03.09.03-1	2009/4/30	N	N	N		-	-	N/A	N/A
	Components,	209	03.09.03-2	2009/4/30	Y	N	N		-	DCD_03.09.03-2	3	2
	and Component Supports,	209	03.09.03-3	2009/4/30	Y	N	N		-	DCD_03.09.03-3	3	2
	and Core Support Structures	209	03.09.03-4	2009/4/30	Y	N	N		-	DCD_03.09.03-4	3	2
		209	03.09.03-5	2009/4/30	Y	N	N		-	DCD_03.09.03-5	3	2
		209	03.09.03-6	2009/4/30	Y	N	N		-	DCD_03.09.03-6	3	2
		209	03.09.03-7	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-8	2009/4/30	Y	N	N		-	DCD_03.09.03-8	3	2
		209	03.09.03-9	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-10	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-11	2009/4/30	Y	N	N		-	DCD_03.09.03-11	3	2
		209	03.09.03-12	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-13	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-14	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-15	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-16	2009/4/30	Y	N	N		-	DCD_03.09.03-16	3	2
		209	03.09.03-17	2009/4/30	Y	N	N		-	DCD_03.09.03-17	3	2
		209	03.09.03-18	2009/4/30	Y	N	N		-	DCD_03.09.03-18	3	2
		209	03.09.03-19	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-20	2009/4/30	Y	N	N		-	DCD_03.09.03-20	3	2
		209	03.09.03-21	2009/4/30	N	N	N		-	-	N/A	N/A
		209	03.09.03-22	2009/4/30	Y	N	N		-	DCD_03.09.03-22	3	2
		209	03.09.03-23	2009/4/30	Y	N	N		-	DCD_03.09.03-23	3	2

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		375	03.09.03-24	2009/7/17	N	N	N		-	-	N/A	N/A
		375	03.09.03-25	2009/7/17	N	N	N		-	-	N/A	N/A
		822	03.09.03-26	01/26/2012	N	N	N		-	-	N/A	N/A
		847	03.09.03-27	11/25/2011	Y	N	N		-	DCD_03.09.03-27	1	
				01/24/2012	Y	N	N		-	DCD_03.09.03-27 S1	2	
		851	03.09.03-28	12/20/2011	Y	N	N		-	DCD_03.09.03-28	2	
		870	03.09.03-29	12/26/2011	Y	N	N		-	DCD_03.09.03-29	2	
3.9.4	Control Rod Drive Systems	107	1293-01	2008/12/19	Y	N	N	fin.	-	DCD_1293-01	0	2
		107	1293-02	2008/12/19	Y	N	N	fin.	-	DCD_1293-02	0	2
		107	1293-03	2008/12/19	Y	N	N	fin.	-	DCD_1293-03	0	2
		107	1293-04	2008/12/19	N	N	N	fin.	-	N/A	N/A	N/A
		107	1293-05	2008/12/19	N	N	N	fin.	-	N/A	N/A	N/A
		107	1293-06	2008/12/19	N	N	N	fin.	-	N/A	N/A	N/A
				2011/8/11	N	N	N		-	N/A	N/A	N/A
		107	1293-07	2008/12/19	N	N	N	fin.	-	N/A	N/A	N/A
		107	1293-08	2008/12/19	Y	N	N	fin.	-	DCD_1293-08	0	2
		107	1293-09	2008/12/19	N	N	N	fin.	-	N/A	N/A	N/A
		107	1293-10	2008/12/19	Y	N	N	fin.	-	DCD_1293-10	0	2
		569	03.09.04-2	2010/5/13	Y	N	N		-	DCD_03.09.04-2	3	3
		570	03.09.04-3	2010/5/19	Y	N	N		-	DCD_03.09.04-3	4	3
		570	03.09.04-4	2010/5/19	Y	N	N		-	DCD_03.09.04-4	4	3
		570	03.09.04-5	2010/5/19	Y	N	N		-	DCD_03.09.04-5	4	3
		570	03.09.04-6	2010/5/19	N	N	N		-	-	N/A	N/A
		604	03.09.04-7	2010/7/28	Y	N	N		-	DCD_03.09.04-7	4	3
		604	03.09.04-8	2010/7/28	Y	N	N		-	DCD_03.09.04-8	4	3
		604	03.09.04-9	2010/7/28	Y	N	N		-	DCD_03.09.04-9	4	3
				2011/8/11	N	N	N		-	-	N/A	N/A
		679	03.09.04-10	2010/2/9	Y	N	N		-	DCD_03.09.04-10	0	
				2011/4/25	Y	N	N					
		679	03.09.04-11	2010/2/9	Y	N	N		-	DCD_03.09.04-11	0	
				2011/4/25	Y	N	N		-	DCD_03.09.04-11	0	
				2011/7/29	Y	N	N		-	DCD_03.09.04-11	1	
		679	03.09.04-12	2010/2/9	N	N	N		-	-	N/A	N/A
		835	03.09.04-13	11/02/2011	Y	N	N		-	DCD_03.09.04-13	1	
		848	03.09.04-14	11/18/2011	N	N	N		-	-	N/A	N/A
3.9.5	Reactor Pressure Vessel Internals	374	03.09.05-1	2009/6/19	Y	N	N		-	DCD_03.09.05-1	3	2
		374	03.09.05-2	2009/7/17	Y	N	N		-	DCD_03.09.05-2	4	2
		374	03.09.05-3	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-4	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-5	2009/6/19	Y	N	N		-	DCD_03.09.05-5	3	2
		374	03.09.05-6	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-7	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-8	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-9	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-10	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-11	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-12	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-13	2009/6/19	Y	N	N		-	DCD_03.09.05-13	3	2
		374	03.09.05-14	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-15	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-16	2009/7/17	Y	N	N		-	DCD_03.09.05-16	4	2
		374	03.09.05-17	2009/7/17	N	N	N		-	-	N/A	N/A
			03.09.05-18						-			
		374	03.09.05-19	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-20	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-21	2009/6/19	N	N	N		-	-	N/A	N/A
		374	03.09.05-22	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-23	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-24	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-25	2009/6/19	N	N	N		-	-	N/A	N/A
		374	03.09.05-26	2009/7/17	N	N	N		-	-	N/A	N/A
		374	03.09.05-27	2009/7/17	Y	N	N		-	DCD_03.09.05-27	4	2
		663	03.09.05-28	2011/1/21	N	N	N		-	-	N/A	N/A
		663	03.09.05-29	2011/1/21	N	N	N		-	-	N/A	N/A
		663	03.09.05-30	2011/1/21	Y	N	N		-	DCD_03.09.05-30	0	
		663	03.09.05-31	2011/1/21	N	N	N		-	-	N/A	N/A
		663	03.09.05-32	2011/1/21	Y	N	N		-	DCD_03.09.05-32	0	
		663	03.09.05-33	2011/1/21	Y	N	N		-	DCD_03.09.05-33	0	

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		663	03.09.05-34	2011/1/21	N	N	N		-	-	N/A	N/A
3.9.6	Functional Design, Qualification,	288	03.09.06-01	2009/5/23	Y	N	N		-	DCD_03.09.06-01	3	2
	and Inservice Testing Programs	288	03.09.06-02	2009/5/23	Y	N	N		-	DCD_03.09.06-02	3	2
	for Pumps, Valves,	288	03.09.06-03	2009/5/23	Y	N	N		-	DCD_03.09.06-03	3	2
	and Dynamic Restraints	288	03.09.06-04	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-05	2009/5/23	Y	N	N		-	DCD_03.09.06-05	3	2
		288	03.09.06-06	2009/5/23	Y	N	N		-	DCD_03.09.06-06	3	2
		288	03.09.06-07	2009/5/23	Y	N	N		-	DCD_03.09.06-07	3	2
		288	03.09.06-08	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-09	2009/5/23	Y	N	N		-	DCD_03.09.06-09	3	2
		288	03.09.06-10	2009/5/23	Y	N	N		-	DCD_03.09.06-10	3	2
		288	03.09.06-11	2009/5/23	Y	N	N		-	DCD_03.09.06-11	3	2
		288	03.09.06-12	2009/5/23	Y	N	N		-	DCD_03.09.06-12	3	2
		288	03.09.06-13	2009/5/23	Y	N	N		-	DCD_03.09.06-13	3	2
		288	03.09.06-14	2009/5/23	Y	N	N		-	DCD_03.09.06-14	3	2
		288	03.09.06-15	2009/5/23	Y	N	N		-	DCD_03.09.06-15	3	2
		288	03.09.06-16	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-17	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-18	2009/5/23	Y	N	N		-	DCD_03.09.06-18	3	2
		288	03.09.06-19	2009/5/23	Y	N	N		-	DCD_03.09.06-19	3	2
		288	03.09.06-20	2009/5/23	Y	N	N		-	DCD_03.09.06-20	3	2
		288	03.09.06-21	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-22	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-23	2009/5/23	Y	N	N		-	DCD_03.09.06-23	3	2
		288	03.09.06-24	2009/5/23	N	N	N		-	-	N/A	N/A
		3	03.09.06-25	2009/5/23	Y	N	N		-	DCD_03.09.06-25	3	2
		288	03.09.06-26	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-27	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-28	2009/5/23	Y	N	N		-	DCD_03.09.06-28	3	2
		288	03.09.06-29	2009/5/23	Y	N	N		-	DCD_03.09.06-29	3	2
		288	03.09.06-30	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-31	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-32	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-33	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-34	2009/5/23	Y	N	N		-	DCD_03.09.06-34	3	2
		288	03.09.06-35	2009/5/23	Y	N	N		-	DCD_03.09.06-35	3	2
		288	03.09.06-36	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-37	2009/5/23	Y	N	N		-	DCD_03.09.06-37	3	2
		288	03.09.06-38	2009/5/23	Y	N	N		-	DCD_03.09.06-38	3	2
		288	03.09.06-39	2009/5/23	Y	N	N		-	DCD_03.09.06-39	3	2
		288	03.09.06-40	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-41	2009/5/23	Y	N	N		-	DCD_03.09.06-41	3	2
		288	03.09.06-42	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-43	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-44	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-45	2009/5/23	N	N	N		-	-	N/A	N/A
		288	03.09.06-46	2009/5/23	Y	N	N		-	DCD_03.09.06-46	3	2
		288	03.09.06-47	2009/5/23	Y	N	N		-	DCD_03.09.06-47	3	2
		288	03.09.06-48	2009/5/23	N	N	N		-	-	N/A	N/A
		801	03.09.06-49	11/02/2011	Y	N	N		-	DCD_03.09.06-49	1	
		801	03.09.06-50	11/02/2011	Y	N	N		-	DCD_03.09.06-50	1	
		801	03.09.06-51	11/02/2011	Y	N	N		-	DCD_03.09.06-51	1	
		801	03.09.06-52	11/02/2011	Y	N	N		-	DCD_03.09.06-52	1	
				11/02/2011	Y	Y	N		-		1	
		801	03.09.06-53	03/08/2012	Y	Y	Y		-	DCD_03.09.06-53	2	
		801	03.09.06-54	11/02/2011	N	N	N		-	-	N/A	N/A
				11/02/2011	Y	Y	N		-		1	

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		801	03.09.06-55	03/08/2012	Y	Y	Y		-	DCD_03.09.06-55	2	
		801	03.09.06-56	11/02/2011	N	N	N		-	-	N/A	N/A
		801	03.09.06-57	11/02/2011	Y	N	N		-	DCD_03.09.06-57	1	
				03/08/2012	Y	N	N		-		2	
		801	03.09.06-58	11/02/2011	Y	N	N		-	DCD_03.09.06-58	1	
				03/08/2012	Y	N	N		-		2	
		801	03.09.06-59	11/02/2011	Y	N	N		-	DCD_03.09.06-59	1	
				03/08/2012	Y	N	N		-		2	
		801	03.09.06-60	11/02/2011	N	N	N		-	-	N/A	N/A
				03/08/2012	N	N	N		-	-	N/A	N/A
		801	03.09.06-61	11/02/2011	Y	N	N		-	DCD_03.09.06-59	1	
		801	03.09.06-62	11/02/2011	N	N	N		-	-	N/A	N/A
				03/08/2012	N	N	N		-	-	N/A	N/A
		801	03.09.06-63	11/02/2011	N	N	N		-	-	N/A	N/A
				03/08/2012	N	N	N		-	-	N/A	N/A
		801	03.09.06-64	11/02/2011	Y	N	N		-	DCD_03.09.06-64	1	
		801	03.09.06-65	11/02/2011	N	N	N		-	-	N/A	N/A
		801	03.09.06-66	11/02/2011	Y	Y	N		-	DCD_03.09.06-66	1	
				03/08/2012	Y	Y	Y		-		2	
		801	03.09.06-67	11/02/2011	N	N	N		-	-	N/A	N/A
		801	03.09.06-68	11/02/2011	Y	Y	N		-	DCD_03.09.06-68	1	
				03/08/2012	Y	Y	Y		-		2	
3.10	Seismic/Dynamic Qual	216	USAPWR-3.10-1	2009/3/25	N	N	N		-	-	N/A	N/A
	of Mech/Elec Eqmt	216	USAPWR-3.10-2	2009/3/25	Y	N	N		-	DCD_USAPWR-3.10-2	2	2
		216	USAPWR-3.10-3	2009/4/22	Y	N	N		-	DCD_USAPWR-3.10-3	3	2
		216	USAPWR-3.10-4	2009/3/25	N	N	N		-	-	N/A	N/A
		216	USAPWR-3.10-5	2009/4/22	N	N	N		-	-	N/A	N/A
		216	USAPWR-3.10-6	2009/3/25	Y	N	N		-	DCD_USAPWR-3.10-6	2	2
		216	USAPWR-3.10-7	2009/4/22	N	N	N		-	-	N/A	N/A
		216	USAPWR-3.10-8	2009/3/25	Y	N	N		-	DCD_USAPWR-3.10-8	2	2
		216	USAPWR-3.10-9	2009/4/22	N	N	N		-	-	N/A	N/A
		486	03.10-10	2009/12/9	N	N	N		-	-	N/A	N/A
		486	03.10-11	2009/12/9	Y	N	N		-	DCD_03.10-11	1	3

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		486	03.10-12	2009/12/9	Y	N	N		-	DCD_03.10-12	1	3
		486	03.10-13	2009/12/25	Y	N	N		-	DCD_03.10-13	1	3
		486	03.10-14	2009/12/25	N	N	N		-	-	N/A	N/A
		486	03.10-15	2009/12/25	N	N	N		-	-	N/A	N/A
		486	03.10-16	2009/12/25	N	N	N		-	-	N/A	N/A
		486	03.10-17	2009/12/25	N	N	N		-	-	N/A	N/A
3.11	Environmental Qual	358	03.11-1	2009/7/10	Y	N	N		-	DCD_03.11-1	4	2
	of Mech/Elec Eqmt	358	03.11-2	2009/7/10	Y	N	N		-	DCD_03.11-2	4	2
		358	03.11-3	2009/7/10	N	N	N		-	-	N/A	N/A
		358	03.11-4	2009/7/10	N	N	N		-	-	N/A	N/A
		358	03.11-5	2009/7/10	Y	N	N		-	DCD_03.11-5	4	2
		444	03.11-6	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-7	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-8	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-9	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-10	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-11	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-12	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-13	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-14	2009/9/29	N	N	N		-	-	N/A	N/A
		444	03.11-15	2009/9/29	N	N	N		-	-	N/A	N/A
		445	03.11-16	2009/9/29	Y	Y 1.8	N		-	DCD_03.11-16	0	3
		511	03.11-17	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-17 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-18	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-18 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-19	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-19 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-20	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-20 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-21	2010/2/2	Y	N	N		-	DCD_03.11-21	2	3
		511	03.11-21 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-22	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-22 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-23	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-23 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-24	2010/2/2	Y	N	N		-	DCD_03.11-24	2	3
		511	03.11-25	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-25 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-26	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-26 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		511	03.11-27	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-28	2010/2/2	N	N	N		-	-	N/A	N/A
		511	03.11-28 Supp	2010/6/28	N	N	N		-	-	N/A	N/A
		512	03.11-29	2010/1/28	N	N	N		-	-	N/A	N/A
		512	03.11-30	2010/1/28	N	N	N		-	-	N/A	N/A
		512	03.11-31	2010/1/28	N	N	N		-	-	N/A	N/A
		512	03.11-32	2010/1/28	N	N	N		-	-	N/A	N/A
		512	03.11-33	2010/1/28	N	N	N		-	-	N/A	N/A
		512	03.11-34	2010/1/28	Y	N	N		-	DCD_03.11-34	4	3
		512	03.11-35	2010/1/28	N	N	N		-	-	N/A	N/A
		589	03.11-36	2010/7/8	N	N	N		-	-	N/A	N/A
		589	03.11-37	2010/7/8	N	N	N		-	-	N/A	N/A
		589	03.11-38	2010/7/8	Y	N	N		-	DCD_03.11-38	4	3
		650	03.11-39	XX/YY/2010								
		650	03.11-40	XX/YY/2010	-	-	-	-	COL3.10(10) deleted	MAP-03-014	-	2
		650	03.11-40	XX/YY/2010								
		880	03.11-42	3/23/2012	N	N	N		-	-	N/A	N/A
		880	03.11-44	3/23/2012	N	N	N		-	-	N/A	N/A
		880	03.11-45	3/23/2012	N	N	N		-	-	N/A	N/A
		880	03.11-46	3/23/2012	N	N	N		-	-	N/A	N/A
		880	03.11-47	3/23/2012	N	N	N		-	-	N/A	N/A

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3.12	ASME Code Class 1, 2, and 3	259	03.12-1	2009/4/17	Y	N	N		-	DCD_03.12-1	3	2
	Piping Systems,	259	03.12-2	2009/4/17	Y	N	N		-	DCD_03.12-2	3	2
	Piping Components	259	03.12-3	2009/4/17	Y	N	N		-	DCD_03.12-3	3	2
	and their Associated Supports	259	03.12-4	2009/4/17	Y	N	N		-	DCD_03.12-4	3	2
		260	03.12-5	2009/4/17	Y	N	N		-	DCD_03.12-5	3	2
		260	03.12-6	2009/4/17	Y	N	N		-	DCD_03.12-6	3	2
		260	03.12-7	2009/4/17	N	N	N		-	-	N/A	N/A
		260	03.12-8	2009/4/17	Y	N	N		-	DCD_03.12-8	3	2
		260	03.12-9	2009/4/17	N	N	N		-	-	N/A	N/A
		260	03.12-10	2009/4/17	N	N	N		-	-	N/A	N/A
		260	03.12-11	2009/4/17	N	N	N		-	-	N/A	N/A
		260	03.12-12	2009/4/17	N	N	N		-	-	N/A	N/A
		260	03.12-13	2009/4/17	Y	N	N		-	DCD_03.12-13	3	2
		260	03.12-14	2009/4/17	Y	N	N		-	DCD_03.12-14	3	2
		260	03.12-15	2009/4/17	Y	N	N		-	DCD_03.12-15	3	2
		260	03.12-16	2009/4/17	N	N	N		-	-	N/A	N/A
		465	03.12-17	2009/12/2	Y	N	N		-	DCD_O3.12-17	1	3
		465	03.12-18	2009/11/18	N	N	N		-	-	N/A	N/A
		465	03.12-19	2009/11/18	Y	N	N		-	DCD_03.12-19	0	3
		465	03.12-20	2009/11/18	Y	N	N		-	DCD_03.12-20	0	3
		465	03.12-21	2009/11/18	N	N	N		-	-	N/A	N/A
		465	03.12-22	2009/11/18	N	N	N		-	-	N/A	N/A
		465	03.12-23	2009/12/2	Y	N	N		-	DCD_03.12-23	1	3
		465	03.12-24	2009/11/18	Y	N	N		-	DCD_03.12-24	0	3
		742	03.12-25	2011/7/8	Y	N	N		-	DCD_03.12-25	0	
				10/26/2011	Y	Y	N		-	DCD_03.12-25	1	
		804	03.12-26	11/10/2011	N	N	N		-	-	N/A	N/A
		804	03.12-27	11/10/2011	Y	N	N		-	DCD_03.12-27	1	
		804	03.12-28	11/10/2011	Y	N	N		-	DCD_03.12-28	1	
		804	03.12-29	11/25/2011	Y	N	N		-	DCD_03.12-29	1	
		846	03.12-30	11/18/2011	Y	N	N		-	DCD_03.12-30	1	
3.13	Threaded Fasteners -	273	3.13-1	2009/4/9	Y	N	N		-	DCD_3.13-1	3	2
	ASME Code Class 1, 2, and 3	273	3.13-2	2009/4/9	Y	N	N		-	DCD_3.13-2	3	2
		273	3.13-3	2009/4/9	Y	N	N		-	DCD_3.13-3	3	2
		273	3.13-4	2009/4/9	Y	N	N		-	DCD_3.13-4	3	2
		273	3.13-5	2009/4/9	Y	N	N		-	DCD_3.13-5	3	2
		-	-	-	-	-	-	-	COL3.13(1) deleted	MAP-03-015	-	2
		-	-	-	-	-	-	-	COL3.13(2) deleted	MAP-03-016	-	2

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4.2	Fuel System Design	129	04.02-1	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-2	2009/1/30	Y	N	N		-	DCD_04.02-2	2	2
		129	04.02-3	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-4	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-5	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-6	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-7	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-8	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-9	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-10	2009/1/30	N	N	N		-	-	N/A	N/A
				12/14/2011	N	N	N		-	-	N/A	N/A
		129	04.02-11	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-12	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-13	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-14	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-15	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-16	2009/1/30	N	N	N		-	-	N/A	N/A
		129	04.02-17	2009/1/30	Y	N	N		-	DCD_04.02-17	2	2
		129	04.02-18	2009/1/30	N	N	N		-	-	N/A	N/A
				12/14/2011	Y	N	N			DCD_04.02-18	1	
				02/23/2012	Y	N	N		-	DCD_04.02-18	2	
		129	04.02-19	2009/1/30	N	N	N		-	-	N/A	N/A
				12/14/2011	Y	N	N			DCD_04.02-19	1	
				02/23/2012	Y	N	N		-	DCD_04.02-19	2	
		129	04.02-20	2009/1/30	N	N	N		-	-	N/A	N/A
				12/14/2011	N	N	N			-	N/A	N/A
		476	4.1-***1	2009/12/11	N	N	N		-	-	N/A	N/A
		476	4.1-***2	2009/12/11					-			
		476	4.1-***3	2009/12/11	N	N	N		-	-	N/A	N/A
		477	4.2-***1	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***2	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***3	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***4	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***5	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***6	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***7	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***8	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***9	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***10	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***11	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***12	2009/12/18	N	N	N		-	-	N/A	N/A
		477	4.2-***13	2009/12/18	N	N	N		-	-	N/A	N/A
		519	04.02-37	2/25/2010	N	N	N		-	-	N/A	N/A
		519	04.02-38	2/25/2010	N	N	N		-	-	N/A	N/A
		519	04.02-39	2/25/2010	N	N	N		-	-	N/A	N/A
		519	04.02-40	2/25/2010	N	N	N		-	-	N/A	N/A
		519	04.02-41	2/25/2010	N	N	N		-	-	N/A	N/A
		519	04.02-42	2/25/2010	N	N	N		-	-	N/A	N/A
		572	04.02-43	2010/5/14	N	N	N		-	-	N/A	N/A
		572	04.02-44	2010/5/14	N	N	N		-	-	N/A	N/A
		869	04.02-45	12/14/2011	N	N	N		-	-	N/A	N/A
				02/09/2012	N	N	N		-	-	N/A	N/A
		877	04.02-46	01/11/2012	N	N	N		-	-	N/A	N/A
		877	04.02-47	01/11/2012	N	N	N		-	-	N/A	N/A
		877	04.02-48	01/11/2012	N	N	N		-	-	N/A	N/A
		877	04.02-49	01/11/2012	N	N	N		-	-	N/A	N/A
		877	04.02-50	01/11/2012	N	N	N		-	-	N/A	N/A
		893	04.02-51	02/23/2012	Y	N	N		-	DCD_04.02-51	2	
4.3	Nuclear Design	202	04.03-1	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-2	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-3	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-4	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-5	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-6	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-7	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-8	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-9	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-10	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-11	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-12	2009/3/27	N	N	N		-	-	N/A	N/A

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		202	04.03-13	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-14	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-14A	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-14B	2009/3/27	N	N	N		-	-	N/A	N/A
		202	04.03-14C	2009/3/27	N	N	N		-	-	N/A	N/A
		256	04.03-15	2009/3/30	N	N	N		-	-	N/A	N/A
		256	04.03-16	2009/3/30	N	N	N		-	-	N/A	N/A
		256	04.03-17	2009/3/30	N	N	N		-	-	N/A	N/A
		256	04.03-18	2009/4/27	N	N	N		-	-	N/A	N/A
		256	04.03-19	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-20	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-21	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-22	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-23	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-24	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-25	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-26	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-27	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-28	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-29	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-30	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-31	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-32	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-33	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-34	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-35	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-36	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-37	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-38	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-39	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-40	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-41	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-42	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-43	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-44	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-45	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-45A	2009/3/30	N	N	N		-	-	N/A	N/A
		257	04.03-45B	2009/3/30	N	N	N		-	-	N/A	N/A
		450	04.03-46	2009/9/24	N	N	N		-	-	N/A	N/A
		450	04.03-47	2009/9/24	N	N	N		-	-	N/A	N/A
		545	04.03-48	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-49	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-50	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-51	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-52	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-53	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-54	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-55	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-56	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-57	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-58	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-59	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-60	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-61	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-62	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-63	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-64	2010/4/2	N	N	N		-	-	N/A	N/A
		545	04.03-65	2010/4/28	N	N	N		-	-	N/A	N/A
		545	04.03-66	2010/4/28	N	N	N		-	-	N/A	N/A
		717	04.03-67	2011/3/29	N	N	N		-	-	N/A	N/A
		874	04.03-68	01/10/2012	Y	N	N		-	DCD_04.03-68	2	
		874	04.03-69	01/10/2012	Y	N	N		-	DCD_04.03-69	2	
4.4	Thermal and Hydraulic Design	377	04.04-1	2009/6/25	N	N	N		-	-	N/A	N/A
		377	04.04-2	2009/6/25	N	N	N		-	-	N/A	N/A
		377	04.04-3	2009/6/25	N	N	N		-	-	N/A	N/A
		377	04.04-4	2009/6/25	N	N	N		-	-	N/A	N/A
				2009/12/2	N	N	N		-	-	N/A	N/A
		377	04.04-5	2009/6/25	N	N	N		-	-	N/A	N/A
		377	04.04-6	2009/6/25	N	N	N		-	-	N/A	N/A
		378	04.04-7	2009/6/25	N	N	N		-	-	N/A	N/A

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		377	04.04-5	2009/6/25	N	N	N		-	-	N/A	N/A
		377	04.04-6	2009/6/25	N	N	N		-	-	N/A	N/A
		378	04.04-7	2009/6/25	N	N	N		-	-	N/A	N/A
		530	04.04-8	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-9	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-10	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-11	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-12	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-13	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-14	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-15	2010/3/4	Y	N	N		-	DCD_04.04-15	3	3
		530	04.04-16	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-17	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-18	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-19	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-20	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-21	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-22	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-23	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-24	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-25	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-26	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-27	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-28	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-29	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-30	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-31	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-32	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-33	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-34	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-35	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-36	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-37	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-38	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-39	2010/3/4	N	N	N		-	-	N/A	N/A
		530	04.04-40	2010/3/4	N	N	N		-	-	N/A	N/A
		845	04.04-41	11/11/2011	N	N	N		-	-	N/A	N/A
4.5.1	Control Rod Drive	268	4.5.1-1	2009/4/28	Y	N	N		-	DCD_4.5.1-1	3	2
	Structural Materials	268	4.5.1-2	2009/4/28	Y	N	N		-	DCD_4.5.1-2	3	2
		268	4.5.1-3	2009/4/28	N	N	N		-	-	N/A	N/A
		268	4.5.1-4	2009/4/28	Y	N	N		-	DCD_4.5.1-4	3	2
		268	4.5.1-5	2009/4/28	Y	N	N		-	DCD_4.5.1-5	3	2
		268	4.5.1-6	2009/4/28	Y	N	N		-	DCD_4.5.1-6	3	2
		268	4.5.1-7	2009/4/28	Y	N	N		-	DCD_4.5.1-7	3	2
		457	04.5.01-8	10/29/2009	Y	N	N		-	DCD_04.5.01-8	0	3
				2011/7/15	Y	N	N		-		1	
		457	04.5.01-9	10/29/2009	Y	N	N		-	DCD_04.5.01-9	0	3
		457	04.5.01-10	10/29/2009	Y	N	N		-	DCD_04.5.01-10	0	3
				2010/3/29	Y	N	N		-	DCD_04.5.01-10	3	3
		654	04.05.01-11	12/03/2010	Y	N	N		-	DCD_04.5.01-11	6	3
				7/15/2011	Y	N	N		-	DCD_04.5.01-11	1	
		654	04.05.01-12	12/03/2010	Y	N	N		-	DCD_04.5.01-12	6	3
		654	04.05.01-13	12/03/2010	Y	N	N		-	DCD_04.5.01-13	6	3
		654	04.05.01-14	12/03/2010	Y	N	N		-	DCD_04.5.01-14	6	3
		654	04.05.01-15	12/03/2010	Y	N	N		-	DCD_04.5.01-15	6	3
				7/15/2011	Y	N	N		-	DCD_04.5.01-15	1	
4.5.2	Reactor Internal and Core	269	4.5.2-1	2009/5/13	Y	N	N		-	DCD_4.5.2-1	3	2
	Support Structure Materials	269	4.5.2-2	2009/5/13	Y	N	N		-			
				2009/6/30	N	N	N		-	-	N/A	N/A
		269	4.5.2-3	2009/5/13	Y	N	N		-	DCD_4.5.2-3	3	2
		269	4.5.2-4	2009/5/13	N	N	N		-	-	N/A	N/A
		269	4.5.2-5	2009/5/13	Y	N	N		-	DCD_4.5.2-5	3	2
		414	4.5.2-6	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-7	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-8	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-9	2009/8/7	N	N	N		-	-	N/A	N/A

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		414	4.5.2-10	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-11	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-12	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-13	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-14	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-15	2009/8/7	N	N	N		-	-	N/A	N/A
		414	4.5.2-16	2009/8/7	N	N	N		-	-	N/A	N/A
		502	4.5.2-17	2010/1/18	N	N	N		-	-	N/A	N/A
		502	4.5.2-18	2010/1/18	N	N	N		-	-	N/A	N/A
				2010/1/21	N	N	N		-	-	N/A	N/A
		502	4.5.2-19	2010/1/18	N	N	N		-	-	N/A	N/A
		502	4.5.2-20	2010/1/18	N	N	N		-	-	N/A	N/A
		527	4.5.2-21	2010/3/2	N	N	N		-	-	N/A	N/A
		573	4.5.2-22	2010/5/19	N	N	N		-	-	N/A	N/A
		620	4.5.2-23	2010/9/14	N	N	N		-	-	N/A	N/A
		653	4.5.2-24	2010/12/13	N	N	N		-	-	N/A	N/A
		784	4.5.2-25	2011/9/12	N	N	N		-	-	N/A	N/A
				201/11/21	N	N	N		-	-	N/A	N/A
4.6	Functional Design	316	4.6.1	2009/5/20	N	N	N		-	-	N/A	N/A
	of Control Rod Drive System	316	4.6.2	2009/5/20	Y	N	N		-	DCD_4.6.2	-	2
		316	4.6.3	2009/5/20	N	N	N		-	-	N/A	N/A
		316	4.6.4	2009/5/20	N	N	N		-	-	N/A	N/A
		316	4.6.5	2009/5/20	Y	N	N		-	DCD_4.6.5	-	2
		316	4.6.6	2009/5/20	N	N	N		-	-	N/A	N/A
		316	4.6.7	2009/5/20	N	N	N		-	-	N/A	N/A
		316	4.6.8	2009/5/20	N	N	N		-	-	N/A	N/A
		316	4.6.9	2009/5/20	N	N	N		-	-	N/A	N/A
		316	4.6.10	2009/5/20	N	N	N		-	-	N/A	N/A
		316	4.6.11	2009/5/20	Y	N	N		-	DCD_4.6.11	3	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
5.2.1.1	Compliance with the Codes	264	05.02.01.01-1	2009/10/2	Y	Y	N		-	DCD_05.02.01.01-1	-	2
	and Standards Rule, 10 CFR 50.55a			2009/4/24	Y	N	N		-	DCD_05.02.01.01-2	3	2
				2009/4/24	Y	N	N		-	DCD_05.02.01.01-3	3	2
				2009/12/15	Y	Y	N		-	DCD_05.02.01.01-1	7	3
5.2.1.2	Applicable Code Cases	253	05.02.01.02-1	2009/4/17	N	N	N		-	-	N/A	N/A
		253	05.02.01.02-2	2009/4/17	Y	N	N		-	DCD_05.02.01.02-2	3	2
		253	05.02.01.02-3	2009/4/17	Y	N	N		-	DCD_05.02.01.02-3	3	2
		291	05.02.01.02-4	2009/4/17	N	N	N		-	-	N/A	N/A
		291	05.02.01.02-5	2009/4/17	Y	N	N		-	DCD_05.02.01.02-5	3	2
		315	05.02.01.02-6	2009/4/28	N	N	N		-	-	N/A	N/A
		575	05.02.01.02-7	2010/5/7	Y	N	N		-	DCD_05.02.01.02-7	7	3
				2011/4/26	Y	N	N		-		0	
5.2.2	Overpressure Protection	103	05.02.02-1	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		103	05.02.02-2	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		103	05.02.02-3	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		103	05.02.02-4	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		103	05.02.02-5	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		103	05.02.02-6	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		103	05.02.02-7	2008/12/25	Y	N	N	fin.	-	DCD_05.02.02-7	0	2
		103	05.02.02-8	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
5.2.3	Reactor Coolant Pressure Boundary	224	05.02.03-1	2009/3/24	Y	N	N		-	DCD_05.02.03-1	3	2
	Materials			2009/10/2	Y	Y	N		-	DCD_05.02.03-1	-	2
		224	05.02.03-2	2009/3/24	Y	N	N		-	DCD_05.02.03-2	2	2
		224	05.02.03-3	2009/3/24	Y	N	N		-	DCD_05.02.03-3	3	2
		289	05.02.03-4	2009/5/13	Y	N	N		-	DCD_05.02.03-4	3	2
		289	05.02.03-5	2009/5/13	Y	N	N		-	DCD_05.02.03-5	3	2
		289	05.02.03-6	2009/5/13	N	N	N		-	-	N/A	N/A
		289	05.02.03-7	2009/5/13	Y	N	N		-	DCD_05.02.03-7	3	2
		289	05.02.03-8	2009/5/13	N	N	N		-	-	N/A	N/A
		289	05.02.03-9	2009/5/13	N	N	N		-	-	N/A	N/A
		289	05.02.03-10	2009/5/13	Y	N	N		-	DCD_05.02.03-10	3	2
		289	05.02.03-11	2009/5/13	Y	N	N		-	DCD_05.02.03-11	4	2
		289	05.02.03-12	2009/5/13	N	N	N		-	-	N/A	N/A
		289	05.02.03-13	2009/5/13	N	N	N		-	-	N/A	N/A
		289	05.02.03-14	2009/5/13	N	N	N		-	-	N/A	N/A
		289	05.02.03-15	2009/5/13	N	N	N		-	-	N/A	N/A
		289	05.02.03-16	2009/5/13	N	N	N		-	-	N/A	N/A
		350	05.02.03-17	2009/6/18	Y	N	N		-	DCD_05.02.03-17	3	2
		289	05.02.03-12	2010/3/1	Y	N	N		-	DCD_O5.02.03-12	7	3
		509	05.02.03-18	2010/1/29	N	N	N		-	-	N/A	N/A
		540	05.02.03-19	2010/6/4	Y	N	N		-	DCD_O5.02.03-19	7	3
		540	05.02.03-20	2010/6/4	N	N	N		-	-	N/A	N/A
		540	05.02.03-21	2010/6/4	Y	N	N		-	DCD_O5.02.03-21	7	3
		540	05.02.03-22	2010/6/4	Y	N	N		-	DCD_O5.02.03-22	7	3
		540	05.02.03-23	2010/6/4	Y	N	N		-	DCD_O5.02.03-23	7	3
		540	05.02.03-24	2010/6/4	N	N	N		-	-	N/A	N/A
		540	05.02.03-25	2010/6/4	N	N	N		-	-	N/A	N/A
		-	-	-	-	-	-	-	COL 5.2(4) revised	MAP-05-001	TBD	
		-	-	-	-	-	-	-	COL 5.2(5) revised	MAP-05-002	TBD	
		644	05.02.03-26	2010/11/8	Y	N	N		-	DCD_05.02.03-26	7	3
		644	05.02.03-27	2010/11/8	Y	N	N		-	DCD_05.02.03-27	7	3
				2011/2/20	Y	N	N		-	DCD_05.02.03-27	0	
		644	05.02.03-28	2010/11/8	Y	N	N		-	DCD_05.02.03-28	7	3
		644	05.02.03-29	2010/11/8	Y	N	N		-	DCD_05.02.03-29	7	3
		644	05.02.03-30	2010/11/8	N	N	N		-	-	N/A	N/A
				2011/2/20	N	N	N		-	-	N/A	N/A
		644	05.02.03-31	2010/11/8	N	N	N		-	-	N/A	N/A
				2011/2/20	N	N	N		-	-	N/A	N/A
5.2.4	Reactor Coolant Pressure Boundary	254	05.02.04-1	2009/4/17	Y	N	N		-	DCD_05.02.04-1	3	2
	Inservice Inspection and Testing	254	05.02.04-2	2009/4/17	Y	N	N		-	DCD_05.02.04-2	3	2
		254	05.02.04-3	2009/4/17	Y	N	N		-	DCD_05.02.04-3	3	2
		254	05.02.04-4	2009/4/17	Y	N	N		-	DCD_05.02.04-4	3	2
		254	05.02.04-5	2009/4/17	Y	N	N		-	DCD_05.02.04-5	3	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		254	05.02.04-6	2009/4/17	N	N	N		-	-	N\A	N/A
		254	05.02.04-7	2009/4/17	Y	N	N		-	DCD_05.02.04.-7	3	2
		254	05.02.04-8	2009/4/17	Y	N	N		-	DCD_05.02.04.-8	3	2
				2009/10/2	Y	Y	N		-	DCD_05.02.04-8	-	2
5.2.5	Reactor Coolant Pressure Boundary	165	05.02.05-1	2009/2/20	Y	N	N		-	DCD_05.02.05-1	1	2
	Leakage Detection	165	05.02.05-2	2009/2/20	Y	N	N		-	DCD_05.02.05-2	1	2
		165	05.02.05-3	2009/2/20	Y	N	N		-	DCD_05.02.05-3	1	2
		165	05.02.05-4	2009/2/20	Y	N	N		-	DCD_05.02.05-4	1	2
		165	05.02.05-5	2009/2/20	N	N	N		-	-	N/A	N/A
		165	05.02.05-6	2009/2/20	Y	N	N		-	DCD_05.02.05-6	1	2
		438	05.02.05-7	2009/9/11	Y	Y 1.8	N		-	DCD_05.02.05-7	-	2
		438	05.02.05-8	2009/9/11	Y	N	N		-	DCD_05.02.05-8	-	2
		438	05.02.05-9	2009/9/11	Y	N	N		-	DCD_05.02.05-9	-	2
		438	05.02.05-10	2009/9/11	Y	Y 1.8	N		-	DCD_05.02.05-10	-	2
		478	05.02.05-11	2009/12/2	Y	N	N		-	DCD_05.02.05-11	1	3
		549	05.02.05-12	2010/4/9	Y	N	N		-	DCD_05.02.05-12	3	3
5.3.1	Reactor Vessel Materials	284	05.03.01-1	2009/4/23	N	N	N		-	-	N/A	N/A
		284	05.03.01-2	2009/4/23	Y	N	N		-	DCD_05.03.01.-2	3	2
5.3.2	Pressure-Temperature Limits,	285	05.03.02-1	2009/4/23	N	Y	N		-	-	N/A	N/A
	Upper-Shelf Energy,	588	05.03.02-2	2010/6/14	N	N	N		-	-	N/A	N/A
	and Pressurized Thermal Shock	588	05.03.02-3	2010/6/14	N	N	N		-	-	N/A	N/A
		588	05.03.02-4	2010/6/14	N	N	N		-	-	N/A	N/A
		588	05.03.02-5	2010/6/14	Y	N	N		-	DCD_05.03.02-5	4	3
		588	05.03.02-6	2010/6/14	N	N	N		-	-	N/A	N/A
		588	05.03.02-7	2010/6/14	N	N	N		-	-	N/A	N/A
		588	05.03.02-8	2010/6/14	N	N	N		-	-	N/A	N/A
		693	05.03.02-9	2011/3/22	Y	N	N		-	DCD_05.03.02-9	0	
		693	05.03.02-10	2011/3/22	N	N	N		-	-	N/A	N/A
		694	05.03.02-11	2011/3/11	N	N	N		-	-	N/A	N/A
5.3.3	Reactor Vessel Integrity	225	05.03.03-1	2009/3/26	Y	N	N		-			
				2009/4/17	Y	N	N		-	DCD_05.03.03-1	3	2
5.4	Reactor Coolant System	47	5.4.10-1	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
	Component and Subsystem Design											
		745	05.04-2	2011/7/4	Y	N	N		-	DCD_05.04-2	0	
		745	05.04-3	2011/7/4	N	N	N		-	-	N/A	N/A
5.4.1.1	Pump Flywheel Integrity (PWR)	274	05.04.01.01-1	2009/4/28	Y	N	N		-	DCD_05.04.01.01-1	3	2
		274	05.04.01.01-2	2009/4/28	N	N	N		-	-	N/A	N/A
		274	05.04.01.01-3	2009/4/28	Y	N	N		-	DCD_05.04.01.01-3	3	2
				2011/2/25	Y	N	N		-		TBD	
				2011/4/14	Y	N	N		-	DCD_05.04.01.01-3	0	
		274	05.04.01.01-4	2009/4/28	N	N	N		-	-	N/A	N/A
		274	05.04.01.01-5	2009/4/28	N	N	N		-	-	N/A	N/A
		274	05.04.01.01-6	2009/4/28	N	N	N		-	-	N/A	N/A
		274	05.04.01.01-7	2009/4/28	N	N	N		-	-	N/A	N/A
		738	05.04.01.01-8	2011/5/26	N	N	N		-	-	N/A	N/A
5.4.2.1	Steam Generator Materials	265	05.04.02.01-1	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-2	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-3	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-4	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-5	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-6	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-7	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-8	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-9	2009/3/25	Y	N	N		-	DCD_05.04.02.01-9	2	2

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		265	05.04.02.01-10	2009/3/25	N	N	N		-	-	N/A	N/A
		265	05.04.02.01-11	2009/3/25	N	N	N		-	-	N/A	N/A
		392	05.04.02.01-12	2009/6/29	N	N	N		-	-	N/A	N/A
5.4.2.2	Steam Generator Program	293	05.04.02.02-1	2009/4/17	Y	N	N		-	DCD_05.04.02.02-1	4	2
		293	05.04.02.02-2	2009/4/17	Y	N	N		-	DCD_05.04.02.02-2	3	2
		293	05.04.02.02-3	2009/4/17	Y	N	N		-	DCD_05.04.02.02-3	4	2
		293	05.04.02.02-4	2009/4/17	Y	N	N		-	DCD_05.04.02.02-4	4	2
		293	05.04.02.02-5	2009/4/17	Y	N	N		-	DCD_05.04.02.02-5	4	2
		293	05.04.02.02-6	2009/4/17	Y	N	N		-	DCD_05.04.02.02-6	3	2
		293	05.04.02.02-7	2009/4/17	Y	N	N		-	DCD_05.04.02.02-7	3	2
		293	05.04.02.02-8	2009/4/17	N	N	N		-	-	N/A	N/A
		393	05.04.02.02-9	2009/6/30	N	N	N		-	-	N/A	N/A
5.4.7	Residual Heat Removal (RHR)	163	05.04.07-1	2009/2/19	N	N	N		-	-	N/A	N/A
	System	163	05.04.07-2	2009/2/19	N	N	N		-	-	N/A	N/A
		163	05.04.07-3	2009/2/19	Y	N	N		-	DCD_05.04.07-3	2	2
		163	05.04.07-4	2009/2/19	Y	N	N		-	DCD_05.04.07-4	1	2
		163	05.04.07-5	2009/2/19	N	N	N		-	-	N/A	N/A
		163	05.04.07-6	2009/2/19	Y	N	N		-	DCD_05.04.07-6	1	2
		464	05.04.07-7	2009/11/4	N	N	N		-	-	N/A	N/A
		464	05.04.07-8	2009/11/4	N	N	N		-	-	N/A	N/A
		464	05.04.07-9	2009/11/4	N	N	N		-	-	N/A	N/A
		464	05.04.07-10	2009/11/4	N	N	N		-	-	N/A	N/A
		464	05.04.07-11	2009/11/4	N	N	N		-	-	N/A	N/A
				2011/10/12	N	N	N		-	-	N/A	N/A
		548	05.04.07-12	2010/4/6	Y	N	N		-	DCD_05.04.07-12	3	3
		617	05.04.07-13	2010/9/14	N	N	N		-	-	N/A	N/A
5.4.10												
5.4.11	Pressurizer Relief Tank	741	05.04.11-1	2011/6/29	Y	N	N		-	DCD_05.04.11-1	0	
		741	05.04.11-2	2011/6/29	N	N	N		-	-	N/A	N/A
		741	05.04.11-3	2011/6/29	N	N	N		-	-	N/A	N/A
5.4.12	Reactor Coolant System	48	5.4.12-1	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
	High Point Vents	48	5.4.12-2	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		48	5.4.12-3	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		48	5.4.12-4	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		48	5.4.12-5	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		48	5.4.12-6	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		OI	05.04.12-1	2009/10/2	N	N	N		-	-	N/A	N/A
		762	05.04.12-2	2011/7/7	Y	N	N		-	DCD_05.04.12-2	0	
5-4	Branch Tecchnical Position	897	05-04BTP-1	03/08/2012	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		612	06.01.01-21	2010/8/25	Y	N	N		-	DCD_06.01.01-21	1	
		612	06.01.01-22	2010/8/25	Y	N	N		-		5	3
				2010/10/7	Y	N	N		-	DCD_06.01.01-22	5	3
		612	06.01.01-23	2010/8/25	Y	N	N		-	DCD_06.01.01-23	5	3
		-	-	-	-	-	-	-	COL 6.1(1) deleted	MAP-06-001	-	2
		-	-	-	-	-	-	-	COL 6.1(2) deleted	MAP-06-002	-	2
		-	-	-	-	-	-	-	COL 6.1(3) deleted	MAP-06-003	1	2
		-	-	-	-	-	-	-	COL 6.1(4) deleted	MAP-06-004	1	2
		-	-	-	-	-	-	-	COL 6.1(5) deleted	MAP-06-005	-	2
6.1.2	Protective Coating Systems (Paints)	365	06.01.02-1	2009/6/12	Y	Y	N		-	DCD_06.01.02-1	3	2
	Organic Materials			2009/8/21	Y	Y	N		-	DCD_06.01.02-1	-	2
6.2.1	Containment Functional Design	110	06.02.01-1	2008/12/26	N	N	N	fin.	-	-	N/A	N/A
	Organic Materials	126	06.02.01-2	2009/1/29	Y	N	N		-	DCD_06.02.01-2	1	2
		126	06.02.01-3	2009/3/19	N	N	N		-	-	N/A	N/A
		126	06.02.01-4	2009/3/19	N	N	N		-	-	N/A	N/A
		126	06.02.01-5	2009/3/19	N	N	N		-	-	N/A	N/A
		126	06.02.01-6	2009/4/21	N	N	N		-	-	N/A	N/A
		331	06.02.01-7	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-8	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-9	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-10	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-11	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-12	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-13	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-14	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-15	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-16	2009/5/26	N	N	N		-	-	N/A	N/A
		331	06.02.01-17	2009/5/26	N	N	N		-	-	N/A	N/A
		-	-	-	-	-	-	-	COL 6.2(1) deleted	MAP-06-006	-	2
6.2.1	Containment Functional Design	587	06.02.01.01.A-1	2010/6/7	N	N	N		-	-	N/A	N/A
	Organic Materials	623	06.02.01-18	2010/9/29	N	N	N		-	-	N/A	N/A
		623	06.02.01-19	2010/9/29	Y	N	N		-	-	TBD	
		623	06.02.01-20	2010/9/29	N	N	N		-	-	N/A	N/A
6.2.1.2	Subcompartment Analysis	6	06.02.01.02-1	2008/6/27	Y	N	N	fin.	-	DCD_06.02.01.02-1	1	2
		111	06.02.01.02-2	2009/2/17	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-3	2009/2/2	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-4	2009/2/2	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-5	2008/1/16	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-6	2008/1/16	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-7	2009/2/2	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-8	2009/2/2	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-9	2008/1/16	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-10	2009/2/2	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-11	2009/2/2	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-12	2008/1/16	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-13	2008/1/16	N	N	N		-	-	N/A	N/A
		111	06.02.01.02-14	2008/1/16	N	N	N		-	-	N/A	N/A
6.2.1.3	Mass and Energy Release											
	Analysis for Postulated											
	Loss-of-Coolant Accidents											
6.2.1.4	Mass and Energy Release	112	06.02.01.04-1	2008/12/26	N	N	N	fin.	-	-	N/A	N/A
	Analysis for Postulated	113	06.02.01.04-2	2009/1/15	N	N	N		-	-	N/A	N/A
	Secondary System Pipe Ruptures	114	06.02.01.04-3	2008/12/26	N	N	N	fin.	-	-	N/A	N/A
	(LOCAs)											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
6.2.1.5	Min. Containment Pressure	115	06.02.01.05-1	2008/12/25	Y	N	N	fin.	-	DCD_06.02.01.05-1	1	2
	Analysis for	116	06.02.01.05-2	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
	for Emergency Core Cooling Sys.	117	06.02.01.05-3	2009/1/15	N	N	N		-	-	N/A	N/A
	Performance Capability Studies	118	06.02.01.05-4	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		119	06.02.01.05-5	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		120	06.02.01.05-6	2008/12/25	Y	N	N	fin.	-	DCD_06.02.01.05-6	1	2
		121	06.02.01.05-7	2008/12/25	Y	N	N	fin.	-	DCD_06.02.01.05-7	1	2
		122	06.02.01.05-8	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
6.2.2	Containment	45	06.02.02-1	2008/8/26	Y	N	N	fin.	-	DCD_06.02.02-1	-	1
	Heat Removal Systems	45	06.02.02-2	2008/8/26	N	N	N	fin.	-	-	N/A	N/A
		45	06.02.02-3	2008/8/26	N	N	N	fin.	-	-	N/A	N/A
		45	06.02.02-4	2008/8/26	N	N	N	fin.	-	-	N/A	N/A
		84	06.02.02-5	2008/11/7	Y	N	N	fin.	-	DCD_06.02.02-5	1	2
		84	06.02.02-6	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		84	06.02.02-7	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		84	06.02.02-8	2008/11/7	Y	N	N	fin.	-	DCD_06.02.02-8	1	2
		84	06.02.02-9	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
		85	06.02.02-10	2009/11/12	Y	N	N	fin.	-	DCD_06.02.02-10	1	2
		85	06.02.02-11	2009/11/12	N	N	N	fin.	-	-	N/A	N/A
		263	06.02.02-12	2009/3/31	Y	N	N		-	DCD_06.02.02-12	3	2
		263	06.02.02-13	2009/3/31	N	N	N		-	-	N/A	N/A
		263	06.02.02-14	2009/3/31	N	N	N		-	-	N/A	N/A
		263	06.02.02-15	2009/3/31	N	N	N		-	-	N/A	N/A
		278	06.02.02-16	2009/4/10	Y	N	N		-	DCD_06.02.02-16	3	2
		330	06.02.02-17	2009/5/18	N	N	N		-	-	N/A	N/A
		349	06.02.02-18	2009/5/12	N	N	N		-	-	N/A	N/A
		354	06.02.02-19	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-20	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-21	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-22	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-23	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-24	2009/7/7	N	N	N		-	-	N/A	N/A
				10/16/2009	Y	N	N		-	DCD_06.02.02-24	TBD	
		354	06.02.02-25	2009/7/7	Y	N	N		-	DCD_06.02.02-25	4	2
		354	06.02.02-26	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-27	2009/7/7	Y	N	N		-	DCD_06.02.02-27	4	2
		354	06.02.02-28	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-29	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-30	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-31	2009/7/7	Y	Y	N		-	DCD_06.02.02-31	4	2
				10/06/2009	Y	Y	N		-	DCD_06.02.02-31	-	2
		354	06.02.02-32	2009/7/7	Y	Y	N		-	DCD_06.02.02-32	-	2
				10/06/2009	Y	N	N		-	DCD_06.02.02-32	-	2
		354	06.02.02-33	2009/7/7	Y	Y	N		-	DCD_06.02.02-33	-	2
				10/06/2009	Y	N	N		-	DCD_06.02.02-33	-	2
		354	06.02.02-34	2009/7/7	Y	Y	N		-	DCD_06.02.02-34	-	2
				10/06/2009	Y	N	N		-	DCD_06.02.02-34	-	2
		354	06.02.02-35	2009/7/7	Y	Y	N		-	DCD_06.02.02-35	-	2
				10/06/2009	Y	N	N		-	DCD_06.02.02-35	-	2
		354	06.02.02-36	2009/7/7	Y	Y	N		-	DCD_06.02.02-36	-	2
				10/06/2009	Y	N	N		-	DCD_06.02.02-36	-	2
		354	06.02.02-37	2009/7/7	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		354	06.02.02-38	2009/7/7	Y	N	N		-	DCD_06.02.02-38	-	2
		354	06.02.02-39	2009/7/7	N	N	N		-	-	N/A	N/A
		354	06.02.02-40	2009/7/7	Y	N	N		-	DCD_06.02.02-40	4	2
		354	06.02.02-41	2009/7/7	Y	N	N		-	DCD_06.02.02-41	-	2
		354	06.02.02-42	2009/7/7	Y	N	N		-	DCD_06.02.02-42	4	2
		354	06.02.02-43	2009/7/7	Y	N	N		-	DCD_06.02.02-43	4	2
		354	06.02.02-44	2009/7/17	Y	N	N		-	DCD_06.02.02-44	TBD	
		366	06.02.02-45	2009/6/11	N	N	N		-	-	N/A	N/A
		366	06.02.02-46	2009/6/11	Y	N	N		-	DCD_06.02.02-46	3	2
		366	06.02.02-47	2009/6/11	N	N	N		-	-	N/A	N/A
		366	06.02.02-48	2009/6/11	N	N	N		-	-	N/A	N/A
		366	06.02.02-49	2009/6/11	N	N	N		-	-	N/A	N/A
		366	06.02.02-50	2009/6/11	N	N	N		-	-	N/A	N/A
		366	06.02.02-51	2009/6/11	N	N	N		-	-	N/A	N/A
		422	06.02.02-52	2010/1/21	N	N	N		-	-	N/A	N/A
		466	06.02.02-53	2009/11/24	N	N	N		-	-	N/A	N/A
		466	06.02.02-54	2009/11/24	N	N	N		-	-	N/A	N/A
		466	06.02.02-55	2009/11/24	Y	N	N		-	DCD_06.02.02-55	1	
		631	06.02.02-56	2010/10/21	N	N	N			-	N/A	N/A
		631	06.02.02-57	2010/10/21	N	N	N			-	N/A	N/A
		637	06.02.02-58	2010/10/21	N	N	N		-	-	N/A	N/A
		637	06.02.02-59	2010/10/21	N	N	N		-	-	N/A	N/A
		637	06.02.02-60	2010/10/21	Y	N	N				TBD	
		645	06.02.02-61	2010/11/10	N	N	N		-	-	N/A	N/A
		652	06.02.02-62	2010/11/30	N	N	N		-	-	N/A	N/A
		-	-	-	-	-	-	-	COL 6.2(9) deleted	MAP-06-007	4	2
		736	06.02.02-63	2011/6/21	Y	N	N		-	DCD_06.02.02-63	0	
				2011/7/13	Y	N	N		-		0	
		740	06.02.02-64	2011/6/14	Y	N	N		-	DCD_06.02.02-64	0	
				2011/8/31	Y	N	N		-		1	
				1/31/2012	Y	N	N		-		TBD	
		746	06.02.02-65	2011/6/7	N	N	N		-	-	N/A	N/A
		836	06.02.02-66	11/11/2011	Y	N	N		-	DCD_06.02.02-66	1	
		836	06.02.02-67	11/11/2011	Y	N	N		-	DCD_06.02.02-67	1	
		836	06.02.02-68	11/11/2011	N	N	N		-	-	N/A	N/A
		839	06.02.02-69	1/31/2012	Y	N	Y		-	DCD_06.02.02-69	TBD	
		839	06.02.02-70	1/31/2012	Y	N	Y		-	DCD_06.02.02-70	TBD	
		839	06.02.02-71	1/31/2012	Y	N	Y		-	DCD_06.02.02-71	TBD	
		839	06.02.02-72	1/31/2012	Y	N	Y		-	DCD_06.02.02-72	TBD	
		839	06.02.02-73	1/31/2012	Y	N	Y		-	DCD_06.02.02-73	TBD	
		840	06.02.02-74	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-75	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-76	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-77	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-78	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-79	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-80	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-81	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-82	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-83	11/22/2011	N	N	N			-	N/A	N/A
		840	06.02.02-84	11/22/2011	Y	N	N			DCD_06.02.02-84	1	
		840	06.02.02-85	11/22/2011	N	N	N			-	N/A	N/A
		857	06.02.02-86	11/22/2011	N	N	N			-	N/A	N/A
		885	06.02.02-87	02/09/2012	N	N	N			-	N/A	N/A
6.2.4	Containment Isolation System	57	06.02.04-1	2008/9/22	N	N	N	fin.	-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		57	06.02.04-2	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-3	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-4	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-5	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-5	1	2
		57	06.02.04-6	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-7	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-8	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-8	1	2
		57	06.02.04-9	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-9	1	2
		57	06.02.04-10	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-11	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-12	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-13	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-14	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-15	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-16	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-16	1	2
		57	06.02.04-17	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-18	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-18	1	2
		57	06.02.04-19	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-19	1	2
		57	06.02.04-20	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-20	1	2
		57	06.02.04-21	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-21	1	2
		57	06.02.04-22	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-22	1	2
		57	06.02.04-23	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-23	1	2
		57	06.02.04-24	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-25	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-26	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-27	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-28	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-29	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-30	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-31	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-31	1	2
		57	06.02.04-32	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		57	06.02.04-33	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-33	1	2
		57	06.02.04-34	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-34	1	2
		57	06.02.04-35	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-35	1	2
		57	06.02.04-36	2008/9/22	Y	N	N	fin.	-	DCD_06.02.04-36	1	2
		279	06.02.04-37	2009/4/8	Y	N	N		-	DCD_06.02.04-37	3	2
		279	06.02.04-38	2009/4/8	Y	N	N		-	DCD_06.02.04-38	3	2
		279	06.02.04-39	2009/4/8	Y	N	N		-	DCD_06.02.04-39	3	2
		279	06.02.04-40	2009/4/8	N	N	N		-	-	N/A	N/A
		279	06.02.04-41	2009/4/8	N	N	N		-	-	N/A	N/A
		279	06.02.04-42	2009/4/8	N	N	N		-	-	N/A	N/A
		279	06.02.04-43	2009/4/8	N	N	N		-	-	N/A	N/A
		279	06.02.04-44	2009/4/8	N	N	N		-	-	N/A	N/A
		279	06.02.04-45	2009/4/8	N	N	N		-	-	N/A	N/A
		279	06.02.04-46	2009/4/8	Y	N	N		-	DCD_06.02.04-46	3	2
		279	06.02.04-47	2009/4/8	Y	N	N		-	DCD_06.02.04-47	3	2
		279	06.02.04-48	2009/4/8	Y	N	N		-	DCD_06.02.04-48	3	2
		279	06.02.04-49	2009/4/8	Y	N	N		-	DCD_06.02.04-49	3	2
		376	06.02.04-50	2009/6/16	Y	Y	N		-	DCD_06.02.04-50	4	2
		451	06.02.04-51	2009/9/29	Y	N	N		-	DCD_06.02.04-51	-	2
		451	06.02.04-52	2009/9/29	Y	N	N		-	DCD_06.02.04-52	-	2
		553	06.02.04-53	2010/4/19	Y	N	N		-	DCD_06.02.04-53	3	3
		553	06.02.04-54	2010/4/19	Y	N	N		-	DCD_06.02.04-54	3	3
		-	-	-	-	-	-	-	COL 6.2(6) deleted	MAP-06-008	-	2
		729	06.02.04-55	2011/6/16	Y	N	N	-	-	DCD_06.02.04-55	0	
		790	06.02.04-56	2011/9/1	N	N	N		-	-	N/A	N/A
6.2.5	Combustible Gas Control in Containment	62	06.02.05-1	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-2	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-3	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-4	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-5	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-6	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-7	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-8	2008/10/1	Y	Y	N	fin.	-			

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		62	06.02.05-8	2009/1/9	Y	N	N	fin.	-	DCD_06.02.05-8	1	2
		62	06.02.05-9	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-10	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-11	2008/10/1	N	N	N	fin.	-			
				2009/1/9	Y	Y	N	fin.	-	DCD_06.02.05-11	1	2
		62	06.02.05-12	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-13	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-14	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-15	2008/10/1	N	N	N	fin.	-			
				2009/1/9	Y	N	N	fin.	-	DCD_06.02.05-15	1	2
		62	06.02.05-16	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-17	2008/10/1	Y	N	N	fin.	-	DCD_06.02.05-17	-	2
		62	06.02.05-18	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-19	2008/10/1	N	N	N	fin.	-	-	N/A	N/A
		62	06.02.05-20	2008/10/1	Y	N	N	fin.	-	DCD_06.02.05-20	1	2
		62	06.02.05-21	2008/10/1	Y	N	N	fin.	-	DCD_06.02.05-21	1	2
		270	06.02.05-22	2009/6/5	Y	N	N		-	DCD_06.02.05-22	3	2
		270	06.02.05-23	2009/6/5	Y	N	N		-	DCD_06.02.05-23	3	2
		270	06.02.05-24	2009/6/5	Y	N	N		-	DCD_06.02.05-24	-	2
		270	06.02.05-25	2009/6/5	Y	N	N		-	DCD_06.02.05-25	-	2
		270	06.02.05-26	2009/6/5	Y	N	N		-	DCD_06.02.05-26	3	2
		270	06.02.05-27	2009/6/5	Y	N	N		-	DCD_06.02.05-27	3	2
		270	06.02.05-28	2009/6/5	Y	N	N		-	DCD_06.02.05-28	3	2
		270	06.02.05-29	2009/6/5	Y	N	N		-	DCD_06.02.05-29	3	2
		270	06.02.05-30	2009/6/5	Y	N	N		-	DCD_06.02.05-30	3	2
		270	06.02.05-31	2009/6/5	Y	N	N		-	DCD_06.02.05-31	3	2
		270	06.02.05-32	2009/6/5	Y	N	N		-	DCD_06.02.05-32	-	2
		270	06.02.05-33	2009/6/5	Y	N	N		-	DCD_06.02.05-33	3	2
		270	06.02.05-34	2009/6/5	Y	N	N		-	DCD_06.02.05-34	3	2
		471	6.2.5-35	11/6/2009	Y	N	N		-	DCD_6.2.5-35	0	3
		471	6.2.5-36	2010/5/28	N	N	N		-	-	N/A	N/A
		551	6.2.5-37	2010/4/20	Y	N	N		-	DCD_6.2.5-37	3	3
		551	6.2.5-38	2010/4/20	N	N	N		-	-	N/A	N/A
		-	-	-	-	-	-	-	COL 6.2(7) deleted	MAP-06-009	1	2
		635	6.2.5-39	2010/10/20	Y	N	N		-	DCD_6.2.5-39	6	3
		635	6.2.5-40	2010/10/20	Y	N	N		-	DCD_6.2.5-40	6	3
		696	6.2.5-41	2011/3/7	Y	N	N		-	DCD_6.2.5-41	0	
		748	6.2.5-42	2011/5/27	N	N	N		-	-	N/A	N/A
		751	6.2.5-43	2011/6/3	Y	N	N		-	DCD_6.2.5-43	0	
		803	06.02.05-44	9/9/2011	Y	N	N		-	DCD_6.2.5-44	1	
		803	06.02.05-45	9/9/2011	Y	Y	Y		-	DCD_6.2.5-45	1	
6.2.6	Containment Leakage Testing	50	06.02.06-1	2008/9/17	N	N	N	fin.	-	-	N/A	N/A
		50	06.02.06-2	2008/9/17	N	N	N	fin.	-			
				2009/1/9	Y	Y	N	fin.	-	DCD_06.02.06-2	1	2
		50	06.02.06-3	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-3	-	2
		50	06.02.06-4	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-4	3	2
		50	06.02.06-5	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-5	3	2
		50	06.02.06-6	2008/9/17	N	N	N	fin.	-	-	N/A	N/A
		50	06.02.06-7	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-7	3	2
		50	06.02.06-8	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-8	3	2
		50	06.02.06-9	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-9	1	2
		50	06.02.06-10	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-10	-	2
		50	06.02.06-11	2008/9/17	N	N	N	fin.	-	-	N/A	N/A
		50	06.02.06-12	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-12	-	2
		50	06.02.06-13	2008/9/17	Y	N	N	fin.	-	DCD_06.02.06-13	2	2
		267	06.02.06-14	2009/4/6	Y	N	N		-	DCD_06.02.06-14	3	2
		267	06.02.06-15	2009/4/6	Y	N	N		-	DCD_06.02.06-15	3	2
		267	06.02.06-16	2009/4/6	Y	N	N		-	DCD_06.02.06-16	3	2
		267	06.02.06-17	2009/4/6	Y	N	N		-	DCD_06.02.06-17	3	2
		267	06.02.06-18	2009/4/6	Y	N	N		-	DCD_06.02.06-18	3	2
		267	06.02.06-19	2009/4/6	N	N	N		-	-	N/A	N/A
		267	06.02.06-20	2009/4/6	-	-	-	-	-	Question Deleted	-	-
		267	06.02.06-21	2009/4/6	N	N	N		-	-	N/A	N/A
		267	06.02.06-22	2009/4/6	N	N	N		-	-	N/A	N/A

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		472	06.02.06-23	2009/11/13	Y	N	N		-	DCD_06.02.06-23	1	3
		472	06.02.06-24	2009/11/13	Y	N	N		-	DCD_06.02.06-24	1	3
		472	06.02.06-25	2009/11/13	N	N	N		-	-	N/A	N/A
		472	06.02.06-26	2009/11/27	Y	N	N		-	DCD_06.02.06-26	1	3
		472	06.02.06-27	2009/11/27	Y	N	N		-	DCD_06.02.06-27	1	3
		552	06.02.06-28	2010/4/16	N	N	N		-	-	N/A	N/A
		552	06.02.06-29	2010/4/16	N	N	N		-	-	N/A	N/A
		552	06.02.06-30	2010/4/16	Y	N	N		-	DCD_06.02.06-30	3	3
		-	-	-	-	-	-	-	COL 6.2(8) revised	MAP-06-010	-	2
		648	06.02.06-31	2010/11/11	Y	N	N		-	DCD_06.02.06-31	6	3
		648	06.02.06-32	2010/11/11	Y	N	N		-	DCD_06.02.06-32	6	3
		648	06.02.06-33	2010/11/11	Y	N	N		-	DCD_06.02.06-33	6	3
		866	06.02.06-34	01/06/2012	Y	N	N		-	DCD_06.02.06-34	2	
6.2.7	Fracture Prevention	347	06.02.07-1	2009/6/11	Y	Y	N		-	DCD_06.02.07-1	-	2
6.2.7	of											
	Containment Pressure Boundary											
6.3	Emergency Core Cooling System	391	06.03-1	2009/7/27	Y	N	N		-	DCD_06.03-1	4	2
		391	06.03-2	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-3	2009/7/27	Y	N	N		-	DCD_06.03-3	4	2
		391	06.03-4	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-5	2009/7/27	Y	N	N		-	DCD_06.03-5	4	2
		391	06.03-6	2009/7/27	Y	N	N		-	DCD_06.03-6	4	2
		391	06.03-7	2009/7/27	Y	N	N		-	DCD_06.03-7	4	2
		391	06.03-8	2009/7/27	Y	N	N		-	DCD_06.03-8	4	2
		391	06.03-9	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-10	2009/7/27	Y	N	N		-	DCD_06.03-10	4	2
		391	06.03-11	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-12	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-13	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-14	2009/7/27	Y	N	N		-	DCD_06.03-14	4	2
		391	06.03-15	2009/7/27	Y	N	N		-	DCD_06.03-15	4	2
		391	06.03-16	2009/7/27	Y	N	N		-	DCD_06.03-16	4	2
		391	06.03-17	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-18	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-19	2009/7/27	Y	N	N		-	DCD_06.03-19	4	2
		391	06.03-20	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-21	2009/7/27	Y	N	N		-	DCD_06.03-21	4	2
		391	06.03-22	2009/7/27	Y	N	N		-	DCD_06.03-22	4	2
		391	06.03-23	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-24	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-25	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-26	2009/7/27	Y	N	N		-	DCD_06.03-26	4	2
		391	06.03-27	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-28	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-29	2009/7/27	Y	N	N		-	DCD_06.03-29	4	2
		391	06.03-30	2009/7/27	Y	N	N		-	DCD_06.03-30	4	2
		391	06.03-31	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-32	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-33	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-34	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-35	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-36	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-37	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-38	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-39	2009/7/27	Y	N	N		-	DCD_06.03-39	4	2
		391	06.03-40	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-41	2009/7/27	Y	N	N		-	DCD_06.03-41	4	2
		391	06.03-42	2009/7/27	Y	N	N		-	DCD_06.03-42	4	2
		391	06.03-43	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-44	2009/7/27	Y	N	N		-	DCD_06.03-44	4	2
		391	06.03-45	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-46	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-47	2009/7/27	Y	N	N		-	DCD_06.03-47	4	2
		391	06.03-48	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-49	2009/7/27	Y	N	N		-	DCD_06.03-49	4	2
		391	06.03-50	2009/7/27	N	N	N		-	-	N/A	N/A

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		391	06.03-51	2009/7/27	Y	N	N		-	DCD_06.03-51	4	2
		391	06.03-52	2009/7/27	Y	N	N		-	DCD_06.03-52	4	2
		391	06.03-53	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-54	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-55	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-56	2009/7/27	N	N	N		-	-	N/A	N/A
		391	06.03-57	2009/7/27	Y	N	N		-	DCD_06.03-57	4	2
		391	06.03-58	2009/7/27	Y	N	N		-	DCD_06.03-58	4	2
		407	06.03-59	2009/8/5	Y	Y	N		-	DCD_06.03-59	4	2
		407	06.03-60	2009/8/5	N	N	N		-	-	N/A	N/A
		407	06.03-61	2009/8/5	Y	Y	N		-	DCD_06.03-61	4	2
		407	06.03-62	2009/8/5	N	N	N		-	-	N/A	N/A
		407	06.03-63	2009/8/5	N	N	N		-	-	N/A	N/A
				2009/9/28	N	N	N		-	-	N/A	N/A
		407	06.03-64	2009/8/5	Y	N	N		-	DCD_06.03-64	4	2
		407	06.03-65	2009/8/5	Y	N	N		-	DCD_06.03-65	4	2
		407	06.03-66	2009/8/5	Y	N	N		-	DCD_06.03-66	4	2
		407	06.03-67	2009/8/5	Y	N	N		-	DCD_06.03-67	4	2
		407	06.03-68	2009/8/5	Y	N	N		-	DCD_06.03-68	4	2
		407	06.03-69	2009/8/5	Y	N	N		-	DCD_06.03-69	4	2
		407	06.03-70	2009/8/5	N	N	N		-	-	N/A	N/A
		407	06.03-71	2009/8/5	Y	N	N		-	DCD_06.03-71	4	2
		407	06.03-72	2009/8/5	Y	N	N		-	DCD_06.03-72	4	2
		407	06.03-73	2009/8/5	Y	N	N		-	DCD_06.03-73	-	2
		407	06.03-74	2009/8/5	N	N	N		-	-	N/A	N/A
		407	06.03-75	2009/8/5	Y	N	N		-	DCD_06.03-75	4	2
		407	06.03-76	2009/8/5	Y	N	N		-	DCD_06.03-76	4	2
		407	06.03-77	2009/8/5	Y	N	N		-	DCD_06.03-77	4	2
		407	06.03-78	2009/8/5	N	N	N		-	-	N/A	N/A
		407	06.03-79	2009/8/5	Y	N	N		-	DCD_06.03-79	4	2
		407	06.03-80	2009/8/5	Y	Y	N		-	DCD_06.03-80	4	2
		407	06.03-81	2009/8/5	Y	N	N		-	DCD_06.03-81	4	2
		407	06.03-82	2009/8/5	N	N	N		-	-	N/A	N/A
		407	06.03-83	2009/8/5	N	N	N		-	-	N/A	N/A
		597	06.03-84	2010/7/8	N	N	N		-	-	N/A	N/A
		597	06.03-85	2010/7/8	N	N	N		-	-	N/A	N/A
		597	06.03-86	2010/7/8	N	N	N		-	-	N/A	N/A
		597	06.03-84	2010/7/8	N	N	N		-	-	N/A	N/A
		597	06.03-85	2010/7/8	N	N	N		-	-	N/A	N/A
		597	06.03-86	2010/7/8	N	N	N		-	-	N/A	N/A
		626	06.03-87	2010/10/14	N	N	N		-	-	N/A	N/A
		695	06.03-88	2011/3/18	Y	N	N		-	DCD_06.03-88	0	
		695	06.03-89	2011/3/18	N	N	N		-	-	N/A	N/A
		695	06.03-90	2011/3/18	N	N	N		-	-	N/A	N/A
		695	06.03-91	2011/3/18	Y	N	N		-	DCD_06.03-91	0	
		695	06.03-92	2011/3/18	Y	N	N		-	DCD_06.03-91	0	
		695	06.03-93	2011/3/18	N	N	N		-	-	N/A	N/A
		695	06.03-94	2011/3/18	N	N	N		-	-	N/A	N/A
		695	06.03-95	2011/3/18	Y	N	N		-	DCD_06.03-95	0	
		695	06.03-96	2011/3/18	N	N	N		-	-	N/A	N/A
		695	06.03-97	2011/3/18	N	N	N		-	-	N/A	N/A
		716	06.03-98	2011/3/24	N	N	N		-	-	N/A	N/A
		716	06.03-99	2011/3/24	N	N	N		-	-	N/A	N/A
		737	06.03-100	2011/5/30	N	N	N		-	-	N/A	N/A
		737	06.03-101	2011/5/30	N	N	N		-	-	N/A	N/A
		815	06.03-102	2011/9/22	N	N	N		-	-	N/A	N/A
				2012/1/31	N	N	N		-	-	N/A	N/A
		867	06.03-103	01/06/2012	Y	N	N		-	DCD_06.03-103	2	
		881	06.03-104	03/30/2112	N	N	N				N/A	N/A
6.4	Control Room Habitability System	26	06.04-1	2008/7/31	N	N	N	fin.	-	-	N/A	N/A
		26	06.04-2	2008/7/31	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-1	2008/9/16	N	N	N	fin.	-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		49	06.04-2	2008/9/16	Y	N	N	fin.	-	DCD_06.04-2	1	2
		49	06.04-3	2008/9/16	Y	N	N	fin.	-			
		99	06.04-3	2008/12/8	Y	N	N	fin.	-	DCD_06.04-3	1	2
		49	06.04-4	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-5	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-6	2008/9/16	Y	N	N	fin.	-	DCD_06.04-6	1	2
		49	06.04-7	2008/9/16	Y	N	N	fin.	-	DCD_06.04-7	3	2
		49	06.04-8	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-9	2008/9/16	Y	N	N	fin.	-	DCD_06.04-9	(1)	2
		473		11/13/2009	Y	N	N		-	DCD_06.04-9	0	3
		49	06.04-10	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-11	2008/9/16	Y	N	N	fin.	-	DCD_06.04-11	1	2
		49	06.04-12	2008/9/16	Y	N	N	fin.	-	DCD_06.04-12	1	2
		49	06.04-13	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-14	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-15	2008/9/16	Y	N	N	fin.	-	DCD_06.04-15	1	2
		49	06.04-16	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-17	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-18	2008/9/16	Y	Y	N	fin.	-	-		
				2009/1/9	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-19	2008/9/16	Y	N	N	fin.	-	DCD_06.04-19	1	2
		49	06.04-20	2008/9/16	Y	N	N	fin.	-	DCD_06.04-20	1	2
		49	06.04-21	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-22	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		49	06.04-23	2008/9/16	Y	N	N	fin.	-	DCD_06.04-23	1	2
		49	06.04-24	2008/9/16	N	N	N	fin.	-	-	N/A	N/A
		338	06.04-4	2009/6/17	N	N	N		-	-	N/A	N/A
		338	06.04-5	2009/6/17	Y	N	N		-	DCD_06.04-5	3	2
		338	06.04-6A	2009/6/17	Y	N	N		-	DCD_06.04-6A	3	2
		338	06.04-7A	2009/6/17	Y	N	N		-	DCD_06.04-7A	3	2
		338	06.04-8	2009/6/17	Y	N	N		-	DCD_06.04-8	-	2
		501	06.04-10	2010/1/21	N	N	N		-	-	N/A	N/A
		-	-	-	-	-	-	-	COL 6.4(2) revised	MAP-06-014	1	2
		-	-	-	-	-	-	-	COL 6.4(4) deleted	MAP-06-015	1	2
		559	06.04-11	2010/5/20	Y	N	N		-	DCD_06.04-11	4	3
		559	06.04-12	2010/5/20	Y	N	N		-	DCD_06.04-12	4	3
		559	06.04-13	2010/5/20	Y	N	N		-	DCD_06.04-13	4	3
		691	06.04-14	2011/3/9	Y	N	N		-	DCD_06.04-14	0	
6.5.1	ESF Atmosphere Cleanup Systems	73	06.05.01-1/6.5.1-1	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-1	4	2
		73	06.05.01-1/6.5.1-2	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-3	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-4	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-5	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-5	4	2
		73	06.05.01-1/6.5.1-6	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-6	-	2
		73	06.05.01-1/6.5.1-7	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-7	4	2
		73	06.05.01-1/6.5.1-8	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-9	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-10	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-11	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-12	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-12	4	2
		73	06.05.01-1/6.5.1-13	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-13	4	2
		73	06.05.01-1/6.5.1-14	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-14	4	2
		73	06.05.01-1/6.5.1-15	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-16	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-16	4	2
		73	06.05.01-1/6.5.1-17	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-17	4	2
		73	06.05.01-1/6.5.1-18	2008/10/24	Y	N	N	fin.	-	DCD_06.05.01-18	4	2
		73	06.05.01-1/6.5.1-19	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		73	06.05.01-1/6.5.1-20	2008/10/24	N	N	N	fin.	-	-	N/A	N/A
		300	06.05.01-3	2009/5/15	Y	N	N		-	DCD_06.05.01-3	-	2
		300	06.05.01-4	2009/5/15	Y	N	N		-	DCD_06.05.01-4	4	2
		300	06.05.01-5	2009/5/15	Y	N	N		-	DCD_06.05.01-5	4	2
		300	06.05.01-6	2009/5/15	N	N	N		-	-	N/A	N/A
		300	06.05.01-7	2009/5/15	Y	N	N		-	DCD_06.05.01-7	4	2
		449	06.05.01-8	2009/9/29	Y	N	N		-	DCD_06.05.01-8	-	2
		558	06.05.01-9	2010/5/27	Y	N	N		-	DCD_06.05.01-9	4	3
		558	06.05.01-10	2010/4/22	N	N	N		-	-	N/A	N/A
		558	06.05.01-11	2010/4/22	Y	N	N		-	DCD_06.05.01-11	3	3
		558	06.05.01-12	2010/4/22	Y	N	N		-	DCD_06.05.01-12	3	3
		558	06.05.01-13	2010/4/22	Y	N	N		-	DCD_06.05.01-13	3	3

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		558	06.05.01-14	2010/4/22	Y	N	N		-	DCD_06.05.01-14	3	3
		558	06.05.01-15	2010/4/22	Y	N	N		-	DCD_06.05.01-15	3	3
		558	06.05.01-16	2010/5/27	Y	N	N		-	DCD_06.05.01-16	4	3
		558	06.05.01-17	2010/5/27	Y	N	N		-	DCD_06.05.01-17	4	3
		558	06.05.01-18	2010/4/22	Y	N	N		-	DCD_06.05.01-18	3	3
		-	-	-	-	-	-	-	COL 6.5(4) deleted	MAP-06-016	2	2
		615	06.05.01-19	2010/9/29	Y	N	N		-	DCD_06.05.01-19	5	3
		615	06.05.01-20	2010/9/29	Y	N	N		-	DCD_06.05.01-20	5	3
		826	06.05.01-21	2011/10/6	Y	N	N		-	DCD_06.05.01-21	1	
		826	06.05.01-22	2011/10/6	Y	N	N		-	DCD_06.05.01-22	1	
6.5.2	Containment Spray	234	06.05.02-1	2009/4/22	N	N	N		-	-	N/A	N/A
	as a Fission Product	234	06.05.02-2	2009/3/24	N	N	N		-	-	N/A	N/A
	Cleanup System	234	06.05.02-3	2009/4/22	N	N	N		-	-	N/A	N/A
		234	06.05.02-4	2009/3/24	N	N	N		-	-	N/A	N/A
		416	06.05.02-5	2009/7/28	N	N	N		-	-	N/A	N/A
		416	06.05.02-6	2009/7/28	Y	N	N		-	DCD_06.05.02-6	-	2
		460	06.05.02-7	11/13/2009	N	N	N		-	-	N/A	N/A
		517	06.05.02-8	2010/2/25	N	N	N		-	-	N/A	N/A
		715	06.05.02-9	2011/4/18	N	N	N		-	-	N/A	N/A
		794	06.05.02-10	8/31/2011	N	N	N		-	-	N/A	N/A
		794	06.05.02-11	8/31/2011	N	N	N		-	-	N/A	N/A
		794	06.05.02-12	8/31/2011	N	N	N		-	-	N/A	N/A
		794	06.05.02-13	8/31/2011	N	N	N		-	-	N/A	N/A
6.5.3	Fission Product	37	06.05.03-1	2008/9/5	Y	N	N	fin.	-	DCD_06.05.03-1	1	2
	Control Systems and Structures	83	06.05.03-2	2008/11/7	N	N	N	fin.	-	-	N/A	N/A
	Fission Product											
6.5.5	Pressure Suppression Pool											
	as a											
	Fission Product Cleanup System											
6.6	Inservice Inspection and Testing	232	06.06-1	2009/3/26	Y	N	N		-	DCD_06.06-1	2	2
	of Class 2 and 3 Components											
		-	-	-	-	-	-	-	COL 6.6(1) revised	MAP-06-017	-	2
		-	-	-	-	-	-	-	COL 6.6(2) revised	MAP-06-018	4	2
6.6.2	Inservice Inspection and Testing	233	06.06-2	2009/4/16	Y	N	N		-	DCD_06.06-2	3	2
	of Class 2 and 3 Components											
6.6.3	Inservice Inspection and Testing	241	06.06-3	2009/4/16	Y	N	N		-	DCD_06.06-3	3	2
	of Class 2 and 3 Components											
6.6.4	Inservice Inspection and Testing	258	06.06-4	2009/4/16	Y	N	N		-	DCD_06.06-4	3	2
6.6.4	Inservice Inspection and Testing											
	of Class 2 and 3 Components											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
7.1	Instrumentation and Controls --	244	07-14-1	2009/4/1	N	N	N		-	-	N/A	N/A
	Introduction	244	07-14-2	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-3	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-4	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-5	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-6	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-7	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-8	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-9	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-10	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-11	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-12	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-13	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-14	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-15	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-16	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-17	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-18	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-19	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-20	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-21	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-22	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-23	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-24	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-25	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-26	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-27	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-28	2009/4/1	N	N	N		-	-	N/A	N/A
		244	07-14-29	2009/4/1	N	N	N		-	-	N/A	N/A
		229	07.01-1	2009/4/28	Y	N	N		-	DCD_07.01-1	3	2
		229	07.01-2	2009/4/28	Y	N	N		-	DCD_07.01-2	3	2
		229	07.01-3	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-4	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-5	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-6	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-7	2009/4/28	Y	N	N		-	DCD_07.01-7	3	2
		229	07.01-8	2009/4/28	Y	N	N		-	DCD_07.01-8	3	2
		229	07.01-9	2009/4/28	Y	N	N		-	DCD_07.01-9	3	2
		229	07.01-10	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-11	2009/4/28	Y	N	N		-	DCD_07.01-11	3	2
		229	07.01-12	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-13	2009/4/28	Y	N	N		-	DCD_07.01-13	3	2
		229	07.01-14	2009/4/28	Y	N	N		-	DCD_07.01-14	3	2
		229	07.01-15	2009/4/28	Y	N	N		-	DCD_07.01-15	3	2
		229	07.01-16	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-17	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-18	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-19	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-20	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-21	2009/4/28	Y	N	N		-	DCD_07.01-21	3	2
		229	07.01-22	2009/4/28	N	N	N		-	-	N/A	N/A
		229	07.01-23	2009/4/28	N	N	N		-	-	N/A	N/A
		516	07.01-C Appendix-1	2010/2/15	N	N	N		-	-	N/A	N/A
		680	07.01-24	XX/YY/2011								
		692	07.01-25	2011/4/28	Y	N	N		-	DCD_07.01-25	0	
		698	07.01-26	2011/4/28	Y	N	N		-	DCD_07.01-26	0	
		705	07.01-27	5/31/2011	Y	N	N		-	DCD_07.01-27	0	
		720	07.01-28	2011/4/28	Y	N	N		-	DCD_07.01-26	0	
		722	07.01-29	5/31/2011	Y	N	N		-	DCD_07.01-29	0	
		722	07.01-30	5/31/2011	Y	N	N		-	DCD_07.01-30	0	
		730	07.01-31	5/31/2011	N	N	N		-	-	N/A	N/A
		730	07.01-32	5/31/2011	N	N	N		-	-	N/A	N/A
		731	07.01-33	5/31/2011	N	N	N		-	-	N/A	N/A
		732	07.01-34	5/31/2011	N	N	N		-	-	N/A	N/A
		733	07.01-35	5/31/2011	N	N	N		-	-	N/A	N/A
				8/12/2011	Y	N	N		-	DCD_07.01-35	1	
		733	07.01-36	5/31/2011	N	N	N		-	-	N/A	N/A
		734	07.01-37	5/31/2011	N	N	N		-	-	N/A	N/A
				10/04/2011	N	N	N		-	-	N/A	N/A
		734	07.01-38	5/31/2011	N	N	N		-	-	N/A	N/A
				10/04/2011	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		734	07.01-39	5/31/2011	N	N	N		-	-	N/A	N/A
				10/04/2011	N	N	N		-	-	N/A	N/A
		771	07.01-40	8/1/2011	N	N	N		-	-	N/A	N/A
		771	07.01-41	8/1/2011	N	N	N		-	-	N/A	N/A
		771	07.01-42	8/1/2011	Y	N	N		-	DCD_07.01-42	1	
		771	07.01-43	8/1/2011	N	N	N		-	-	N/A	N/A
		837	07.01-44	2/27/2012	N	N	N		-	-	N/A	N/A
7.2	Reactor Trip System	226	07.02-1	2009/4/28	Y	N	N		-	DCD_07.02-1	3	2
		226	07.02-2	2009/4/28	N	N	N		-	-	N/A	N/A
				2011/1/7	Y	N	N		-		TBD	
		672	07.02-3	2011/5/31	Y	N	N		-	DCD_07.02-3	0	
				2011/7/1	Y	N	N		-		0	
		672	07.02-4	2011/1/7	Y	N	N		-	DCD_07.02-4	TBD	
		727	07.02-5	5/31/2011	Y	N	N		-	DCD_07.02-5	0	
				5/31/2011	N	N	N		-	-	N/A	N/A
		727	07.02-6	2011/7/1	N	N	N		-	-	N/A	N/A
				2011/5/31	N	N	N		-	-	N/A	N/A
		727	07.02-7	5/31/2011	Y	N	N		-	DCD_07.02-7	0	
7.3	Engineered Safety	230	07.03-1	2009/4/28	Y	N	N		-	DCD_07.03-1	3	2
	Features Systems	230	07.03-2	2009/4/28	Y	N	N		-	DCD_07.03-2	3	2
		230	07.03-3	2009/4/28	Y	N	N		-	DCD_07.03-3	3	2
		230	07.03-4	2009/4/28	Y	N	N		-	DCD_07.03-4	3	2
		230	07.03-5	2009/4/28	Y	N	N		-	DCD_07.03-5	3	2
		230	07.03-6	2009/4/28	N	N	N		-	-	N/A	N/A
		230	07.03-7	2009/4/28	N	N	N		-	-	N/A	N/A
		230	07.03-8	2009/4/28	Y	N	N		-	DCD_07.03-8	3	2
		230	07.03-9	2009/4/28	N	N	N		-	-	N/A	N/A
		230	07.03-10	2009/4/28	N	N	N		-	-	N/A	N/A
		230	07.03-11	2009/4/28	N	N	N		-	-	N/A	N/A
		230	07.03-12	2009/4/28	Y	N	N		-	DCD_07.03-12	3	2
		230	07.03-13	2009/4/28	N	N	N		-	-	N/A	N/A
		230	07.03-14	2009/4/28	Y	N	N		-	DCD_07.03-14	3	2
		230	07.03-15	2009/4/28	N	N	N		-	-	N/A	N/A
7.4	Safe Shutdown Systems	227	07.04-1	2009/4/28	Y	N	N		-	DCD_07.04-1	3	2
		227	07.04-2	2009/4/28	Y	N	N		-	DCD_07.04-2	3	2
		227	07.04-3	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-4	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-5	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-6	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-7	2009/4/28	Y	N	N		-	DCD_07.04-7	3	2
		227	07.04-8	2009/4/28	Y	N	N		-	DCD_07.04-8	3	2
		227	07.04-9	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-10	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-11	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-12	2009/4/28	Y	N	N		-	DCD_07.04-12	3	2
		227	07.04-13	2009/4/28	Y	N	N		-	DCD_07.04-13	3	2
		227	07.04-14	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-15	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-16	2009/4/28	Y	N	N		-	DCD_07.04-16	3	2
		227	07.04-17	2009/4/28	Y	N	N		-	DCD_07.04-17	3	2
		227	07.04-18	2009/4/28	N	N	N		-	-	N/A	N/A
		227	07.04-19	2009/4/28	N	N	N		-	-	N/A	N/A
		671	07.04-20	2010/12/28	Y	N	N		-	DCD_07.04-20	0	
		671	07.04-21	2010/12/28	Y	N	N		-	DCD_07.04-21	0	
		671	07.04-22	2010/12/28	Y	N	N		-	DCD_07.04-22	0	
7.5	Information Systems	238	07.05-1	2009/4/28	Y	N	N		-	DCD_07.05-1	3	2
	Important to Safety	238	07.05-2	2009/4/28	N	N	N		-	-	N/A	N/A
		238	07.05-3	2009/4/28	N	N	N		-	-	N/A	N/A
		238	07.05-4	2009/4/28	Y	N	N		-	DCD_07.05-4	3	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		238	07.05-5	2009/4/28	Y	N	N		-	DCD_07.05-5	3	2
		238	07.05-6	2009/4/28	Y	N	N		-	DCD_07.05-6	3	2
		238	07.05-7	2009/4/28	Y	N	N		-	DCD_07.05-7	3	2
		238	07.05-8	2009/4/28	Y	N	N		-	DCD_07.05-8	3	2
		238	07.05-9	2009/4/28	Y	N	N		-	DCD_07.05-9	3	2
		238	07.05-10	2009/4/28	Y	N	N		-	DCD_07.05-10	3	2
		238	07.05-11	2009/4/28	Y	N	N		-	DCD_07.05-11	3	2
		238	07.05-12	2009/4/28	N	N	N		-	-	N/A	N/A
		238	07.05-13	2009/4/28	Y	N	N		-	DCD_07.05-13	3	2
		238	07.05-14	2009/4/28	N	N	N		-	-	N/A	N/A
		238	07.05-15	2009/4/28	N	N	N		-	-	N/A	N/A
		238	07.05-16	2009/4/28	N	N	N		-	-	N/A	N/A
		238	07.05-17	2009/4/28	Y	Y	N		-	DCD_07.05-17	3	2
		568	07.05-18	2010/4/28	Y	N	N		-	DCD_07.05-18	3	3
				2011/4/28	Y	N	N		-	DCD_07.05-18	0	
		656	07.05-19	12/16/2010	N	N	N		-	-	N/A	N/A
				5/31/2011	Y	N	N		-	DCD_07.05-19	0	
		656	07.05-20	12/16/2010	N	N	N		-	-	N/A	N/A
				2011/4/8	Y	N	N		-	DCD_07.05-20	0	
7.6	Interlock Systems	239	07.06-1	2009/4/28	Y	N	N		-	DCD_07.06-1	3	2
	Important to Safety	239	07.06-2	2009/4/28	Y	N	N		-	DCD_07.06-2	3	2
		239	07.06-3	2009/4/28	N	N	N		-	-	N/A	N/A
				2011/4/28	N	N	N		-	-	N/A	N/A
		239	07.06-4	2009/4/28	N	N	N		-	-	N/A	N/A
		239	07.06-5	2009/4/28	Y	N	N		-	DCD_07.06-5	3	2
		239	07.06-6	2009/4/28	Y	N	N		-	DCD_07.06-6	3	2
		239	07.06-7	2009/4/28	Y	N	N		-	DCD_07.06-7	3	2
		239	07.06-8	2009/4/28	Y	N	N		-	DCD_07.06-8	3	2
		239	07.06-9	2009/4/28	Y	N	N		-	DCD_07.06-9	3	2
		239	07.06-10	2009/4/28	N	N	N		-	-	N/A	N/A
		239	07.06-11	2009/4/28	N	N	N		-	-	N/A	N/A
		239	07.06-12	2009/4/28	N	N	N		-	-	N/A	N/A
		239	07.06-13	2009/4/28	N	N	N		-	-	N/A	N/A
		239	07.06-14	2009/4/28	Y	N	N		-	DCD_07.06-14	3	2
		239	07.06-15	2009/4/28	N	N	N		-	-	N/A	N/A
		239	07.06-16	2009/4/28	Y	N	N		-	DCD_07.06-16	0	
				2011/4/28	Y	N	N		-	DCD_07.06-17	0	
		638	07.06-17	10/26/2010	Y	N	N		-	DCD_07.06-17	6	3
		638	07.06-18	10/26/2010	Y	N	N		-	DCD_07.06-18	6	3
		638	07.06-19	10/26/2010	Y	N	N		-	DCD_07.06-19	6	3
		638	07.06-20	10/26/2010	N	N	N		-	-	N/A	N/A
		638	07.06-21	10/26/2010	N	N	N		-	-	N/A	N/A
				04/28/2011	Y	N	N		-	DCD_07.06-21	0	
		638	07.06-22	10/26/2010	Y	N	N		-	DCD_07.06-22	6	3
		638	07.06-23	10/26/2010	Y	N	N		-	DCD_07.06-23	6	3
		638	07.06-24	10/26/2010	Y	N	N		-	DCD_07.06-24	6	3
		702	07.06-25	5/31/2011	Y	N	N		-	DCD_07.06-25	0	
		702	07.06-26	5/31/2011	Y	N	N		-	DCD_07.06-26	0	
7.7	Control Systems	240	07.07-1	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-2	2009/4/28	Y	N	N		-	DCD_07.07-2	3	2
		240	07.07-3	2009/4/28	Y	N	N		-	DCD_07.07-3	3	2
		240	07.07-4	2009/4/28	Y	N	N		-	DCD_07.07-4	3	2
		240	07.07-5	2009/4/28	Y	N	N		-	DCD_07.07-5	3	2
		240	07.07-6	2009/4/28	Y	N	N		-	DCD_07.07-6	3	2
		240	07.07-7	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-8	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-9	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-10	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-11	2009/4/28	Y	N	N		-	DCD_07.07-11	3	2
		240	07.07-12	2009/4/28	Y	N	N		-	DCD_07.07-12	3	2
		240	07.07-13	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-14	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-15	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-16	2009/4/28	Y	N	N		-	DCD_07.07-16	3	2
		240	07.07-17	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-18	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-19	2009/4/28	Y	N	N		-	DCD_07.07-19	3	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		240	07.07-20	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-21	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-22	2009/4/28	Y	N	N		-	DCD_07.07-22	3	2
		240	07.07-23	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-24	2009/4/28	Y	N	N		-	3DCD_07.07-24	3	2
		240	07.07-25	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-26	2009/4/28	N	N	N		-	-	N/A	N/A
		240	07.07-27	2009/4/28	N	N	N		-	-	N/A	N/A
		655	07.07-28	11/30/2010	N	N	N		-	-	N/A	N/A
		655	07.07-29	11/30/2010	N	N	N		-	-	N/A	N/A
		688	07.07-30	04/28/2011	Y	N	N		-	DCD_07.07-30	0	
		688	07.07-31	04/28/2011	Y	N	N		-	DCD_07.07-31	0	
		688	07.07-32	5/31/2011	Y	N	N		-	DCD_07.07-32	0	
				10/11/2011	Y	N	N		-	DCD_07.07-32	1	
				02/27/2012	Y	N	N		-	DCD_07.07-32	2	
7.8	Diverse I&C Systems	228	07.08-1	2009/4/28	Y	N	N		-	DCD_07.08-1	3	2
		228	07.08-2	2009/4/28	N	N	N		-	-	N/A	N/A
		228	07.08-3	2009/4/28	N	N	N		-	-	N/A	N/A
		228	07.08-4	2009/4/28	Y	N	N		-	DCD_07.08-4	3	2
		228	07.08-5	2009/4/28	N	N	N		-	-	N/A	N/A
		677	07.08-6	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
				2011/8/1								
		677	07.08-7	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
		677	07.08-8	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
		677	07.08-9	2/9/2011	Y	N	N		-	DCD_07.08-9	1	
				2/10/2011	Y	N	N		-	DCD_07.08-9	0	
				5/31/2011	Y	N	N		-	DCD_07.08-9	1	
		677	07.08-10	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
		677	07.08-11	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				2011/4/28								
				201/5/31								
				2011/8/12								
		677	07.08-12	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
				8/12/2011								
		677	07.08-13	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
		677	07.08-14	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
		677	07.08-15	2/9/2011	N	N	N		-	-	N/A	N/A
				2/10/2011								
				5/31/2011								
		700	07.08-16	2011/4/28	Y	N	N		-	DCD_07.08-16	0	
				2011/5/31					-			
		753	07.08-17	9/30/2011	Y	N	N		-	DCD_07.08-17	1	
		753	07.08-18	9/30/2011	N	N	N		-	-	N/A	N/A
		753	07.08-19	9/30/2011	N	N	N		-	-	N/A	N/A
		753	07.08-20	9/30/2011	N	N	N		-	-	N/A	N/A
		753	07.08-21	9/30/2011	N	N	N		-	-	N/A	N/A
		753	07.08-22	9/30/2011	N	N	N		-	-	N/A	N/A
		775	07.08-23	9/13/2011	Y	N	N		-	DCD_07.08-23	1	
				11/29/2011	Y	N	N		-	DCD_07.08-23	1	
		775	07.08-24	9/13/2011	Y	N	N		-	DCD_07.08-24	1	
				11/29/2011	Y	N	N		-	DCD_07.08-24	1	
		829	07.08-25	11/29/2011	Y	N	N		-	DCD_07.08-25	1	
7.9	Data Communication Systems	277	07.09-8455	2009/3/31	N	N	N		-	-	N/A	N/A
		277	07.09-8456	2009/3/31	N	N	N		-	-	N/A	N/A

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		277	07.09-8457	2009/3/31	N	N	N		-	-	N/A	N/A
		231	07.09-1	2009/4/28	Y	N	N		-	DCD_07.09-1	3	2
		231	07.09-2	2009/4/28	N	N	N		-	-	N/A	N/A
		231	07.09-3	2009/4/28	N	N	N		-	-	N/A	N/A
		231	07.09-4	2009/4/28	N	N	N		-	-	N/A	N/A
		231	07.09-5	2009/4/28	Y	N	N		-	DCD_07.09-5	3	2
		231	07.09-6	2009/4/28	N	N	N		-	-	N/A	N/A
		231	07.09-7	2009/4/28	N	N	N		-	-	N/A	N/A
		231	07.09-8	2009/4/28	Y	N	N		-	DCD_07.09-8	3	2
		231	07.09-9	2009/4/28	N	N	N		-	-	N/A	N/A
		231	07.09-10	2009/4/28	Y	N	N		-	DCD_07.09-10	3	2
		231	07.09-11	2009/4/28	Y	N	N		-	DCD_07.09-11	3	2
		231	07.09-12	2009/4/28	N	N	N		-	-	N/A	N/A
				5/31/2011	Y	N	N		-	DCD_07.09-12	0	
		231	07.09-13	2009/4/28	Y	N	N		-	DCD_07.09-13	3	2
		231	07.09-14	2009/4/28	Y	N	N		-	DCD_07.09-14	3	2
		231	07.09-15	2009/4/28	Y	N	N		-	DCD_07.09-15	3	2
			07.09-16									
			07.09-17									
			07.09-18									
		701	07.09-19	2011/4/28	Y	N	N		-	DCD_07.09-19	0	
		701	07.09-20	2011/4/28	Y	N	N		-	DCD_07.09-20	0	
		701	07.09-21	2011/4/28	Y	N	N		-	DCD_07.09-20	0	
				5/31/2011	Y	N	N		-	DCD_07.09-21	0	
		701	07.09-22	2011/4/28	Y	N	N		-	DCD_07.09-20	0	
		710	07.09-23	2011/4/28	N	N	N		-	-	N/A	N/A
				2011/6/20					-			
				2011/9/13	Y	Y	N		-	DCD_07.09-23	1	
		778	07.09-24	2011/8/1	Y	N	N		-	DCD_7.09-24	1	
7-8	Branch Technical Position -											
	Guidance for Application	830	07-08BTP-1	2011/11/29	N	N	N		-	-	N/A	N/A
	of Regulatory Guide 1.22	830	07-08BTP-2	2011/11/29	N	N	N		-	-	N/A	N/A
		830	07-08BTP-3	2011/11/29	N	N	N		-	-	N/A	N/A
		830	07-08BTP-4	2011/11/29	N	N	N		-	-	N/A	N/A
		830	07-08BTP-5	2011/11/29	N	N	N		-	-	N/A	N/A
7-14	Branch Technical Position -											
	Guidance on Software Reviews for	525	07-14BTP-30	2010/3/3	N	N	N		-	-	N/A	N/A
	Digital Computer Based Instrument	525	07-14BTP-31	2010/3/3	N	N	N		-	-	N/A	N/A
	and Control Systems	525	07-14BTP-32	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-33	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-34	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-35	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-36	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-37	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-38	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-39	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-40	2010/3/3	N	N	N		-	-	N/A	N/A
		525	07-14BTP-41	2010/3/3	N	N	N		-	-	N/A	N/A
		665	07-14BTP-42	2010/12/22	N	N	N		-	-	N/A	N/A
				2011/4/28	N	N	N		-	-	N/A	N/A
		772	07-14BTP-43	2011/8/1	N	N	N		-	-	N/A	N/A
		772	07-14BTP-44	2011/8/1	N	N	N		-	-	N/A	N/A
		833	07-14-BTP-45	2/27/2012	Y	N	N		-	DCD_07-14_BTP-45	2	
		833	07-14-BTP-46	3/9/2012	N	N	N		-	-	N/A	N/A
		833	07-14BTP-47	2011/11/29	N	N	N		-	-	N/A	N/A
		833	07-14BTP-48	2011/11/29	N	N	N		-	-	N/A	N/A
		833	07-14-BTP-49	2/27/2012	N	N	N		-	-	N/A	N/A
		833	07-14BTP-50	2011/11/29	N	N	N			-	N/A	N/A
		833	07-14-BTP-51	2/27/2012	N	N	N			-	N/A	N/A
		833	07-14BTP-52	2011/11/29	N	N	N			-	N/A	N/A
		833	07-14BTP-53	xx/yy/2011								
		833	07-14BTP-54	2011/11/29	N	N	N			-	N/A	N/A
		833	07-14-BTP-55	2/27/2012	N	N	N			-	N/A	N/A
7-21	Branch Technical Position -	593	07-21BTP-1	2010/7/16	N	N	N		-	-	N/A	N/A
	Guidance on Digital Computer			2011/4/28	N	N	N		-	-	N/A	N/A
	Real-Time Performance	593	07-21BTP-2	2010/11/24	N	N	N		-	-	N/A	N/A
				2011/4/28	N	N	N		-	-	N/A	N/A

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		593	07-21BTP-3	2010/11/24	N	N	N		-	-	N/A	N/A
		593	07-21BTP-4	2010/11/24	Y	N	N		-	DCD_07-21BTP-5	6	3
				2011/4/28	Y	N	N		-		0	
		593	07-21BTP-5	2010/11/24	N	N	N		-	-	N/A	N/A

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
8.1	Electric Power - Introduction											
8.2	Offsite Power System	4	08.02-1	2008/5/30	Y	Y	N	fin.	-	DCD_08.02-1	-	1
		4	08.02-2	2008/5/30	N	Y	N	fin.	-	-	N/A	N/A
		4	08.02-3	2008/5/30	Y	Y	N	fin.	-	DCD_08.02-3	-	1
		4	08.02-4	2008/5/30	Y	N	N	fin.	-	DCD_08.02-4	-	1
		4	08.02-5	2008/5/30	N	N	N	fin.	-	-	N/A	N/A
		4	08.02-6	2008/5/30	Y	N	N	fin.	-	DCD_08.02-6	-	1
		4	08.02-7	2008/5/30	Y	Y	N	fin.	-	DCD_08.02-7	-	1
		4	08.02-8	2008/5/30	Y	N	N	fin.	-	DCD_08.02-8	-	1
		4	08.02-9	2008/5/30	N	N	N	fin.	-	-	N/A	N/A
		432	08.02-10	2009/9/18	Y	N	N		-	DCD_08.02-10	0	3
		432	08.02-11	2009/9/18	N	N	N		-	-	N/A	N/A
		432	08.02-12	2009/9/18	Y	N	N		-	DCD_08.02-12	0	3
		432	08.02-13	2009/9/18	Y	N	N		-	DCD_08.02-13	0	3
		432	08.02-14	2009/9/18	N	N	N		-	-	N/A	N/A
		432	08.02-15	2009/9/18	N	N	N		-	-	N/A	N/A
		432	08.02-16	2009/9/18	N	N	N		-	-	N/A	N/A
8.3.1	A-C Power Systems (Onsite)	5	08.03.01-1	2008/6/6	N	N	N	fin.	-	-	N/A	N/A
		5	08.03.01-2	2008/6/6	N	N	N	fin.	-	-	N/A	N/A
		5	08.03.01-3	2008/6/6	N	N	N	fin.	-	-	N/A	N/A
		5	08.03.01-4	2008/6/6	N	N	N	fin.	-	-	N/A	N/A
		5	08.03.01-5	2008/6/6	N	N	N	fin.	-	-	N/A	N/A
		5	08.03.01-6	2008/6/6	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-7	2008/7/18	Y	N	N	fin.	-	DCD_08.03.01-7	0	2
		10	08.03.01-8	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-9	2008/7/18	Y	N	N	fin.	-	DCD_08.03.01-9	0	2
		10	08.03.01-10	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-11	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-12	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-13	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-14	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-15	2008/7/18	Y	N	N	fin.	-	DCD_08.03.01-15	0	2
		10	08.03.01-16	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-17	2008/7/18	Y	N	N	fin.	-	DCD_08.03.01-17	0	2
		10	08.03.01-18	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-19	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-20	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		10	08.03.01-21	2008/7/18	Y	N	N	fin.	-	DCD_08.03.01-21	0	2
				2011/11/9	Y	N	N		-	DCD_08.03.01-21	1	
		10	08.03.01-22	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		386	08.03.01-23	2009/7/22	Y	N	N		-	DCD_08.03.01-23	4	2
		386	08.03.01-24	2009/7/22	Y	N	N		-	DCD_08.03.01-24	4	2
		386	08.03.01-25	2009/7/22	N	N	N		-	-	N/A	N/A
		386	08.03.01-26	2009/7/22	Y	N	N		-	DCD_08.03.01-26	4	2
		386	08.03.01-27	2009/7/22	Y	N	N		-	DCD_08.03.01-27	4	2
		386	08.03.01-28	2009/7/22	N	N	N		-	-	N/A	N/A
		386	08.03.01-29	2009/7/22	Y	N	N		-	DCD_08.03.01-29	4	2
		386	08.03.01-30	2009/7/22	Y	N	N		-	DCD_08.03.01-30	4	2
		386	08.03.01-31	2009/7/22	N	N	N		-	-	N/A	N/A
		386	08.03.01-32	2009/7/22	Y	N	N		-	DCD_08.03.01-32	4	2
		386	08.03.01-33	2009/7/22	Y	N	N		-	DCD_08.03.01-33	4	2
		394	08.03.01-34	2009/7/23	Y	N	N		-	DCD_08.03.01-34	4	2
		394	08.03.01-35	2009/7/23	N	N	N		-	-	N/A	N/A
		394	08.03.01-36	2009/7/23	N	N	N		-	-	N/A	N/A
		394	08.03.01-37	2009/7/23	N	N	N		-	-	N/A	N/A
		394	08.03.01-38	2009/7/23	N	N	N		-	-	N/A	N/A
				201/11/22	Y	Y	N		-	DCD_08.03.01-38	1	
		703	08.03.01-39	2011/3/31	N	N	N		-	-	N/A	N/A
		726	08.03.01-40	2011/6/13	N	N	N		-	-	N/A	N/A
		726	08.03.01-41	2011/6/13	N	N	N		-	-	N/A	N/A
		818	08.03.01-42	2011/10/7	N	N	N		-	-	N/A	N/A
8.3.2	D-C Power Systems (Onsite)	3	01-1	2008/5/30	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-2	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-3	2008/7/10	Y	N	N	fin.	-	DCD_08.03.02-3	-	1
		8	08.03.02-4	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-5	2008/7/10	N	N	N	fin.	-	-	N/A	N/A

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		8	08.03.02-6	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-7	2008/7/10	Y	N	N	fin.	-	DCD_08.03.02-7	-	1
		8	08.03.02-8	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-9	2008/7/10	Y	N	N	fin.	-	DCD_08.03.02-9	-	1
		8	08.03.02-10	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-11	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-12	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-13	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		8	08.03.02-14	2008/7/10	N	N	N	fin.	-	-	N/A	N/A
		388	08.03.02-15	2009/7/13	Y	N	N		-	DCD_08.03.02-15	4	2
		388	08.03.02-16	2009/7/13	Y	N	N		-	DCD_08.03.02-16	4	2
		388	08.03.02-17	2009/7/13	N	N	N		-	-	N/A	N/A
		388	08.03.02-18	2009/7/13	Y	N	N		-	DCD_08.03.02-18	4	2
		388	08.03.02-19	2009/7/13	Y	N	N		-	DCD_08.03.02-19	4	2
		388	08.03.02-20	2009/7/13	Y	N	N		-	DCD_08.03.02-20	4	2
		388	08.03.02-21	2009/7/13	Y	N	N		-	DCD_08.03.02-21	4	2
		388	08.03.02-22	2009/7/13	Y	N	N		-	DCD_08.03.02-22	4	2
				11/22/2011	Y	N	N		-	DCD_08.03.02-22	1	
				2/15/2012	Y	N	N		-		TBD	
8.4	Station Blackout	11	08.04-1	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		11	08.04-2	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		11	08.04-3	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		11	08.04-4	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		11	08.04-5	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		11	08.04-6	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		11	08.04-7	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		419	08.04.-8	2009/8/20	Y	N	N		-	DCD_08.04-8	-	2
		419	08.04.-9	2009/8/20	Y	Y	N		-	DCD_08.04-9	-	2
		419	08.04.-10	2009/8/20	Y	N	N		-	DCD_08.04-10	-	2
		419	08.04.-11	2009/8/20	Y	N	N		-	DCD_08.04-11	-	2
		419	08.04.-12	2009/8/20	Y	N	N		-	DCD_08.04-12	-	2
				11/22/2011	Y	N	N		-	DCD_08.04-12	1	
		510	08.04-13	2010/1/18	N	N	N		-	-	N/A	N/A
		683	08.04-14	XX/YY/2011								
		875	08.04-15	1/27/2012	Y	N	N		-	DCD_08.04-15	2	

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
9.1.1	Criticality Safety of Fresh and	155	09.01.01.-1	2009/2/10	N	N	N		-	-	N/A	N/A
	Spent Fuel Storage and Handling	155	09.01.01-2	2009/2/10	N	N	N		-	-	N/A	N/A
		155	09.01.01-3	2009/2/10	N	N	N		-	-	N/A	N/A
		155	09.01.01-4	2009/2/10	N	N	N		-	-	N/A	N/A
		155	09.01.01-5	2009/2/10	N	N	N		-	-	N/A	N/A
		155	09.01.01-6	2009/2/10	N	N	N		-	-	N/A	N/A
		155	09.01.01-7	2009/2/10	N	N	N		-	-	N/A	N/A
		155	09.01.01-8	2009/2/10	N	N	N		-	-	N/A	N/A
		247	09.01.01-9	2009/3/30	Y	N	N		-	DCD_09.01.01-9	-	2
		247	09.01.01-10	2009/3/30	Y	Y	N		-	DCD_09.01.01-10	-	2
		382	09.01.01-11	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-12	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-13	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-14	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-15	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-16	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-17	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-18	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-19	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-20	2009/7/7	N	N	N		-	-	N/A	N/A
		382	09.01.01-21	2009/7/7	N	N	N		-	-	N/A	N/A
		647	09.01.01-22	2010/11/11	N	N	N		-	-	N/A	N/A
				2011/3/23	N	N	N		-	-	N/A	N/A
		647	09.01.01-23	2010/11/11	N	N	N		-	-	N/A	N/A
				2011/3/23	N	N	N		-	-	N/A	N/A
9.1.2	New and Spent Fuel Storage	132	09.01.02-01	2009/1/29	Y	N	N		-	DCD_09.01.02-01	2	2
		132	09.01.02-02	2009/1/29	N	N	N		-	-	N/A	N/A
		132	09.01.02-03	2009/1/29	N	N	N		-	-	N/A	N/A
		132	09.01.02-04	2009/1/29	Y	N	N		-	DCD_09.01.02-04	1	2
		132	09.01.02-05	2009/1/29	Y	N	N		-	DCD_09.01.02-05	1	2
		132	09.01.02-06	2009/1/29	N	N	N		-	-	N/A	N/A
		132	09.01.02-07	2009/1/29	Y	N	N		-	DCD_09.01.02-07	-	2
		132	09.01.02-08	2009/1/29	Y	N	N		-	DCD_09.01.02-08	2	2
		132	09.01.02-09	2009/1/29	Y	N	N		-	DCD_09.01.02-09	2	2
		132	09.01.02-10	2009/1/29	N	N	N		-	-	N/A	N/A
		132	09.01.02-11	2009/1/29	Y	N	N		-	DCD_09.01.02-11	1	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		132	09.01.02-12	2009/1/29	N	N	N		-	-	N/A	N/A
		132	09.01.02-13	2009/1/29	Y	N	N		-	DCD_09.01.02-13	1	2
		132	09.01.02-14	2009/1/29	Y	N	N		-	DCD_09.01.02-14	1	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		132	09.01.02-15	2009/1/29	Y	N	N		-	DCD_09.01.02-15	-	2
		132	09.01.02-16	2009/1/29	Y	N	N		-	DCD_09.01.02-16	-	2
		132	09.01.02-17	2009/1/29	Y	N	N		-	DCD_09.01.02-17	-	2
		248	09.01.02-18	2009/3/30	Y	N	N		-	DCD_09.01.02-18	2	2
		248	09.01.02-19	2009/3/30	Y	N	N		-	DCD_09.01.02-19	2	2
		248	09.01.02-20	2009/3/30	N	N	N		-	-	N/A	N/A
		387	09.01.02-21	2009/7/10	Y	Y	N		-	DCD_09.01.02-21	-	2
		387	09.01.02-22	2009/7/10	Y	N	N		-	DCD_09.01.02-22	3	2
		387	09.01.02-23	2009/8/11	Y	N	N		-	DCD_09.01.02-23	-	2
		389	09.01.02-24	2009/7/14	Y	N	N		-	DCD_09.01.02-24	-	2
		806	09.01.02-25	2011/9/2	Y	N	N		-	DCD_09.01.02-25	1	
9.1.3	Spent Fuel Pool Cooling and	131	09.01.03-01	2009/1/29	Y	N	N		-	DCD_09.01.03-01	1	2
	Cleanup System	131	09.01.03-02	2009/1/29	Y	N	N		-	DCD_09.01.03-02	1	2
		131	09.01.03-03	2009/1/29	Y	N	N		-	DCD_09.01.03-03	1	2
		201	09.01.03-04	2009/3/26	N	N	N		-	-	N/A	N/A
		201	09.01.03-05	2009/3/26	Y	N	N		-	DCD_09.01.03-05	2	2
		360	09.01.03-6	2009/5/27	Y	N	N		-	DCD_09.01.03-6	-	2
		735	09.01.03-7	2011/6/22	Y	N	N		-	DCD_09.01.03-7	0	
		756	09.01.03-8	8/10/2011	Y	N	N		-	DCD_09.01.03-8	1	
		763	09.01.03-9	8/23/2011	Y	N	N		-	DCD_09.01.03-8	1	
9.1.4	Light Load Handling System	200	09.01.04-01	2009/4/23	Y	N	N		-	DCD_09.01.04-01	3	2
	(Related to Refueling)	200	09.01.04-02	2009/4/23	Y	N	N		-	DCD_09.01.04-02	3	2

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		200	09.01.04-03	2009/4/23	Y	N	N		-	DCD_09.01.04-03	3	2
		200	09.01.04-04	2009/4/23	Y	N	N		-	DCD_09.01.04-04	3	2
		200	09.01.04-05	2009/4/23	Y	N	N		-	DCD_09.01.04-05	3	2
		200	09.01.04-06	2009/4/23	Y	N	N		-	DCD_09.01.04-06	3	2
		200	09.01.04-07	2009/4/23	N	N	N		-	-	N/A	N/A
		200	09.01.04-08	2009/4/23	Y	N	N		-	DCD_09.01.04-08	3	2
		200	09.01.04-09	2009/4/23	Y	N	N		-	DCD_09.01.04-09	3	2
		200	09.01.04-10	2009/4/23	N	N	N		-	-	N/A	N/A
		200	09.01.04-11	2009/4/23	Y	N	N		-	DCD_09.01.04-11	3	2
		200	09.01.04-12	2009/4/23	Y	N	N		-	DCD_09.01.04-12	3	2
		200	09.01.04-13	2009/4/23	Y	N	N		-	DCD_09.01.04-13	-	2
		200	09.01.04-14	2009/4/23	N	N	N		-	-	N/A	N/A
		200	09.01.04-15	2009/4/23	N	N	N		-	-	N/A	N/A
		507	09.01.04-16	2010/2/15	Y	N	N		-	DCD_09.01.04-16	2	3
		555	09.01.04-17	2010/6/4	Y	N	N		-			
				2010/6/16	Y	N	N		-	DCD_09.01.04-17	4	3
		555	09.01.04-18	2010/6/4	Y	N	N		-			
				2010/6/16	Y	N	N		-	DCD_09.01.04-18	4	3
		555	09.01.04-19	2010/6/4	Y	N	N		-			
				2010/6/16	Y	N	N		-	DCD_09.01.04-19	4	3
		555	09.01.04-20	2010/6/4	Y	N	N		-			
				2010/6/16	Y	N	N		-	DCD_09.01.04-20	4	3
		633	09.01.04-21	2010/10/21	Y	N	N		-	DCD_09.01.04-21	5	3
		721	09.01.04-22	2011/4/20	Y	N	N		-	DCD_09.01.04-22	0	
		887	09.01.04-23	02/08/2012	N	N	N		-	-	N/A	N/A
9.1.5	Overhead Heavy Load	292	9.1.5-01	2009/5/25	Y	N	N		-	DCD_9.1.5-01	3	2
	Handling Systems	292	9.1.5-02	2009/5/25	Y	N	N		-	DCD_9.1.5-02	3	2
		292	9.1.5-03	2009/5/25	Y	N	N		-	DCD_9.1.5-03	3	2
		292	9.1.5-04	2009/5/25	Y	N	N		-	DCD_9.1.5-04	3	2
		292	9.1.5-05	2009/5/25	N	N	N		-	-	N/A	N/A
		292	9.1.5-06	2009/5/25	Y	N	N		-	DCD_9.1.5-06	3	2
		292	9.1.5-07	2009/5/25	Y	N	N		-	DCD_9.1.5-07	4	2
		292	9.1.5-08	2009/5/25	Y	N	N		-	DCD_9.1.5-08	3	2
		292	9.1.5-09	2009/5/25	Y	N	N		-	DCD_9.1.5-09	3	2
		292	9.1.5-10	2009/5/25	Y	N	N		-	DCD_9.1.5-10	-	2
		292	9.1.5-11	2009/5/25	Y	N	N		-	DCD_9.1.5-11	3	2
		292	9.1.5-12	2009/5/25	Y	Y	N		-	DCD_9.1.5-12	3	2
		292	9.1.5-13	2009/5/25	N	N	N		-	-	N/A	N/A
		563	09.01.05-14	2010/6/15	Y	N	N		-	DCD_09.01.05-14	4	3
		563	09.01.05-15	2010/6/15	Y	N	N		-	DCD_09.01.05-15	4	3
		563	09.01.05-16	2010/6/15	Y	N	N		-	DCD_09.01.05-16	4	3
		563	09.01.05-17	2010/6/15	Y	N	N		-	DCD_09.01.05-17	4	3
		616	09.01.05-18	2010/9/22	Y	N	N		-	DCD_09.01.05-18	5	3
				2011/6/7	Y	N	N		-		0	
		616	09.01.05-19	2010/9/22	N	N	N		-	-	N/A	N/A
9.2.1	Station Service Water System	203	09.02.01-1	2009/3/25	N	N	N		-	-	N/A	N/A
		203	09.02.01-2	2009/3/25	Y	N	N		-	DCD_09.02.01-2	-	2
		326	09.02.01-3	2009/6/19	Y	N	N		-	DCD_09.02.01-3	-	2
		326	09.02.01-4	2009/6/19	Y	Y	N		-	DCD_09.02.01-4	3	2
		326	09.02.01-5	2009/6/19	N	N	N		-	-	N/A	N/A
		326	09.02.01-6	2009/6/19	Y	N	N		-	DCD_09.02.01-6	3	2
		326	09.02.01-7	2009/6/19	Y	N	N		-	DCD_09.02.01-7	3	2
		326	09.02.01-8	2009/6/19	Y	N	N		-	DCD_09.02.01-8	3	2
		326	09.02.01-9	2009/6/19	N	N	N		-	-	N/A	N/A
		326	09.02.01-10	2009/6/19	N	N	N		-	-	N/A	N/A
		326	09.02.01-11	2009/6/19	Y	N	N		-	DCD_09.02.01-11	3	2
		326	09.02.01-12	2009/6/19	Y	Y	N		-	DCD_09.02.01-12	3	2
		326	09.02.01-13	2009/6/19	Y	Y	N		-	DCD_09.02.01-13	3	2
		326	09.02.01-14	2009/6/19	Y	Y	N		-	DCD_09.02.01-14	3	2
		326	09.02.01-15	2009/6/19	Y	N	N		-	DCD_09.02.01-15	3	2
		326	09.02.01-16	2009/6/19	N	N	N		-	-	N/A	N/A
		326	09.02.01-17	2009/6/19	Y	Y	N		-	DCD_09.02.01-17	3	2
		326	09.02.01-18	2009/6/19	Y	N	N		-	DCD_09.02.01-18	3	2
		326	09.02.01-19	2009/6/19	Y	N	N		-	DCD_09.02.01-19	3	2
		326	09.02.01-20	2009/6/19	N	N	N		-	-	N/A	N/A
		326	09.02.01-21	2009/6/19	Y	N	N		-	DCD_09.02.01-21	3	2

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		326	09.02.01-22	2009/6/19	Y	N	N		-	DCD_09.02.01-22	3	2
		326	09.02.01-23	2009/6/19	N	N	N		-	-	N/A	N/A
		326	09.02.01-24	2009/6/19	N	N	N		-	-	N/A	N/A
		326	09.02.01-25	2009/6/19	Y	N	N		-	DCD_09.02.01-25	3	2
		326	09.02.01-26	2009/6/19	Y	N	N		-	DCD_09.02.01-26	-	2
		326	09.02.01-27	2009/6/19	Y	Y	N		-	DCD_09.02.01-27	3	2
		326	09.02.01-28	2009/6/19	Y	N	N		-	DCD_09.02.01-28	3	2
		326	09.02.01-29	2009/6/19	Y	N	N		-	DCD_09.02.01-29	-	2
		326	09.02.01-30	2009/6/19	Y	Y	N		-	DCD_09.02.01-30	3	2
		361	09.02.01-31	2009/6/19	Y	Y	N		-	DCD_09.02.01-31	3	2
		585	09.02.01-32	2010/9/24	Y	Y	N		-	DCD_09.02.01-32	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-33	2010/9/24	Y	Y	N		-	DCD_09.02.01-33	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-34	2010/9/24	Y	Y	N		-	DCD_09.02.01-34	6	3
		585	09.02.01-35	2010/9/24	Y	Y	N		-	DCD_09.02.01-35	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-36	2010/9/24	Y	Y	N		-	DCD_09.02.01-36	6	3
				2011/7/27	N	Y	N		-		N/A	N/A
		585	09.02.01-37	2010/9/24	Y	Y	N		-	DCD_09.02.01-37	6	3
				2011/7/27	N	Y	N		-	-	N/A	N/A
		585	09.02.01-38	2010/9/24	Y	Y	N		-	DCD_09.02.01-38	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-39	2010/9/24	Y	Y	N		-	DCD_09.02.01-39	6	3
		585	09.02.01-40	2010/9/24	Y	N	N		-	DCD_09.02.01-40	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-41	2010/9/24	Y	Y	N		-	DCD_09.02.01-41	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-42	2010/9/24	Y	N	N		-	DCD_09.02.01-42	6	3
		585	09.02.01-43	2010/9/24	Y	Y	N		-	DCD_09.02.01-43	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-44	2010/9/24	Y	N	N		-	DCD_09.02.01-44	6	3
				2011/7/27	Y	N	N		-		0	
		585	09.02.01-45	2010/9/24	Y	Y	N		-	DCD_09.02.01-45	6	3
		585	09.02.01-46	2010/9/24	Y	Y	N		-	DCD_09.02.01-46	6	3
		585	09.02.01-47	2010/9/24	N	N	N		-	-	N/A	N/A
		585	09.02.01-48	2010/9/24	N	N	N		-	-	N/A	N/A
		585	09.02.01-49	2010/9/24	Y	Y	N		-	DCD_09.02.01-49	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-50	2010/9/24	N	N	N		-	-	N/A	
		585	09.02.01-51	2010/9/24	Y	Y	N		-	DCD_09.02.01-51	6	3
		585	09.02.01-52	2010/9/24	Y	Y	N		-	DCD_09.02.01-52	6	3
				2011/7/27	Y	Y	N		-		0	
		585	09.02.01-53	2010/9/24	N	N	N		-	-	N/A	N/A
		585	09.02.01-54	2010/9/24	N	N	N		-	-	N/A	N/A
		585	09.02.01-55	2010/9/24	Y	Y	N		-	DCD_09.02.01-55	6	3
		585	09.02.01-56	2010/9/24	N	N	N		-	-	N/A	N/A
		585	09.02.01-57	2010/9/24	Y	Y	N		-	DCD_09.02.01-57	6	3
		585	09.02.01-58	2010/9/24	Y	Y	N		-	DCD_09.02.01-58	6	3
		585	09.02.01-59	2010/9/24	Y	Y	N		-	DCD_09.02.01-59	6	3

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9.2.2	Reactor Auxiliary	252	09.02.02-1	2009/3/30	N	N	N		-	-	N/A	N/A
	Cooling Water Systems	252	09.02.02-2	2009/3/30	Y	N	N		-	DCD_09.02.02-2	-	2
		343	09.02.02-3	2009/7/17	Y	N	N		-	DCD_09.02.02-3	-	2
		343	09.02.02-4	2009/7/17	Y	N	N		-			
				2009/7/31	Y	N	N			DCD_09.02.02-4	-	2
		343	09.02.02-5	2009/7/17	Y	N	N		-	DCD_09.02.02-5	-	2
		343	09.02.02-6	2009/7/17	Y	N	N		-	DCD_09.02.02-6	-	2
		343	09.02.02-7	2009/7/17	Y	N	N		-	DCD_09.02.02-7	-	2
		343	09.02.02-8	2009/7/17	Y	N	N		-	DCD_09.02.02-8	-	2
		343	09.02.02-9	2009/7/17	Y	N	N		-	DCD_09.02.02-9	-	2
		343	09.02.02-10	2009/7/17	Y	N	N		-	DCD_09.02.02-10	-	2
		343	09.02.02-11	2009/7/17	Y	Y	N		-	DCD_09.02.02-11	-	2
		343	09.02.02-12	2009/7/17	Y	N	N		-	DCD_09.02.02-12	-	2
		343	09.02.02-13	2009/7/17	Y	N	N		-	DCD_09.02.02-13	-	2
		343	09.02.02-14	2009/7/17	N	N	N		-	-	N/A	N/A
		343	09.02.02-15	2009/7/17	Y	N	N		-	DCD_09.02.02-15	-	2
		343	09.02.02-16	2009/7/17	N	N	N		-	-	N/A	N/A
		343	09.02.02-17	2009/7/17	N	N	N		-	-	N/A	N/A
		343	09.02.02-18	2009/7/17	Y	N	N		-	DCD_09.02.02-18	-	2
		343	09.02.02-19	2009/7/17	Y	N	N		-	DCD_09.02.02-19	-	2
		343	09.02.02-20	2009/7/17	Y	N	N		-	DCD_09.02.02-20	-	2
		343	09.02.02-21	2009/7/17	Y	N	N		-	DCD_09.02.02-21	-	2
		362	09.02.02-22	2009/6/19	N	N	N		-	-	N/A	N/A
		362	09.02.02-23	2009/6/19	Y	N	N		-	DCD_09.02.02-23	3	2
		362	09.02.02-24	2009/6/19	Y	N	N		-	DCD_09.02.02-24	3	2
		362	09.02.02-25	2009/6/19	Y	N	N		-	DCD_09.02.02-25	3	2
		362	09.02.02-26	2009/7/16	Y	Y	N		-	DCD_09.02.02-26	3	2
		362	09.02.02-27	2009/7/16	Y	N	N		-	DCD_09.02.02-27	-	2
		362	09.02.02-28	2009/7/16	Y	N	N		-	DCD_09.02.02-28	3	2
		362	09.02.02-29	2009/6/19	Y	N	N		-	DCD_09.02.02-29	3	2
		362	09.02.02-30	2009/6/19	Y	N	N		-	DCD_09.02.02-30	3	2
		362	09.02.02-31	2009/7/16	Y	N	N		-	DCD_09.02.02-31	3	2
		362	09.02.02-32	2009/6/19	Y	N	N		-	DCD_09.02.02-32	-	2
		362	09.02.02-33	2009/7/16	Y	N	N		-	DCD_09.02.02-33	3	2
		362	09.02.02-34	2009/6/19	Y	N	N		-	DCD_09.02.02-34	3	2
		362	09.02.02-35	2009/6/19	N	N	N		-	-	N/A	N/A
		362	09.02.02-36	2009/6/19	Y	N	N		-	DCD_09.02.02-36	3	2
		362	09.02.02-37	2009/7/16	Y	Y	N		-	DCD_09.02.02-37	3	2
		362	09.02.02-38	2009/7/16	N	N	N		-	-	N/A	N/A
		362	09.02.02-39	2009/6/19	Y	N	N		-	DCD_09.02.02-39	3	2
		362	09.02.02-40	2009/6/19	N	N	N		-	-	N/A	N/A
		362	09.02.02-41	2009/6/19	N	N	N		-	-	N/A	N/A
		362	09.02.02-42	2009/6/19	N	N	N		-	-	N/A	N/A
		362	09.02.02-43	2009/6/19	Y	N	N		-	DCD_09.02.02-43	4	2
		362	09.02.02-44	2009/7/16	Y	N	N		-	DCD_09.02.02-44	3	2
		362	09.02.02-45	2009/6/19	Y	N	N		-	DCD_09.02.02-45	4	2
		567	09.02.02-46	2010/5/7	Y	N	N		-	DCD_09.02.02-46	3	3
		571	09.02.02-47	2010/6/8	N	N	N		-	-	N/A	N/A
		571	09.02.02-48	2010/6/8	Y	N	N		-	DCD_09.02.02-48	0	
				2011/7/29	Y	N	Y		-	DCD_09.02.02-48	1	
				2011/10/27	Y	N	N		-	DCD_09.02.02-48	1	
		571	09.02.02-49	2010/6/8	N	N	N		-	-	N/A	N/A
				2011/7/29	Y	N	N		-	DCD_09.02.02-49	0	
				2011/10/27	Y	N	N		-	DCD_09.02.02-49	1	
		571	09.02.02-50	2010/6/8	Y	N	N		-	DCD_09.02.02-50	0	
				2011/7/29	Y	N	N		-			
		571	09.02.02-51	2010/6/8	Y	N	N		-	DCD_09.02.02-51	0	
				2011/7/29	Y	N	N		-			
		571	09.02.02-52	2010/6/8	Y	N	N		-	DCD_09.02.02-52	0	
				2011/7/29	Y	N	N		-			
		571	09.02.02-53	2010/6/8	Y	N	N		-	DCD_09.02.02-53	0	
				2011/7/29	Y	N	N		-		0	
		571	09.02.02-54	2010/6/8	N	N	N		-	-	N/A	N/A
				201/7/29	Y	N	N		-	DCD_09.02.02-54	0	
		571	09.02.02-55	2010/6/8	Y	N	N		-	DCD_09.02.02-55	0	

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		571	09.02.02-55	2011/7/29	Y	N	N			DCD_09.02.02-55	0	
		571	09.02.02-56	2010/6/8	Y	N	N		-	DCD_09.02.02-56	0	
				2011/7/29	Y	N	N					
		571	09.02.02-57	2010/6/8	Y	N	N		-	DCD_09.02.02-57	0	
				2011/7/29	Y	N	N		-		0	
		571	09.02.02-58	2010/6/8	Y	N	N		-	DCD_09.02.02-58	0	
				2011/7/29	Y	N	N		-			
		571	09.02.02-59	2010/6/8	Y	N	N		-	DCD_09.02.02-59	0	
				2011/7/29	Y	N	N		-		0	
		571	09.02.02-60	2010/6/8	N	N	N		-	-	N/A	N/A
				2011/7/29	Y	N	N		-	DCD_09.02.02-60	0	
		571	09.02.02-61	2010/6/8	N	N	N		-	-	N/A	N/A
				2011/10/27	N	N	N		-	-	N/A	N/A
		571	09.02.02-62	2010/6/8	Y	N	N		-	DCD_09.02.02-62	1	
		571	09.02.02-63	2010/6/8	Y	N	N		-	DCD_09.02.02-63	TBD	
		571	09.02.02-64	2010/6/8	Y	N	N		-	DCD_09.02.02-64	1	
		571	09.02.02-65	2010/6/8	Y	N	N		-	DCD_09.02.02-65	1	
		571	09.02.02-66	2010/6/8	Y	N	N		-	DCD_09.02.02-66	1	
		571	09.02.02-67	2010/6/8	Y	N	N		-	DCD_09.02.02-67	0	
				2011/7/29	Y	N	N		-		0	
		571	09.02.02-68	2010/6/8	Y	N	N		-	DCD_09.02.02-68	0	
				2011/7/29	Y	N	N		-	DCD_09.02.02-68	0	
				2011/10/27	Y	N	N		-	DCD_09.02.02-68	1	
		576	09.02.02-69	2010/6/8	N	N	N		-	-	N/A	N/A
				2011/7/29	Y	N	N		-	DCD_09.02.02-69	0	
		584	09.02.02-70	2010/6/10	Y	N	N		-	DCD_09.02.02-70	0	
				2011/7/15	Y	N	N		-			
		584	09.02.02-71	2010/6/10	Y	N	N		-	DCD_09.02.02-71	0	
				2011/7/15	Y	N	N		-			
		584	09.02.02-72	2010/6/10	Y	N	N		-	DCD_09.02.02-72	0	
				2011/7/15	Y	N	N		-			
		584	09.02.02-73	2010/6/10	N	N	N		-	-	N/A	N/A
				2011/7/15	Y	N	N		-	DCD_09.02.02-73	0	
		584	09.02.02-74	2010/6/10	N	N	N		-	-	N/A	N/A
				2011/7/15	Y	N	N		-	DCD\09.02.02-74	0	
		584	09.02.02-75	2010/6/10	N	N	N		-	-	N/A	N/A
		584	09.02.02-76	2010/6/10	Y	N	N		-	DCD_09.02.02-76	0	
				2011/7/15	Y	N	N		-			
		584	09.02.02-77	2010/6/10	Y	N	N		-	DCD_09.02.02-77	0	
				2011/7/15	Y	N	N	N	-			
		584	09.02.02-78	2010/6/10	Y	N	N		-	DCD_09.02.02-78	0	
				2011/7/15	Y	N	N	N	-			
		584	09.02.02-79	2010/6/10	N	N	N		-	-	N/A	N/A
				2011/7/15	Y	N	N		-	DCD_09.02.02-79	0	
		697	09.02.02-80	2011/5/12	Y	N	N		-	DCD_09.02.02-80	0	
				2011/7/29	Y	N	N		-		1	
		699	09.02.02-81	2011/6/6	Y	N	N		-	DCD_09.02.02-81	0	

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		699	09.02.02-81	2011/7/29	Y	N	N		-	DCD_09.02.02-81	0	
		760	09.02.02-82	2/15/2012	Y	N	N		-	DCD_09.02.02-82	2	
		765	09.02.02-83	2011/6/27	N	N	N		-	-	N/A	N/A
		774	09.02.02-84	2011/8/12	Y	N	N			-	1	
		878	09.02.02-85	2012/3/2	Y	N	N		-	DCD_09.02.02-85	2	
9.2.4	Potable and Sanitary Water Systems	125	09.02.04-1	2009/1/20	Y	Y	N		-	DCD_09.02.04-1	1	2
		125	09.02.04-2	2009/1/20	Y	Y	N		-	DCD_09.02.04-2	1	2
		125	09.02.04-3	2009/1/20	Y	N	N		-	DCD_09.02.04-3	1	2
9.2.5	Ultimate Heat Sink	286	09.02.05-1	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-1	4	3
		286	09.02.05-2	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-2	4	3
				2011/7/25	Y	N	N		-		0	
		286	09.02.05-3	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-3	4	3
		286	09.02.05-4	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-4	4	3
		286	09.02.05-5	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	N	N	N		-	-	N/A	N/A
		286	09.02.05-6	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-6	4	3
		286	09.02.05-7	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-7	4	3
		286	09.02.05-8	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-8	4	3
				2011/7/25	Y	N	N		-		0	
		286	09.02.05-9	2009/5/12	N	N	N		-	-	N/A	N/A
				2010/7/7	Y	N	N		-	DCD_09.02.05-9	4	3
		363	09.02.01-10	2009/6/19	Y	N	N		-	DCD_09.02.01-10	3	2
9.2.6	Condensate Storage Facilities	157	09.02.06-1	2009/2/5	Y	N	N		-	DCD_09.02.06-1	1	2
		157	09.02.06-2	2009/2/5	Y	N	N		-	DCD_09.02.06-2	1	2
		351	09.02.06-2	2009/6/9	N	N	N		-	-	N/A	N/A
		863	09.02.06-3	12/15/2011	Y	N	N		-	DCD_09.02.06-3	1	
9.3.1	Compressed Air System	109	09.03.01-1	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		109	09.03.01-2	2008/12/25	Y	N	N	fin.	-	DCD_09.03.01-2	3	2
		109	09.03.01-3	2008/12/25	Y	N	N	fin.	-	DCD_09.03.01-3	-	2
		109	09.03.01-4	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
		109	09.03.01-5	2008/12/25	Y	N	N	fin.	-	DCD_09.03.01-5	1	2
9.3.2	Process and Post-accident	294	09.03.02-1	2009/5/13	Y	N	N		-	DCD_09.03.02-1	3	2
	Sampling Systems	294	09.03.02-2	2009/5/13	N	N	N		-	-	N/A	N/A
		294	09.03.02-3	2009/5/13	N	N	N		-	-	N/A	N/A
		294	09.03.02-4	2009/5/13	Y	N	N		-	DCD_09.03.02-4	3	2
		294	09.03.02-5	2009/5/13	N	N	N		-	-	N/A	N/A
		294	09.03.02-6	2009/5/13	Y	N	N		-	DCD_09.03.02-6	0	3
		294	09.03.02-7	2009/5/13	N	N	N		-	-	N/A	N/A
		294	09.03.02-8	2009/5/13	Y	N	N		-	DCD_09.03.02-8	3	2
		325	09.03.02-9	2009/5/19	Y	N	N			DCD_09.03.02-9	4	2
		346	09.03.02-10	2009/6/8	N	N	N		-	-	N/A	N/A
		294	09.03.02-7	2009/5/13	N	N	N		-	-	N/A	N/A
		294	09.03.02-8	2009/5/13	Y	N	N		-	DCD_09.03.02-8	0	3
		346	09.03.02-10	2009/6/8	N	N	N		-	-	N/A	N/A
		448	09.03.02-11	2009/9/28	Y	N	N		-	DCD_09.03.02-11	0	3
		461	09.03.02-12	2009/11/17	Y	N	N		-	DCD_09.03.02-12	1	3
		526	09.03.02-13	2010/4/7	Y	Y	N		-	DCD_09.03.02-13	3	3

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		526	09.03.02-14	2010/4/7	N	N	N		-	-	N/A	N/A
		526	09.03.02-15	2010/4/7	Y	N	N		-	DCD_09.03.02-15	3	3
		526	09.03.02-16	2010/4/7	N	N	N		-	-	N/A	N/A
9.3.3	Equipment and Floor	299	09.03.03-1	2009/5/13	Y	N	N		-	DCD_09.03.03-1	3	2
	Drainage System	299	09.03.03-2	2009/5/13	Y	N	N		-	DCD_09.03.03-2	3	2
		299	09.03.03-3	2009/5/13	Y	N	N		-	DCD_09.03.03-3	3	2
		299	09.03.03-4	2009/5/13	N	N	N		-	-	N/A	N/A
		299	09.03.03-5	2009/5/13	N	N	N		-	-	N/A	N/A
		299	09.03.03-6	2009/5/13	Y	N	N		-	DCD_09.03.03-6	3	2
		299	09.03.03-7	2009/5/13	Y	N	N		-	DCD_09.03.03-7	3	2
		299	09.03.03-8	2009/5/13	Y	N	N		-	DCD_09.03.03-8	3	2
		299	09.03.03-9	2009/5/13	Y	N	N		-	DCD_09.03.03-9	3	2
		299	09.03.03-10	2009/5/13	Y	N	N		-	DCD_09.03.03-10	3	2
		299	09.03.03-11	2009/5/13	Y	N	N		-	DCD_09.03.03-11	3	2
		299	09.03.03-12	2009/5/13	Y	N	N		-	DCD_09.03.03-12	3	2
		299	09.03.03-13	2009/5/13	N	N	N		-	-	N/A	N/A
		299	09.03.03-14	2009/5/13	N	N	N		-	-	N/A	N/A
		426	09.03.03-15	2009/9/14	Y	N	N		-	DCD_09.03.03-15	-	2
		426	09.03.03-16	2009/9/14	Y	N	N		-	DCD_09.03.03-16	0	3
		426	09.03.03-17	2009/9/14	Y	N	N		-	DCD_09.03.03-17	-	2
		591	09.03.03-18	2010/7/7	N	N	N		-	-	N/A	N/A
		591	09.03.03-19	2010/7/7	Y	N	N		-	DCD_09.03.03-19	4	3
9.3.4	Chemical and Volume Control Syst	280	09.03.04-1	2009/4/14	N	N	N		-	-	N/A	N/A
	(PWR)	280	09.03.04-2	2009/4/14	N	N	N		-	-	N/A	N/A
	(Including Boron Recovery System)	280	09.03.04-3	2009/4/14	N	N	N		-	-	N/A	N/A
		280	09.03.04-4	2009/4/14	N	N	N		-	-	N/A	N/A
		280	09.03.04-5	2009/4/14	N	N	N		-	-	N/A	N/A
		280	09.03.04-6	2009/4/14	N	N	N		-	-	N/A	N/A
		380	09.03.04-7	2009/6/26	N	N	N		-	-	N/A	N/A
		380	09.03.04-8	2009/6/26	Y	N	N		-	DCD_09.03.04-8	3	2
		384	09.03.04-9	2009/7/17	N	N	N		-	-	N/A	N/A
		384	09.03.04-10	2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	Y	N	N		-	DCD_09.03.04-11	4	2
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	Y	N	N		-	DCD_09.03.04-14	4	2
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	Y	N	N		-	DCD_09.03.04-17	4	2
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	N	N	N		-	-	N/A	N/A
				2009/7/17	Y	N	N		-	DCD_09.03.04-24	4	2
				2010/4/7	Y	Y	N		-	DCD_09.03.04-10	3	3
		828	09.03.04-25	9/22/2011	Y	N	N		-	DCD_09.03.04-25	1	
9.4.1	Control Room Area	63	09.04.01-1 RAI 9.4.1-1	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
	Ventilation System	63	09.04.01-1 RAI 9.4.1-2	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-2	1	2
		63	09.04.01-1 RAI 9.4.1-3	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-3	1	2
		63	09.04.01-1 RAI 9.4.1-4	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-5	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-6	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-7	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-8	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-8	1	2
		63	09.04.01-1 RAI 9.4.1-9	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-10	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-10	1	2

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		63	09.04.01-1 RAI 9.4.1-11	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-12	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-13	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-15	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-16	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-16	1	2
		63	09.04.01-1 RAI 9.4.1-17	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-18	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-19	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-19	-	2
		63	09.04.01-20 RAI 9.4.1-20	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		582		2011/6/7	N	N	N		-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-21	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-21	1	2
		63	09.04.01-1 RAI 9.4.1-22	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-22	-	2
		63	09.04.01-1 RAI 9.4.1-23	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-23	1	2
		63	09.04.01-1 RAI 9.4.1-24	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-24	-	2
		63	09.04.01-1 RAI 9.4.1-25	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-25	1	2
		63	09.04.01-1 RAI 9.4.1-26	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-26	1	2
		63	09.04.01-1 RAI 9.4.1-27	2008/10/3	Y	Y	N	fin.	-	DCD_09.04.01-27	1	2
		63	09.04.01-1 RAI 9.4.1-28	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-28	-	2
		63	09.04.01-1 RAI 9.4.1-29	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-30	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		63	09.04.01-1 RAI 9.4.1-31	2008/10/3	Y	N	N	fin.	-	DCD_09.04.01-31	1	2
		63	09.04.01-1 RAI 9.4.1-32	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		327	09.04.01-2A	2009/6/19	Y	N	N		-	DCD_09.04.01-2A	4	2
		327	09.04.01-3A	2009/6/19	Y	N	N		-	DCD_09.04.01-3A	-	2
		327	09.04.01-4	2009/6/19	N	N	N		-	-	N/A	N/A
		327	09.04.01-6A	2009/6/19	Y	N	N		-	DCD_09.04.01-6A	4	2
		327	09.04.01-7	2009/6/19	N	N	N		-	-	N/A	N/A
		327	09.04.01-8	2009/6/19	N	N	N		-	-	N/A	N/A
		327	09.04.01-9A	2009/6/19	Y	N	N		-	DCD_09.04.01-9A	4	2
		442	09.04.01-10	2009/9/18	N	N	N		-	-	N/A	N/A
		442	09.04.01-11A	2009/9/18	Y	N	N		-	DCD_09.04.01-11A	-	2
		63	09.04.01-14	2008/10/3	N	N	N	fin.	-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		327	09.04.01-5	2009/6/19	N	N	N		-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		327	09.04.01-9	2010/1/29	Y	N	N		-	DCD_09.04.01-9	2	3
		475	09.04.01-12A	2009/11/20	Y	Y	N		-	DCD_09.04.01-12A	1	3
		475	09.04.01-13A	2009/11/20	Y	N	N		-	DCD_09.04.01-13A	1	3
		475	09.04.01-14A	2009/11/20	N	N	N		-	-	N/A	N/A
		484	09.04.01-15A	2009/12/9	N	N	N		-	-	N/A	N/A
		582	09.04.01-16	2010/7/16	Y	N	N		-	DCD_09.04.01-16	4	3
		582	09.04.01-17	2010/7/16	Y	N	N		-	DCD_09.04.01-17	4	3
		582	09.04.01-18	2010/7/16	N	N	N		-	-	N/A	N/A
		582	09.04.01-19	2010/7/16	N	N	N		-	-	N/A	N/A
		582	09.04.01-20	2010/7/16	Y	N	N		-	DCD_09.04.01-20	4	3
		582	09.04.01-21	2010/7/16	Y	N	N		-	DCD_09.04.01-21	4	3
		582	09.04.01-22	2010/7/16	Y	N	N		-	DCD_09.04.01-22	4	3
		582	09.04.01-23	2010/7/16	N	N	N		-	-	N/A	N/A
		642	09.04.01-24	2010/11/5	Y	N	N		-	DCD_09.04.01-24	5	3
		689	09.04.01-25	2011/3/15	N	N	N		-	-	N/A	N/A
		689	09.04.01-26	2011/3/15	Y	N	N		-	DCD_09.04.01-26	0	
		689	09.04.01-27	2011/3/15	N	N	N		-	-	N/A	N/A
		827	09.04.01-28	2011/10/7	Y	N	N		-	DCD_09.04.01-28	1	
9.4.2	Spent Fuel Pool Area	65	09.04.02-1/9.4.2-1	2008/10/3	Y	N	N	fin.	-	DCD_09.04.02-1	4	2
	Ventilation System	65	09.04.02-1/9.4.2-2	2008/10/3	Y	N	N	fin.	-	DCD_09.04.02-2	4	2
		65	09.04.02-1/9.4.2-3	2008/10/3	Y	N	N	fin.	-	DCD_09.04.02-3	4	2
		65	09.04.02-1/9.4.2-4	2008/10/3	Y	N	N	fin.	-	DCD_09.04.02-4	4	2
		65	09.04.02-1/9.4.2-5	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		65	09.04.02-1/9.4.2-6	2008/10/3	N	N	N	fin.	-	-	N/A	N/A
		328	09.04.02-2	2009/5/21	N	N	N		-	-	N/A	N/A
		328	09.04.02-3	2009/5/21	Y	N	N		-	DCD_09.04.02-3	4	2
		539	09.04.02-4	2010/4/1	Y	N	N		-	DCD_09.04.02-4	3	3

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		539	09.04.02-5	2010/4/1	Y	N	N		-	DCD_09.04.02-5	3	3
		592	09.04.02-6	2010/7/7	Y	N	N		-	DCD_09.04.02-6	4	3
		824	09.04.02-7	2011/10/6	Y	N	N		-	DCD_09.04.02-7	1	
9.4.3	Auxiliary and Radwaste Area	68	09.04.03-1/9.4.3-1	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-1	-	2
	Ventilation System	68	09.04.03-1/9.4.3-2	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		68	09.04.03-1/9.4.3-3	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-3	-	2
		68	09.04.03-1/9.4.3-4	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		68	09.04.03-1/9.4.3-5	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-5	-	2
		68	09.04.03-1/9.4.3-6	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		68	09.04.03-1/9.4.3-7	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-7	4	2
		68	09.04.03-1/9.4.3-8	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-8	4	2
		68	09.04.03-1/9.4.3-9	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-9	4	2
		68	09.04.03-1/9.4.3-10	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-10	-	2
		68	09.04.03-1/9.4.3-11	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		68	09.04.03-1/9.4.3-12	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-12	-	2
		68	09.04.03-1/9.4.3-13	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		68	09.04.03-1/9.4.3-14	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-14	-	2
		68	09.04.03-1/9.4.3-15	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-15	4	2
		68	09.04.03-1/9.4.3-16	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-16	4	2
		68	09.04.03-1/9.4.3-17	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-17	4	2
		68	09.04.03-1/9.4.3-18	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-18	-	2
		68	09.04.03-1/9.4.3-19	2008/10/8	Y	N	N	fin.	-	DCD_09.04.03-19	4	2
		355	09.04.03-1	2009/7/17								
		355	09.04.03-2	2009/7/17	Y	N	N		-	DCD_09.04.03-2	-	2
		355	09.04.03-3	2009/7/17	Y	N	N		-	DCD_09.04.03-3	4	2
		355	09.04.03-4	2009/7/17	Y	N	N		-	DCD_09.04.03-4	-	2
		355	09.04.03-5	2009/7/17	N	N	N		-	-	N/A	N/A
		355	09.04.03-6	2009/7/17	Y	N	N		-	DCD_09.04.03-6	4	2
		355	09.04.03-7	2009/7/17	Y	N	N		-	DCD_09.04.03-7	4	2
		483	09.04.03-08	2010/2/5	Y	N	N		-	DCD_09.04.03-08	2	3
		483	09.04.03-09	2010/2/5	Y	N	N		-	DCD_09.04.03-09	2	3
		483	09.04.03-10	2010/2/5	N	N	N		-	-	N/A	N/A
		634	09.04.03-11	2010/10/15	Y	N	N		-	DCD_09.04.03-11	5	3
		634	09.04.03-12	2010/10/15	Y	N	N		-	DCD_09.04.03-12	5	3
		634	09.04.03-13	2010/10/15	Y	N	N		-	DCD_09.04.03-13	5	3
		779	09.04.03-14	2011/8/11	Y	N	N		-	DCD_09.04.03-14	1	
		779	09.04.03-15	2011/8/11	Y	N	N		-	DCD_09.04.03-15	1	
		779	09.04.03-16	2011/8/11	Y	N	N		-	DCD_09.04.03-16	1	
		831	09.04.03-17	2012/1/27	N	N	N		-	-	N/A	N/A
		831	09.04.03-18	2012/1/27	Y	N	N		-	DCD_09.04.03-18	2	
		831	09.04.03-19	2012/1/27	Y	Y	Y		-	DCD_09.04.03-19	2	
		831	09.04.03-20	2012/1/27	Y	N	N		-	DCD_09.04.03-20	2	
		831	09.04.03-21	2012/1/27	N	N	N		-	-	N/A	N/A
9.4.4	Turbine Area Ventilation System	66	09.04.04-1/9.4.4.1	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		66	09.04.04-1/9.4.4-2	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		66	09.04.04-1/9.4.4-3	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		66	09.04.04-1/9.4.4-4	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		66	09.04.04-1/9.4.4-5	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		66	09.04.04-1/9.4.4-6	2008/9/22	N	N	N	fin.	-	-	N/A	N/A
		67	09.04.04-2/9.4.4-7	2008/10/6	Y	N	N	fin.	-	DCD_09.04.04-7	1	2
		67	09.04.04-2/9.4.4-8	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
		67	09.04.04-2/9.4.4-9	2008/10/6	Y	N	N	fin.	-	DCD_09.04.04-9	1	2
		67	09.04.04-2/9.4.4-10	2008/10/6	Y	N	N	fin.	-	DCD_09.04.04-10	2	2
		67	09.04.04-2/9.4.4-11	2008/10/6	Y	N	N	fin.		DCD_09.04.04-11	1	2
		67	09.04.04-2/9.4.4-12	2008/10/6	Y	N	N	fin.	-	DCD_09.04.04-12	1	2
		341	09.04.04-3	2009/6/1	N	N	N		-	-	N/A	N/A
		541	09.04.03-4	2010/3/30	N	N	N		-	-	N/A	N/A
		541	09.04.04-5	2010/3/30	Y	N	N		-	DCD_09.04.04-5	3	3

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		586	09.04.04-6	2010/6/10	N	N	N		-	-	N/A	N/A
		713	09.04.04-7	2011/4/6	N	N	N		-	-	N/A	N/A
9.4.5	Engineered Safety Feature	64	09.04.05-1/9.4.5-1	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
	Ventilation System	64	09.04.05-1/9.4.5-2	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
		64	09.04.05-1/9.4.5-5	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
		64	09.04.05-1/9.4.5-6	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-6	4	2
		64	09.04.05-1/9.4.5-7	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-7	-	2
		64	09.04.05-1/9.4.5-8	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-8	4	2
		64	09.04.05-1/9.4.5-9	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
		64	09.04.05-1/9.4.5-10	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-10	-	2
		64	09.04.05-1/9.4.5-11	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-11	4	2
		64	09.04.05-1/9.4.5-12	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-12	4	2
		64	09.04.05-1/9.4.5-13	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-13	4	2
		64	09.04.05-1/9.4.5-14	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-14	4	2
		64	09.04.05-1/9.4.5-15	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-15	4	2
		64	09.04.05-1/9.4.5-16	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-16	-	2
		64	09.04.05-1/9.4.5-17	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-17	-	2
		64	09.04.05-1/9.4.5-18	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
				2012/3/22	N	N	N		-	-	N/A	N/A
		64	09.04.05-1/9.4.5-19	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-19	4	2
		64	09.04.05-1/9.4.5-20	2008/10/6	Y	N	N	fin.	-	DCD_09.04.05-20	4	2
		64	09.04.05-1/9.4.5-21	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
		64	09.04.05-1/9.4.5-23	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
		64	09.04.05-1/9.4.5-24	2008/10/6	N	N	N	fin.	-	-	N/A	N/A
		356	09.04.05-2	2009/7/17	Y	N	N		-	DCD_09.04.05-2	-	2
		356	09.04.05-5	2009/7/17	Y	N	N		-	DCD_09.04.05-5	4	2
		356	09.04.05-6	2009/7/17	Y	N	N		-	DCD_09.04.05-6	4	2
		356	09.04.05-7	2009/7/17	N	N	N		-	-	N/A	N/A
		356	09.04.05-8	2009/7/17	Y	N	N		-	DCD_09.04.05-8	4	2
		64	09.04.05-1/9.4.5-3	2008/10/6	N	N	N	fin.	-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		64	09.04.05-1/9.4.5-4	2008/10/6	N	N	N	fin.	-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		64	09.04.05-1/9.4.5-22	2008/10/6	N	N	N	fin.	-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		356	09.04.05-3	2009/7/17	N	N	N		-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		356	09.04.05-4	2009/7/17	N	N	N		-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		356	09.04.05-9	2009/7/17	N	N	N		-			
				2010/6/29	N	N	N		-	-	N/A	N/A
		474	09.04.05-10	11/13/2009	Y	N	N		-	DCD_09.04.05-10	0	3
		583	09.04.05-11	2010/6/22	Y	N	N		-	DCD_09.04.05-11	4	3
		583	09.04.05-12	2010/6/22	Y	N	N		-	DCD_09.04.05-12	4	3
		666	09.04.05-13	2010/12/20	N	N	N		-	-	N/A	N/A
		670	09.04.05-14	2010/12/28	Y	N	N		-	DCD_09.04.05-14	7	3
		670	09.04.05-15	2010/12/28	N	N	N		-	-	N/A	N/A
		670	09.04.05-16	2010/12/28	Y	N	N		-	DCD_09.04.05-16	7	3
		670	09.04.05-17	2010/12/28	Y	N	N		-	DCD_09.04.05-17	7	3
		670	09.04.05-18	2010/12/28	N	N	N		-	-	N/A	N/A
		690	09.04.05-19	2011/3/15	N	N	N		-	-	N/A	N/A
		825	09.04.05-20	2011/10/6	N	N	N		-	-	N/A	N/A
		825	09.04.05-21	2011/10/6	Y	N	N		-		1	
		825	09.04.05-22	2011/10/6	N	N	N		-	-	N/A	N/A

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9.5.1	Fire Protection Program	30	09.05.01-1	2008/9/3	N	N	N	fin.	-	-	N/A	N/A
		30	09.05.01-2	2008/9/3	Y	N	N	fin.	-	DCD_09.05.01-2	1	2
		30	09.05.01-3	2008/9/3	N	N	N	fin.	-	-	N/A	N/A
		30	09.05.01-4	2008/9/3	Y	N	N	fin.	-	DCD_09.05.01-4	1	2
		30	09.05.01-5	2008/9/3	Y	Y	N	fin.	-	DCD_09.05.01-5	1	2
		30	09.05.01-6	2008/9/3	Y	Y	N	fin.	-	DCD_09.05.01-6	1	2
		30	09.05.01-7	2008/9/3	Y	Y	N	fin.	-	DCD_09.05.01-7	1	2
		30	09.05.01-8	2008/9/3	Y	N	N	fin.	-	DCD_09.05.01-8	2	2
		30	09.05.01-9	2008/9/3	Y	N	N	fin.	-	DCD_09.05.01-9	3	2
		30	09.05.01-10	2008/9/3	N	N	N	fin.	-	-	N/A	N/A
		30	09.05.01-11	2008/9/3	Y	N	N	fin.	-	DCD_09.05.01-11	3	2
		30	09.05.01-12	2008/9/3	N	N	N	fin.	-	-	N/A	N/A
		30	09.05.01-13	2008/9/3	N	N	N	fin.	-	-	N/A	N/A
		87	09.05.01-14	2008/11/26	Y	N	N	fin.	-	DCD_09.05.01-14	3	2
		87	09.05.01-15	2008/11/26	Y	Y	N	fin.	-	DCD_09.05.01-15	1	2
		87	09.05.01-16	2008/11/26	N	N	N	fin.	-	-	N/A	N/A
		87	09.05.01-17	2008/11/26	Y	N	N	fin.	-	DCD_09.05.01-17	1	2
		537	09.05.01-18	04/13/2010	Y	N	N		-	DCD_09.05.01-18	3	3
		537	09.05.01-19	04/13/2010	Y	N	N		-	DCD_09.05.01-19	3	3
9.5.2	Communications Systems	74	09.05.02-1	2008/10/22	N	N	N	fin.	-	-	N/A	N/A
		74	09.05.02-2	2008/10/22	N	N	N	fin.	-	-	N/A	N/A
		74	09.05.02-3	2008/10/22	N	N	N	fin.	-	-	N/A	N/A
		74	09.05.02-4	2008/10/22	Y	N	N	fin.	-	DCD_09.05.02-4	2	2
		74	09.05.02-5	2008/10/22	Y	N	N	fin.	-	DCD_09.05.02-5	1	2
		139	09.05.02-6	2009/2/20	Y	N	N		-	DCD_09.05.02-6	1	2
				2011/7/26	Y	Y	N		-	DCD_09.05.02-6	1	
		139	09.05.02-7	2009/2/20	Y	N	N		-	DCD_09.05.02-7	1	2
		139	09.05.02-8	2009/2/20	Y	N	N		-	DCD_09.05.02-8	1	2
		139	09.05.02-9	2009/2/20	Y	N	N		-	DCD_09.05.02-9	1	2
		139	09.05.02-10	2009/2/20	Y	N	N		-	DCD_09.05.02-10	1	2
		859	09.05.02-11	11/30/2011	Y	N	N		-	DCD_09.05.02-11	1	
		860	09.05.02-12	12/02/2011	N	N	N		-	-	N/A	N/A
9.5.3	Lighting Systems	34	09.05.03-1	2008/9/8	N	N	N	fin.	-	-	N/A	N/A
		34	09.05.03-2	2008/9/8	Y	N	N	fin.	-	DCD_09.05.03-2	1	2
		34	09.05.03-3	2008/9/8	Y	N	N	fin.	-	DCD_09.05.03-3	1	2
		34	09.05.03-4	2008/9/8	Y	N	N	fin.	-	DCD_09.05.03-4	2	2
		34	09.05.03-5	2008/9/8	N	N	N	fin.	-	-	N/A	N/A
		34	09.05.03-6	2008/9/8	Y	N	N	fin.		DCD_09.05.03-6	2	2
		80	09.05.03-7/9.5.3-05 S02	2008/11/5	Y	N	N	fin.	-	CD_09.05.03-7(05_S0	2	2
		80	09.05.03-7/9.5.3-08 S02	2008/11/5	Y	N	N	fin.	-	CD_09.05.03-7(08_S0	2	2
		80	09.05.03-7/9.5.3-10 S02	2008/11/5	Y	N	N	fin.	-	CD_09.05.03-7(10_S0	2	2
9.5.4	Emergency Diesel Engine Fuel	317	09.05.04-1	2009/6/9	Y	N	N		-	DCD_09.05.04-1	4	2
	Oil Storage and Transfer System	317	09.05.04-2	2009/6/9	N	N	N		-	-	N/A	N/A
		317	09.05.04-3	2009/6/9	N	N	N		-	-	N/A	N/A
		317	09.05.04-4	2009/6/9	N	N	N		-	-	N/A	N/A
		317	09.05.04-5	2009/6/9	Y	N	N		-	DCD_09.05.04-5	4	2
		318	09.05.04-6	2009/6/9	Y	N	N		-	DCD_09.05.04-6	-	2
		318	09.05.04-7	2009/6/9	Y	N	N		-	DCD_09.05.04-7	4	2
		318	09.05.04-8	2009/6/9	Y	N	N		-	DCD_09.05.04-8	4	2
		318	09.05.04-9	2009/6/9	Y	N	N		-	DCD_09.05.04-9	4	2
		318	09.05.04-10	2009/6/9	Y	N	N		-	DCD_09.05.04-10	4	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		318	09.05.04-11	2009/6/9	Y	N	N		-	DCD_09.05.04-11	-	2
		318	09.05.04-12	2009/6/9	Y	N	N		-	DCD_09.05.04-12	-	2
		318	09.05.04-13	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-14	2009/6/9	Y	N	N		-	DCD_09.05.04-14	4	2
		318	09.05.04-15	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-16	2009/6/9	Y	N	N		-	DCD_09.05.04-16	4	2
		318	09.05.04-17	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-18	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-19	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-20	2009/6/9	Y	N	N		-	DCD_09.05.04-20	-	2
		318	09.05.04-21	2009/6/9	Y	N	N		-	DCD_09.05.04-21	4	2
		318	09.05.04-22	2009/6/9	Y	N	N		-	DCD_09.05.04-22	-	2
		318	09.05.04-23	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-24	2009/6/9	Y	N	N		-	DCD_09.05.04-24	4	2
		318	09.05.04-25	2009/6/9	Y	N	N		-	DCD_09.05.04-25	-	2
		318	09.05.04-26	2009/6/9	Y	N	N		-	DCD_09.05.04-26	-	2
		318	09.05.04-27	2009/6/9	Y	N	N		-	DCD_09.05.04-27	-	2
		318	09.05.04-28	2009/6/9	Y	N	N		-	DCD_09.05.04-28	4	2
		318	09.05.04-29	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-30	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-31	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-32	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-33	2009/6/9	Y	N	N		-	DCD_09.05.04-33	4	2
		318	09.05.04-34	2009/6/9	Y	N	N		-	DCD_09.05.04-34	4	2
		318	09.05.04-35	2009/6/9	Y	N	N		-	DCD_09.05.04-35	4	2
		318	09.05.04-36	2009/6/9	Y	N	N		-	DCD_09.05.04-36	4	2
		318	09.05.04-37	2009/6/9	Y	N	N		-	DCD_09.05.04-37	4	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		318	09.05.04-38	2009/6/9	Y	N	N		-	DCD_09.05.04-38	4	2
		318	09.05.04-39	2009/6/9	Y	N	N		-	DCD_09.05.04-39	4	2
		318	09.05.04-40	2009/6/9	Y	N	N		-	DCD_09.05.04-40	4	2
		318	09.05.04-41	2009/6/9	N	N	N		-	-	N/A	N/A
		318	09.05.04-42	2009/6/9	Y	N	N		-	DCD_09.05.04-42	4	2
		467	09.05.04-43	11/10/2009	Y	Y	N		-	DCD_09.05.04-43	1	3
		468	09.05.04-44	2009/12/10	Y	Y	N		-	DCD_09.05.04-44	1	3
		468	09.05.04-45	2009/12/10	Y	N	N		-	DCD_09.05.04-45	1	3
		468	09.05.04-46	2009/12/10	Y	N	N		-	DCD_09.05.04-46	1	3
		468	09.05.04-47	2009/12/10	Y	N	N		-	DCD_09.05.04-47	1	3
		468	09.05.04-48	2009/12/10	Y	N	N		-	DCD_09.05.04-48	1	3
		468	09.05.04-49	2009/12/10	N	N	N		-	-	N/A	N/A
		565	09.05.04-50	2010/6/15	Y	N	N		-	DCD_09.05.04-50	4	3
		565	09.05.04-51	2010/6/15	Y	N	N		-	DCD_09.05.04-51	4	3
9.5.5	Emergency Diesel Engine											
	Cooling Water System											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
9.5.6	Emergency Diesel Engine	319	09.05.06-1	2009/6/9	Y	N	N		-	DCD_09.05.06-1	4	2
	Starting System	319	09.05.06-2	2009/6/9	N	N	N		-	-	N/A	N/A
		319	09.05.06-3	2009/6/9	Y	N	N		-	DCD_09.05.06-3	4	2
		319	09.05.06-4	2009/6/9	Y	N	N		-	DCD_09.05.06-4	4	2
		319	09.05.06-5	2009/6/9	Y	N	N		-	DCD_09.05.06-5	4	2
		319	09.05.06-6	2009/6/9	Y	N	N		-	DCD_09.05.06-6	4	2
		319	09.05.06-7	2009/6/9	N	N	N		-	-	N/A	N/A
		319	09.05.06-8	2009/6/9	N	N	N		-	-	N/A	N/A
		319	09.05.06-9	2009/6/9	Y	N	N		-	DCD_09.05.06-9	4	2
		319	09.05.06-10	2009/6/9	Y	N	N		-	DCD_09.05.06-10	4	2
		319	09.05.06-11	2009/6/9	N	N	N		-	-	N/A	N/A
		319	09.05.06-12	2009/6/9	N	N	N		-	-	N/A	N/A
		319	09.05.06-13	2009/6/9	Y	N	N		-	DCD_09.05.06-13	-	2
		319	09.05.06-14	2009/6/9	Y	N	N		-	DCD_09.05.06-14	4	2
		319	09.05.06-15	2009/6/9	N	N	N		-	-	N/A	N/A
		319	09.05.06-16	2009/6/9	Y	N	N		-	DCD_09.05.06-16	-	2
		319	09.05.06-17	2009/6/9	Y	N	N		-	DCD_09.05.06-17	4	2
		319	09.05.06-18	2009/6/9	Y	N	N		-	DCD_09.05.06-18	4	2
		319	09.05.06-19	2009/6/9	Y	N	N		-	DCD_09.05.06-19	4	2
		319	09.05.06-20	2009/6/9	N	N	N		-	-	N/A	N/A
		319	09.05.06-21	2009/6/9	Y	N	N		-	DCD_09.05.06-21	4	2
		319	09.05.06-22	2009/6/9	Y	N	N		-	DCD_09.05.06-22	4	2
		319	09.05.06-23	2009/6/9	N	N	N		-	-	N/A	N/A
		504	09.05.06-24	12/23/09	Y	N	N		-	DCD_09.05.06-24	1	3
		504	09.05.06-25	12/23/09	Y	N	N		-	DCD_09.05.06-25	1	3
9.5.7	Emergency Diesel Engine	320	09.05.07-1	2009/6/9	Y	N	N		-	DCD_09.05.07-1	4	2
	Lubrication System	320	09.05.07-2	2009/6/9	N	N	N		-	-	N/A	N/A
		320	09.05.07-3	2009/6/9	Y	N	N		-	DCD_09.05.07-3	4	2
		320	09.05.07-4	2009/6/9	Y	N	N		-	DCD_09.05.07-4	-	2
		320	09.05.07-5	2009/6/9	Y	N	N		-	DCD_09.05.07-5	4	2
		320	09.05.07-6	2009/6/9	Y	N	N		-	DCD_09.05.07-6	4	2
		320	09.05.07-7	2009/6/9	Y	N	N		-	DCD_09.05.07-7	4	2
		320	09.05.07-8	2009/6/9	Y	N	N		-	DCD_09.05.07-8	-	2
		320	09.05.07-9	2009/6/9	Y	N	N		-	DCD_09.05.07-9	4	2
		320	09.05.07-10	2009/6/9	Y	N	N		-	DCD_09.05.07-10	-	2
		320	09.05.07-11	2009/6/9	Y	N	N		-	DCD_09.05.07-11	4	2
		320	09.05.07-12	2009/6/9	Y	N	N		-	DCD_09.05.07-12	4	2
		320	09.05.07-13	2009/6/9	N	N	N		-	-	N/A	N/A
		320	09.05.07-14	2009/6/9	Y	N	N		-	DCD_09.05.07-14	3	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		320	09.05.07-15	2009/6/9	Y	N	N		-	DCD_09.05.07-15	4	2
		320	09.05.07-16	2009/6/9	Y	N	N		-	DCD_09.05.07-16	4	2
		320	09.05.07-17	2009/6/9	Y	N	N		-	DCD_09.05.07-17	4	2
		469	09.05.07-18	11/6/2009	N	N	N		-	-	N/A	N/A
		469	09.05.07-19	11/6/2009	N	N	N		-	-	N/A	N/A
		506	09.05.07-20	2010/1/29	Y	N	N		-	DCD_09.05.07-20	2	3
		506	09.05.07-21	2010/1/29	N	N	N		-	-	N/A	N/A
		506	09.05.07-22	2010/1/29	Y	N	N		-	DCD_09.05.07-22	2	3
		506	09.05.07-23	2010/1/29	Y	N	N		-	DCD_09.05.07-23	2	3
		556	09.05.07-24	2010/4/27	Y	N	N		-	DCD_09.05.07-24	3	3
9.5.8	Emergency Diesel Engine	321	09.05.08-1	2009/6/9	Y	N	N		-	DCD_09.05.08-1	4	2
	Combustion Air Intake and	321	09.05.08-2	2009/6/9	Y	N	N		-	DCD_09.05.08-2	-	2
	Exhaust System	321	09.05.08-3	2009/6/9	N	N	N		-	-	N/A	N/A
		321	09.05.08-4	2009/6/9	Y	N	N		-	DCD_09.05.08-4	-	2
		321	09.05.08-5	2009/6/9	Y	N	N		-	DCD_09.05.08-5	4	2
		321	09.05.08-6	2009/6/9	Y	N	N		-	DCD_09.05.08-6	4	2
		321	09.05.08-7	2009/6/9	N	N	N		-	-	N/A	N/A
		321	09.05.08-8	2009/6/9	N	N	N		-	-	N/A	N/A
		321	09.05.08-9	2009/6/9	N	N	N		-	-	N/A	N/A
		321	09.05.08-10	2009/6/9	Y	N	N		-	DCD_09.05.08-10	4	2
		321	09.05.08-11	2009/6/9	Y	N	N		-	DCD_09.05.08-11	4	2
		321	09.05.08-12	2009/6/9	Y	N	N		-	DCD_09.05.08-12	4	2
		321	09.05.08-13	2009/6/9	N	N	N		-	-	N/A	N/A
		321	09.05.08-14	2009/6/9	N	N	N		-	-	N/A	N/A
		321	09.05.08-15	2009/6/9	Y	N	N		-	DCD_09.05.08-15	4	2
		321	09.05.08-16	2009/6/9	Y	N	N		-	DCD_09.05.08-16	4	2
		321	09.05.08-17	2009/6/9	Y	N	N		-	DCD_09.05.08-17	3	2
		470	09.05.08-18	2009/12/2	Y	N	N		-	DCD_09.05.08-18	1	3
		470	09.05.08-19	2009/12/2	N	N	N		-	-	N/A	N/A
		470	09.05.08-20	2009/12/2	Y	N	N		-	DCD_09.05.08-20	1	3
		470	09.05.08-21	2009/12/2	Y	N	N		-	DCD_09.05.08-21	1	3
		470	09.05.08-22	2009/12/2	Y	N	N		-	DCD_09.05.08-22	1	3
		505	09.05.08-23	2010/2/1	N	N	N		-	-	N/A	N/A
		505	09.05.08-24	2010/2/1	N	N	N		-	-	N/A	N/A
		505	09.05.08-25	2010/2/1	Y	N	N		-	DCD_09.05.08-25	2	3
		557	09.05.08-26	2010/6/14	Y	N	N		-	DCD_09.05.08-26	5	3
		618	09.05.08-27	2010/11/4	Y	N	N		-	DCD_09.05.08-27	5	3
		704	09.05.08-28	2011/7/4	Y	Y	N		-	DCD_09.05.08-28	0	

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
10.2	Turbine Generator	237	10.02-1	2009/3/25	N	N	N		-	-	N/A	N/A
		237	10.02-2	2009/3/25	N	N	N		-	-	N/A	N/A
		237	10.02-3	2009/3/25	N	N	N		-	-	N/A	N/A
		237	10.02-4	2009/3/25	Y	N	N		-	DCD_10.02-4	-	2
		435	10.02-2/10.2-1	2009/8/24	N	N	N		-	-	N/A	N/A
		598	10.02-3	2010/7/20	N	N	N		-	-	N/A	N/A
				201/6/7	Y	N	N		-	DCD_10.02.3	0	
		598	10.02-4	2010/7/20	Y	N	N		-	DCD_10.2-4	4	3
				2011/6/7	Y	N	N		-		0	
10.2.3	Turbine Rotor Integrity	199	10.02.03-1,10.2.3-1	2009/3/10	Y	N	N		-	DCD_10.02.03-1	2	2
		199	10.02.03-2,10.2.3-2	2009/3/10	Y	N	N		-	DCD_10.02.03-2	2	2
		199	10.02.03-3,10.2.3-3	2009/3/10	Y	N	N		-	DCD_10.02.03-3	3	2
		199	10.02.03-4,10.2.3-4	2009/3/10	Y	N	N		-	DCD_10.02.03-4	2	2
		199	10.02.03-5,10.2.3-5	2009/3/10	Y	N	N		-	DCD_10.02.03-5	2	2
		199	10.02.03-6,10.2.3-6	2009/3/10	Y	N	N		-	DCD_10.02.03-6	2	2
		199	10.02.03-7,10.2.3-7	2009/3/10	Y	N	N		-	DCD_10.02.03-7	2	2
		574	10.02.03-8	2010/6/10	N	N	N		-	-	N/A	N/A
		574	10.02.03-9	2010/6/10	N	N	N		-	-	N/A	N/A
		574	10.02.03-10	2010/6/10	Y	N	N		-	DCD_10.02.03-10	4	3
		574	10.02.03-11	2010/6/10	N	N	N		-	-	N/A	N/A
10.3	Main Steam Supply System	329	10.3-1	2009/5/26	Y	Y	N		-	DCD_10.3-1	3	2
		431	10.03-4/10.3-1	2009/8/28	N	N	N		-	-	N/A	N/A
		329	10.3-2	2009/5/26	N	N	N		-	-	N/A	N/A
		329	10.3-3	2009/5/26	N	N	N		-	-	N/A	N/A
10.3.6	Steam and	250	10.03.06-1	2009/4/1	Y	N	N		-	DCD_10.03.06-1	2	2
	Feedwater System Materials	250	10.03.06-2	2009/4/1	Y	N	N		-	DCD_10.03.06-2	2	2
		250	10.03.06-3	2009/4/1	Y	N	N		-	DCD_10.03.06-3	4	2
		250	10.03.06-4	2009/4/1	Y	N	N		-	DCD_10.03.06-4	2	2
		250	10.03.06-5	2009/4/1	Y	N	N		-	DCD_10.03.06-5	2	2
		250	10.03.06-6	2009/4/1	Y	Y	N		-	DCD_10.03.06-6	2	2
		250	10.03.06-7	2009/4/1	Y	N	N		-	DCD_10.03.06-7	2	2
		397	10.03.06-8	2009/7/17	Y	N	N		-	DCD_10.03.06-8	3	2
		397	10.03.06-9	2009/7/17	Y	N	N		-	DCD_10.03.06-9	3	2
			10.03.06-1									

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
			10.03.06-2									
			10.03.06-3									
			10.03.06-4									
			10.03.06-5									
			10.03.06-6									
			10.03.06-7									
			10.03.06-8									
			10.03.06-9									
		500	10.03.06-10	12/24/2009	Y	N	N		-	DCD_10.03.06-10	1	3
		500	10.03.06-11	12/24/2009	N	N	N		-	-	N/A	N/A
		500	10.03.06-12	12/24/2009	Y	N	N		-	DCD_10.03.06-12	1	3
				12/17/2010	Y	N	N		-	DCD_10.03.06-12	0	
				4/4/2011	Y	N	N		-		0	
10.4.1	Main Condensers	245	10.4.1-1	2009/3/30	Y	N	N		-	DCD_10.4.1-1	2	2
		434	10.04.01-2/10.4.1-1	2009/8/26	Y	N	N		-	CD_10.04.01-2/10.4.1-	4	2
		245	10.4.1-2	2009/3/30	N	N	N		-	-	N/A	N/A
		245	10.4.1-3	2009/3/30	N	N	N		-	-	N/A	N/A
10.4.2	Main Condenser Evacuation System	246	10.4.2-1	2009/3/30	N	N	N		-	-	N/A	N/A
		436	10.04.02-2/10.4.2-1	2009/8/26	Y	N	N		-	CD_10.04.02-2/10.4.2-	4	2
10.4.2	Main Condenser Evacuation System											
10.4.3	Turbine Gland Sealing System	236	10.4.3-1	2009/3/24	Y	N	N		-	DCD_10.4.3-1	2	2
		437	10.04.03-2/10.4.3-1	2009/8/26	Y	N	N		-	CD_10.04.03-2/10.4.3-	4	2
		236	1..4.3-2	2009/3/24	N	N	N		-	-	N/A	N/A
10.4.4	Turbine Bypass System	159	10.4.4-1	2009/2/20	N	N	N		-	-	N/A	N/A
		430	10.03.04-3/10.4.4-1	2009/8/28	Y	N	N		-	CD_10.03.04-3/10.4.4-	4	2
10.4.5	Circulating Water System											
10.4.6	Condensate Cleanup System	235	10.04.06-1	2009/3/25	N	N	N		-	-	N/A	N/A
		235	10.04.06-2	2009/3/25	N	N	N		-	-	N/A	N/A
		235	10.04.06-3	2009/3/25	N	N	N		-	-	N/A	N/A
		235	10.04.06-4	2009/3/25	Y	N	N		-	DCD_10.04.06-4	2	2
		235	10.04.06-5	2009/3/25	N	N	N		-	-	N/A	N/A
		383	10.04.06-6	2009/7/6	N	N	N		-	-	N/A	N/A
		383	10.04.06-7	2009/7/6	N	N	N		-	-	N/A	N/A
		441	10.04.06-8	2009/9/16	Y	N	N		-	DCD_10.04.06-8	0	3
		441	10.04.06-9	2009/9/16	N	N	N		-	-	N/A	N/A
		441	10.04.06-10	2009/9/16	N	N	N		-	-	N/A	N/A
		543	10.04.06-11/OI 10.04.06-1	2010/4/26	N	N	N		-	-	N/A	N/A
		543	10.04.06-12/OI 10.04.06-2	2010/4/26	N	N	N		-	-	N/A	N/A
		543	10.04.06-13/OI 10.04.06-3	2010/4/26	N	N	N		-	-	N/A	N/A
		543	10.04.06-14/OI 10.04.06-4	2010/4/26	N	N	N		-	-	N/A	N/A
		543	10.04.06-15/OI 10.04.06-5	2010/4/26	N	N	N		-	-	N/A	N/A
		630	10.04.06-16	2010/10/6	Y	N	N		-	DCD_10.04.06-16	5	3
		807	10.04.06-17	2011/9/12	Y	Y	N		-	DCD_10.04.06-17	TBD	
				2011/9/29	Y	Y	N		-	DCD_10.04.06-17	1	

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
10.4.7	Condensate and Feedwater System	124	10.4.7-1	2008/12/25	N	N	N	fin.	-	-		
				2009/6/1	Y	Y	N		-	DCD_10.4.7-1	3	2
10.4.8	Steam Generator Blowdown System	251	10.04.08-1	2009/4/1	Y	N	N		-	DCD_10.04.08-1	2	2
	(PWR)	251	10.04.08-2	2009/4/1	N	N	N		-	-	N/A	N/A
		251	10.04.08-3	2009/4/1	N	N	N		-	-	N/A	N/A
		251	10.04.08-4	2009/4/1	Y	N	N		-	DCD_10.04.08-4	2	2
		251	10.04.08-5	2009/4/1	Y	N	N		-	DCD_10.04.08-5	2	2
		251	10.04.08-6	2009/4/1	Y	N	N		-	DCD_10.04.08-6	2	2
		251	10.04.08-7	2009/4/1	Y	N	N		-	DCD_10.04.08-7	2	2
		251	10.04.08-8	2009/4/1	Y	N	N		-	DCD_10.04.08-8	3	2
		862	10.04.08-9	12/12/2011	Y	N	N		-	DCD_10.04.08-9	1	
		862	10.04.08-10	12/12/2011	N	N	N		-	-	N/A	N/A
		862	10.04.08-11	12/12/2011	Y	N	N		-	DCD_10.04.08-11	1	
10.4.9	Auxiliary Feedwater System (PWR)	160	10.04.09-1	2009/2/20	Y	N	N		-	DCD_10.04.09-1	1	2
		160	10.04.09-2	2009/2/20	N	N	N		-	-	N/A	N/A
		160	10.04.09-3	2009/2/20	Y	N	N		-	DCD_10.04.09-3	-	2
		160	10.04.09-4	2009/2/20	Y	N	N		-			
				2009/6/1	Y	Y	N		-	DCD_10.04.09-4	3	2
		160	10.04.09-5	2009/2/20	Y	N	N		-	DCD_10.04.09-5	1	2
		160	10.04.09-6	2009/2/20	Y	N	N		-	DCD_10.04.09-6	1	2
		160	10.04.09-7	2009/2/20	Y	N	N		-	DCD_10.04.09-7	1	2
		160	10.04.09-8	2009/2/20	Y	N	N		-	DCD_10.04.09-8	1	2
		160	10.04.09-9	2009/2/20	Y	N	N		-	DCD_10.04.09-9	1	2
		160	10.04.09-10	2009/2/20	Y	N	N		-	DCD_10.04.09-10	1	2
		160	10.04.09-11	2009/2/20	Y	N	N		-	DCD_10.04.09-11	1	2
		160	10.04.09-12	2009/2/20	N	N	N		-	-	N/A	N/A
		160	10.04.09-13	2009/2/20	Y	N	N		-	DCD_10.04.09-13	1	2
		160	10.04.09-14	2009/2/20	Y	N	N		-	DCD_10.04.09-14	1	2
		160	10.04.09-15	2009/2/20	Y	N	N		-	DCD_10.04.09-15	1	2
		160	10.04.09-16	2009/2/20	N	N	N		-	-	N/A	N/A
		160	10.04.09-17	2009/2/20	N	N	N		-	-	N/A	N/A
		160	10.04.09-18	2009/2/20	Y	N	N		-	DCD_10.04.09-18	-	2
		160	10.04.09-19	2009/2/20	Y	N	N		-	DCD_10.04.09-19	-	2
		160	10.04.09-20	2009/2/20	Y	N	N		-	DCD_10.04.09-20	-	2
		160	10.04.09-21	2009/2/20	Y	N	N		-	DCD_10.04.09-21	1	2
		160	10.04.09-22	2009/2/20	N	N	N		-	-	N/A	N/A
		408	10.04.09-23	2009/7/28	Y	N	N		-	DCD_10.04.09-23	3	2
		408	10.04.09-24	2009/7/28	Y	N	N		-	DCD_10.04.09-24	3	2
		408	10.04.09-25	2009/7/28	Y	N	N		-	DCD_10.04.09-25	3	2
		408	10.04.09-26	2009/7/28	N	N	N		-	-	N/A	N/A
		408	10.04.09-27	2009/7/28	Y	N	N		-	DCD_10.04.09-27	3	2
		408	10.04.09-28	2009/7/28	Y	N	N		-	DCD_10.04.09-28	-	2
		408	10.04.09-29	2009/7/28	Y	N	N		-	DCD_10.04.09-29	-	2
		408	10.04.09-30	2009/7/28	Y	N	N		-	DCD_10.04.09-30	-	2
		408	10.04.09-31	2009/7/28	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		711	11.02-34	2011/3/30	Y	Y	N		-	DCD_11.02-34	TBD	
11.3	Gaseous Waste	188	11.03-1	2009/3/10	N	N	N		-	-	N/A	N/A
	Management System	188	11.03-2	2009/3/10	N	N	N		-	-	N/A	N/A
		188	11.03-3	2009/3/10	Y	N	N		-	DCD_11.03-3	2	2
		188	11.03-4	2009/3/10	Y	N	N		-	DCD_11.03-4	2	2
		188	11.03-5	2009/3/10	N	N	N		-	-	N/A	N/A
		189	11.03-6	2009/3/10	N	N	N		-	-	N/A	N/A
		189	11.03-7	2009/3/10	N	N	N		-	-	N/A	N/A
		189	11.03-8	2009/3/10	N	N	N		-	-	N/A	N/A
		189	11.03-9	2009/3/10	N	N	N		-	-	N/A	N/A
		189	11.03-10	2009/3/10	Y	N	N		-	DCD_11.03-10	2	2
		189	11.03-11	2009/3/10	N	N	N		-	-	N/A	N/A
		402	11.03-12	2009/7/15	N	N	N		-	-	N/A	N/A
		402	11.03-13	2009/7/15	N	N	N		-	-	N/A	N/A
		439	11.03-14	2009/9/17	N	N	N		-	-	N/A	N/A
								-	COL 11.3(5) deleted	MAP-11-001	-	2
		533	11.03-15	2010/4/20	Y	N	N		-	DCD_11.03-15	3	3
		535	11.03-16	2010/4/20	Y	N	N		-	DCD_11.03-16	3	3
		535	11.03-17	2010/4/20	Y	N	N		-	DCD_11.03-17	3	3
		629	11.03-18	2010/9/24	Y	N	N		-	DCD_11.03-18	5	3
				2011/6/1	Y	N	N		-		0	
		712	11.03-19	2011/5/17	Y	N	N		-	DCD_11.03-19	0	
				2011/11/21	Y	N	N		-	DCD_11.03-19	1	
				2012/2/22	Y	N	N		-	DCD_11.03-19	TBD	
11.4	Solid Waste Management System	185	11.04-1	2009/3/11	Y	N	N		-	DCD_11.04-1	2	2
		185	11..04-2	2009/3/11	Y	N	N		-	DCD_11..04-2	2	2
		185	11.04-3	2009/3/11	Y	N	N		-	DCD_11.04-3	2	2
		185	11.04-4	2009/3/11	N	N	N		-	-	N/A	N/A
		185	11.04-5	2009/3/11	Y	N	N		-	DCD_11.04-5	2	2
		187	11.04-6	2009/3/11	Y	N	N		-	DCD_11.04-6	3	2
		187	11.04-7	2009/3/11	Y	N	N		-	DCD_11.04-7	2	2
		187	11.04-8	2009/3/11	Y	N	N		-	DCD_11.04-8	2	2
		187	11.04-9	2009/3/11	Y	N	N		-	DCD_11.04-9	2	2
		187	11.04-10	2009/3/11	Y	N	N		-	DCD_11.04-10	2	2
		187	11.04-11	2009/3/11	Y	N	N		-	DCD_11.04-11	2	2
		187	11.04-12	2009/3/11	N	N	N		-	-	N/A	N/A
		187	11.04-13	2009/3/11	Y	N	N		-	DCD_11.04-13	2	2
		187	11.04-14	2009/3/11	N	N	N		-	-	N/A	N/A
		187	11.04-15	2009/3/11	Y	N	N		-	DCD_11.04-15	2	2
		187	11.04-16	2009/3/11	Y	N	N		-	DCD_11.04-16	2	2
		187	11.04-17	2009/3/11	Y	N	N		-	DCD_11.04-17	2	2
		401	11.04-18	2009/7/15	Y	N	N		-	DCD_11.04-18	4	2
		534	11.04-19	2010/4/20	Y	Y	N		-	DCD_11.04-19	3	3
				2011/6/24	Y	Y	N		-	DCD_11.04-19	TBD	
				2011/9/21	Y	Y	N		-	DCD_11.04-19	1	
		536	11.04-20	2010/4/20	Y	N	N		-	DCD_11.04-20	3	3
		536	11.04-21	2010/4/20	Y	N	N		-	DCD_11.04-21	3	3
11.5	Process and Effluent	130	11.05-1	2009/1/30	N	N	N		-	-	N/A	N/A
	Radiological Monitoring	130	11.05-2	2009/1/30	Y	N	N		-	DCD_11.05-2	2	2
	Instrumentation and	130	11.05-3	2009/1/30	N	N	N		-	-	N/A	N/A
	Sampling Systems	130	11.05-4	2009/1/30	N	N	N		-	-	N/A	N/A
		249	11.05-5	2009/3/31	Y	N	N		-	-	N/A	N/A
		249	11.05-6	2009/4/13	N	N	N		-	-	N/A	N/A
		249	11.05-7	2009/4/13	N	N	N		-	-	N/A	N/A
		249	11.05-8	2009/4/13	N	N	N		-	-	N/A	N/A
		249	11.05-9	2009/3/31	N	N	N		-	-	N/A	N/A
		249	11.05-10	2009/3/31	Y	N	N		-	DCD_11.05-10	2	2
		249	11.05-11	2009/3/31	Y	N	N		-	DCD_11.05-11	2	2
		400	11.05-12	2009/7/15	Y	N	N		-	DCD_11.05-12	4	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		400	11.05-13	2009/7/15	Y	N	N		-	DCD_11.05-12	4	2
		400	11.05-14	2009/7/15	N	N	N		-	-	N/A	N/A
		400	11.05-15	2009/7/15	N	N	N		-	-	N/A	N/A
		400	11.05-16	2009/7/15	Y	N	N		-	DCD_11.05-12	4	2
		400	11.05-17	2009/7/15	Y	N	N		-	DCD_11.05-12	4	2
		522	11.05-18	2010/3/8	Y	N	N		-	DCD_11.05-18	3	3

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
12.1	Assuring that	89	12.01-1	2008/11/26	Y	N	N	fin.	-	DCD_12.01-1	0	2
	Occupational Radiation Exposures	89	12.01-2	2008/11/26	Y	Y	N	fin.	-	DCD_12.01-2	0	2
	Are As Low As											
	Is Reasonably Achievable											
12.2	Radiation Sources	128	12.02-1	2009/1/21	N	N	N		-	-	N/A	N/A
		128	12.02-2	2009/1/21	N	N	N		-	-	N/A	N/A
		128	12.02-3	2009/1/21	N	N	N		-	-	N/A	N/A
		140	12.02-4	2009/2/6	Y	N	N		-	DCD_12.02-4	1	2
		141	12.02-5	2009/2/6	N	N	N		-	-	N/A	N/A
		141	12.02-6	2009/2/6	Y	N	N		-	DCD_12.02-6	1	2
		142	12.02-7	2009/2/6	Y	N	N		-	DCD_12.02-7	1	2
		142	12.02-8	2009/2/6	Y	N	N		-	DCD_12.02-8	1	2
		142	12.02-9	2009/2/6	N	N	N		-	-	N/A	N/A
		143	12.02-10	2009/2/6	Y	N	N		-	DCD_12.02-10	1	2
		143	12.02-11	2009/2/6	N	N	N		-	-	N/A	N/A
		144	12.02-12	2009/2/6	Y	N	N		-	DCD_12.02-12	1	2
		145	12.02-13	2009/2/6	N	N	N		-	-	N/A	N/A
		168	12.02-14	2009/3/4	Y	N	N		-	DCD_12.02-14	2	2
		169	12.02-15	2009/2/27	Y	Y	N	fin.	-	DCD_12.02-15	1	2
		179	12.02-16	2009/3/3	N	N	N		-	-	N/A	N/A
		427	12.02-17	2009/9/28	N	N	N		-	-	N/A	N/A
		427	12.02-18	2009/9/28	Y	N	N		-	DCD_12.02-18	-	2
		427	12.02-19	2010/9/14	Y	N	N		-	DCD_12.02-19	0	3
												N/A
				2010/9/28	Y	N	N		-	DCD_12.02-19	0	3
		427	12.02-21	2009/9/28	Y	N	N		-	DCD_12.02-21	0	3
		427	12.02-22	2009/9/28	Y	N	N		-	DCD_12.02-22	0	3
		532	12.02-23	2010/4/9	Y	N	N		-	DCD_12.02-23	3	3
		532	12.02-24	2010/4/9	N	N	N		-	-	N/A	N/A
		532	12.02-25	2010/4/9	Y	N	N		-	DCD_12.02-25	3	3
		532	12.02-26	2010/4/9	Y	N	N		-	DCD_12.02-26	3	3
		532	12.02-27	2010/4/9	Y	N	N		-		3	3
				2010/9/14	Y	N	N		-	DCD_12.02-27	5	3
		532	12.02-28	2010/4/9	Y	N	N		-	DCD_12.02-28	3	3
		532	12.02-29	2010/4/9	Y	Y	N		-		3	3
				2010/4/9	Y	Y	N		-	DCD_12.02-29	5	3
		532	12.02-30	2010/4/9	Y	Y	N		-	DCD_12.02-30	3	3
		561	12.02-31	2010/4/9	N	N	N		-	-	N/A	N/A
12.3-	Radiation Protection	90	12.03-12.04-1	2008/11/26	Y	N	N	fin.	-	DCD_12.03-12.04-1	0	2
12.4	Design Features	91	12.03-12.04-2	2009/1/9	Y	Y	N	fin.	-	DCD_12.03-12.04-2	0	2
		147	12.03-12.04-3	2009/2/6	Y	N	N		-	DCD_12.03-12.04-3	1	2
		147	12.03-12.04-4	2009/2/6	Y	N	N		-	DCD_12.03-12.04-4	1	2
		147	12.03-12.04-5	2009/2/6	Y	N	N		-	DCD_12.03-12.04-5	1	2
		170	12.03-12.04-6	2009/3/4	N	N	N		-	-	N/A	N/A
		171	12.03-12.04-7	2009/3/3	N	N	N		-	-	N/A	N/A
		171	12.03-12.04-8	2009/3/3	N	N	N		-	-	N/A	N/A
		171	12.03-12.04-9	2009/3/3	Y	N	N		-	DCD_12.03-12.04-9	-	2
		172	12.03-12.04-10	2009/3/3	Y	N	N		-	DCD_12.03-12.04-10	-	2
		173	12.03-12.04-11	2009/2/27	Y	N	N		-	DCD_12.03-12.04-11	1	2
		174	12.03-12.04-12	2009/2/27	Y	N	N		-	DCD_12.03-12.04-12	1	2
		262	12.03-12.04-13	2009/5/7	Y	N	N		-	DCD_12.03-12.04-13	3	2
		262	12.03-12.04-14	2009/5/7	Y	N	N		-	DCD_12.03-12.04-14	3	2
		262	12.03-12.04-15	2009/5/7	Y	N	N		-	DCD_12.03-12.04-15	3	2
		262	12.03-12.04-16	2009/5/7	N	N	N		-	-	N/A	N/A
		262	12.03-12.04-17	2009/5/7	Y	N	N		-	DCD_12.03-12.04-17	-	2
		262	12.03-12.04-18	2009/5/7	N	N	N		-	-	N/A	N/A
		262	12.03-12.04-19	2009/5/7	N	N	N		-	-	N/A	N/A
		262	12.03-12.04-20	2009/5/7	N	N	N		-	-	N/A	N/A
		425	12.03-12.04-21	2009/9/4	Y	N	N		-	DCD_12.03-12.04-21	0	3
		428	12.03-12.04-22	2009/9/28	N	N	N		-	-	N/A	N/A
		428	12.03-12.04-23	2009/9/28	N	N	N		-	-	N/A	N/A
		428	12.03-12.04-24	2009/9/28	N	N	N		-	-	N/A	N/A
		429	12.03-12.04-25	2009/9/28	Y	N	N		-	DCD_12.03-12.04-25	0	3
		429	12.03-12.04-26	2009/9/28	Y	Y	N		-	DCD_12.03-12.04-26	0	3
		429	12.03-12.04-27	2009/9/28	Y	N	N		-	DCD_12.03-12.04-27	0	3
		429	12.03-12.04-28	2009/9/28	N	N	N		-	-	N/A	N/A

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		429	12.03-12.04-29	2009/9/28	N	N	N		-	-	N/A	N/A
		429	12.03-12.04-30	2009/9/28	Y	N	N		-	DCD_12.03-12.04-30	0	3
		429	12.03-12.04-31	2009/9/28	Y	N	N		-	DCD_12.03-12.04-31	0	3
		453	12.03-12.04-32	2009/9/16	N	N	N		-	-	N/A	N/A
		524	12.03-12.04-33	2010/3/12	N	N	N		-			
				2010/9/14	Y	Y	N		-	DCD_12.03-12.04-33	5	3
		524	12.03-12.04-34	2010/3/12	N	N	N		-	-	N/A	N/A
				2010/10/8	Y	Y	N		-	DCD_12.03-12.04-34	5	3
		524	12.03-12.04-35	2010/3/12	N	N	N		-			
				2010/9/14	Y	N	N		-	DCD_12.03-12.04-35	5	3
		524	12.03-12.04-36	2010/3/12	Y	N	N		-			
				2010/9/14	Y	N	N		-	DCD_12.03-12.04-36	5	3
		578	12.03-12.04-37	2010/7/30	Y	Y	N		-			
				2010/8/9	Y	Y	N		-	DCD_12.03-12.04-37	4	3
		578	12.03-12.04-38	2010/7/30	Y	N	N		-			
				2010/8/9	Y	N	N		-	DCD_12.03-12.04-38	4	3
		578	12.03-12.04-39	2010/7/30	Y	N	N		-			
				2010/8/9	Y	N	N		-	DCD_12.03-12.04-39	4	3
12.5	Operational Radiation											
	Protection Program											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
13.1.1	Management and											
	Technical Support Organization											
13.1.2-	Operating Organization											
13.1.3												
13.2.1	Reactor Operator	60	13.02.01-1	2008/9/25	Y	N	N	fin.	-	DCD_13.02.01-1	0	2
	Requalification Program;											
	Reactor Operator Training											
13.2.2	Non-Licensed Plant Staff Training											
13.3	Emergency Planning	46	13.03-1/13.3-1	2008/8/29	Y	N	N	fin.	-	DCD_13.03-1(1)	0	2
		46	13.03-1/13.3-2	2008/8/29	N	N	N	fin.	-	-	N/A	N/A
		46	13.03-1/13.3-3	2008/8/29	Y	N	N	fin.	-	DCD_13.03-1(3)	0	2
		108	13.03-2	2008/12/25	N	N	N	fin.	-	-	N/A	N/A
13.4	Operational Programs											
13.5.1.1	Administrative Procedures - General											
13.5.1.2	Administrative Procedures -											
	Initial Test Program											
13.5.2.1	Operating and Emergency	61	13.05.02.01-1	2008/9/25	Y	N	N	fin.	-	DCD_13.05.02-1	0	2
	Operating Procedures											
13.6	Physical Security	282	13.06-1	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-3	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-4	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-5	2009/4/30	Y	N	N		-	DCD-13.06-5	3	2
		282	13.06-6	2009/5/15	Y	N	N		-	DCD-13.06-6	3	2
		282	13.06-7	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-8	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-9	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-10	2009/6/19	Y	N	N		-	DCD_13.06-10	3	2
		282	13.06-11	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-12	2009/4/30	Y	N	N		-	DCD-13.06-12	3	2
		282	13.06-13	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-14	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-15	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-16	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-17	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-18	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-19	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-20	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-21	2009/5/15	Y	Y	N		-	DCD-13.06-21	3	2
		282	13.06-22	2009/6/19	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		282	13.06-23	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-24	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-25	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-26	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-27	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-28	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-29	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-30	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-31	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-32	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-33	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-34	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-35	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-36	2009/6/19	Y	N	N		-	DCD_13.06-36	3	2
		282	13.06-37	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-38	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-39	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-40	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-41	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-42	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-44	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-45	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-46	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-47	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-48	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-49	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-50	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-51	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-52	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-53	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-54	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-55	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-56	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-57	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-58	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-59	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-60	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-61	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-66	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-67	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-70	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-71	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-73	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-74	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-75	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-76	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-77	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-78	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-79	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-80	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-81	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-82	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-83	2009/6/19	N	N	N		-	-	N/A	N/A
		282	13.06-84	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-85	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-86	2009/6/1	N	N	N		-	-	N/A	N/A
		282	13.06-87	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-88	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-89	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-90	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-91	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-92	2009/4/30	N	N	N		-	-	N/A	N/A
		282	13.06-93	2009/5/15	N	N	N		-	-	N/A	N/A
		282	13.06-103	2009/6/19	N	N	N		-	-	N/A	N/A
		283	13.06.02-6	2009/6/19	N	N	N		-	-	N/A	N/A
		283	13.06.02-7	2009/6/19	N	N	N		-	-	N/A	N/A
		613	13.06.02-19	10/20/2010	Y	N			-	DCD_13.06.02-19	6	3
		613	13.06.02-20	10/20/2010	Y	N			-	DCD_13.06.02-20	6	3
		613	13.06.02-20	03/14/2011	Y	N	N		-	DCD_13.06.02-20	TBD	
		613	13.06.02-21	10/20/2010	Y	N			-	DCD_13.06.02-21	6	3
		613	13.06.02-22	10/20/2010	Y	N			-	DCD_13.06.02-22	6	3
		613	13.06.02-23	10/20/2010	Y	N			-	DCD_13.06.02-23	6	3

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		613	13.06.02-24	10/20/2010	Y	N			-	DCD_13.06.02-24	6	3
		613	13.06.02-25	10/20/2010	Y	N			-	DCD_13.06.02-25	6	3
		613	13.06.02-26	10/20/2010	Y	N			-	DCD_13.06.02-26	6	3
13.7	Fitness for Duty											
App.13AA	Design, Construction and											
	Pre-operational Activities											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
14.2	Initial Plant Test Program -	7	14.02-1	2008/6/27	Y	N	N	fin.	-	DCD_14.02-1	-	1
	Design Certification and	12	14.02-2	2008/7/18	Y	N	N	fin.	-	DCD_14.02-2	-	1
	New License Applicants	12	14.02-3	2008/7/18	Y	N	N	fin.	-	DCD_14.02-3	-	1
		12	14.02-4	2008/7/18	Y	N	N	fin.	-	DCD_14.02-4	-	1
		12	14.02-5	2008/7/18	Y	N	N	fin.	-	DCD_14.02-5	-	1
		12	14.02-6	2008/7/18	N	N	N	fin.	-	-	N/A	N/A
		12	14.02-7	2008/7/18	Y	N	N	fin.	-	DCD_14.02-7	-	1
		27	14.02-8	2008/7/31	Y	Y	N	fin.	-	DCD_14.02-8	0	2
		27	14.02-9	2008/7/31	N	N	N	fin.	-	-	N/A	N/A
		28	14.02-10	2008/7/31	Y	N	N	fin.	-	DCD_14.02-10	-	1
		28	14.02-11	2008/7/31	N	N	N	fin.	-	-	N/A	N/A
		28	14.02-12	2008/7/31	Y	N	N	fin.	-	DCD_14.02-12	-	1
		28	14.02-13	2008/7/31	Y	N	N	fin.	-	DCD_14.02-13	-	1
		28	14.02-14	2008/7/31	Y	N	N	fin.	-	DCD_14.02-14	-	1
		28	14.02-15	2008/7/31	Y	N	N	fin.	-	DCD_14.02-15	-	1
		28	14.02-16	2008/7/31	N	N	N	fin.	-	-	N/A	N/A
		28	14.02-17	2008/7/31	Y	N	N	fin.	-	DCD_14.02-17	-	1
		28	14.02-18	2008/7/31	Y	N	N	fin.	-	DCD_14.02-18	-	1
		28	14.02-19	2008/7/31	Y	N	N	fin.	-	DCD_14.02-19	0	2
		28	14.02-20	2008/7/31	Y	N	N	fin.	-	DCD_14.02-20	-	1
		28	14.02-21	2008/7/31	N	N	N	fin.	-	-	N/A	N/A
		28	14.02-22	2008/7/31	Y	N	N	fin.	-	DCD_14.02-22	-	1
		31	14.02-23	2008/8/29	Y	Y	N	fin.	-	DCD_14.02-23	0	2
		31	14.02-24	2008/8/29	Y	N	N	fin.	-	DCD_14.02-24	0	2
		33	14.02-25	2008/9/4	Y	N	N	fin.	-	DCD_14.02-25	0	2
		33	14.02-26	2008/9/4	Y	N	N	fin.	-	DCD_14.02-26	0	2
		33	14.02-27	2008/9/4	Y	N	N	fin.	-	DCD_14.02-27	0	2
		33	14.02-28	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-29	2008/9/4	Y	N	N	fin.	-	DCD_14.02-29	0	2
		33	14.02-30	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-31	2008/9/4	Y	N	N	fin.	-	DCD_14.02-31	0	2
		33	14.02-32	2008/9/4	Y	N	N	fin.	-	DCD_14.02-32	0	2
		33	14.02-33	2008/9/4	Y	N	N	fin.	-	DCD_14.02-33	0	2
		33	14.02-34	2008/9/4	Y	N	N	fin.	-	DCD_14.02-34	0	2
		33	14.02-35	2008/9/4	Y	N	N	fin.	-	DCD_14.02-35	0	2
		33	14.02-36	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-37	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-38	2008/9/4	N	N	N	fin.	-	DCD_14.02-38	0	1
		33	14.02-39	2008/9/4	Y	N	N	fin.	-	DCD_14.02-39	0	2
		33	14.02-40	2008/9/4	Y	N	N	fin.	-	DCD_14.02-40	0	2
		33	14.02-41	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-42	2008/9/4	Y	N	N	fin.	-	DCD_14.02-42	0	2
		33	14.02-43	2008/9/4	Y	N	N	fin.	-	DCD_14.02-43	0	2
		33	14.02-44	2008/9/4	Y	N	N	fin.	-	DCD_14.02-44	0	2
		33	14.02-45	2008/9/4	Y	N	N	fin.	-	DCD_14.02-45	0	2
		33	14.02-46	2008/9/4	Y	N	N	fin.	-	DCD_14.02-46	0	2
		33	14.02-47	2008/9/4	Y	N	N	fin.	-	DCD_14.02-47	0	2
		33	14.02-48	2008/9/4	Y	N	N	fin.	-	DCD_14.02-48	0	2
		33	14.02-49	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-50	2008/9/4	Y	N	N	fin.	-	DCD_14.02-50	0	2
		33	14.02-51	2008/9/4	Y	N	N	fin.	-	DCD_14.02-51	0	2
		33	14.02-52	2008/9/4	N	N	N	fin.	-	DCD_14.02-52	N/A	N/A
		33	14.02-53	2008/9/4	Y	N	N	fin.	-	DCD_14.02-53	0	2
		33	14.02-54	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-55	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-56	2008/9/4	Y	N	N	fin.	-	DCD_14.02-56	0	2
		33	14.02-57	2008/9/4	Y	N	N	fin.	-	DCD_14.02-57	0	2
		33	14.02-58	2008/9/4	Y	N	N	fin.	-	DCD_14.02-58	0	2
		33	14.02-59	2008/9/4	Y	N	N	fin.	-	DCD_14.02-59	0	2
		33	14.02-60	2008/9/4	Y	N	N	fin.	-	DCD_14.02-60	0	2
		33	14.02-61	2008/9/4	Y	N	N	fin.	-	DCD_14.02-61	0	2
		33	14.02-62	2008/9/4	Y	N	N	fin.	-	DCD_14.02-62	0	2
		33	14.02-63	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-64	2008/9/4	Y	N	N	fin.	-	DCD_14.02-64	0	2
		33	14.02-65	2008/9/4	Y	N	N	fin.	-	DCD_14.02-65	0	2
		33	14.02-66	2008/9/4	Y	N	N	fin.	-	DCD_14.02-66	0	2
		33	14.02-67	2008/9/4	Y	N	N	fin.	-	DCD_14.02-67	0	2
		33	14.02-68	2008/9/4	Y	N	N	fin.	-	DCD_14.02-68	0	2
		33	14.02-69	2008/9/4	Y	N	N	fin.	-	DCD_14.02-69	0	2
		33	14.02-70	2008/9/4	Y	N	N	fin.	-	DCD_14.02-70	0	2
		33	14.02-71	2008/9/4	Y	N	N	fin.	-	DCD_14.02-71	0	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		33	14.02-72	2008/9/4	Y	N	N	fin.	-	DCD_14.02-72	0	2
		33	14.02-73	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-74	2008/9/4	Y	N	N	fin.	-	DCD_14.02-74	0	2
		33	14.02-75	2008/9/4	Y	N	N	fin.	-	DCD_14.02-75	0	2
		33	14.02-76	2008/9/4	Y	N	N	fin.	-	DCD_14.02-76	0	2
		33	14.02-77	2008/9/4	Y	N	N	fin.	-	DCD_14.02-77	0	2
		33	14.02-78	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-79	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-80	2008/9/4	Y	N	N	fin.	-	DCD_14.02-80	0	2
		33	14.02-81	2008/9/4	N	N	N	fin.	-	-	N/A	N/A
		33	14.02-82	2008/9/4	Y	N	N	fin.	-	DCD_14.02-82	0	2
		33	14.02-83	2008/9/4	Y	N	N	fin.	-	DCD_14.02-83	0	2
		33	14.02-84	2008/9/4	Y	N	N	fin.	-	DCD_14.02-84	0	2
		33	14.02-85	2008/9/4	Y	N	N	fin.	-	DCD_14.02-85	0	2
		58	14.02-86	2008/9/18	Y	N	N	fin.	-	DCD_14.02-86	0	2
		70	14.02-87	2008/9/25	Y	N	N	fin.	-			
				2009/3/30	Y	Y	N	fin.		DCD_14.02-87	1	2
		78	14.02-88	2008/10/16	Y	N	N	fin.	-	DCD_14.02-88	0	2
		78	14.02-89	2008/10/16	Y	N	N	fin.	-	DCD_14.02-89	0	2
		93	14.02-90	2008/12/5	Y	Y	N	fin.	-	DCD_14.02-90	0	2
		102	14.02-91	2008/12/18	N	N	N	fin.	-	-	N/A	N/A
		102	14.02-92	2008/12/18	Y	N	N	fin.	-	DCD_14.02-92	0	2
		102	14.02-93	2008/12/18	Y	N	N	fin.	-	DCD_14.02-93	0	2
		102	14.02-94	2008/12/18	Y	N	N	fin.	-	DCD_14.02-94	0	2
		102	14.02-95	2008/12/18	N	N	N	fin.	-	-	N/A	N/A
		102	14.02-96	2008/12/18	Y	N	N	fin.	-	DCD_14.02-96	0	2
		102	14.02-97	2008/12/18	Y	N	N	fin.	-	DCD_14.02-97	0	2
		102	14.02-98	2008/12/18	Y	N	N	fin.	-	DCD_14.02-98	0	2
		102	14.02-99	2008/12/18	Y	N	N	fin.	-	DCD_14.02-99	0	2
		102	14.02-100	2008/12/18	Y	N	N	fin.	-	DCD_14.02-100	0	2
		102	14.02-101	2008/12/18	Y	N	N	fin.	-	DCD_14.02-101	0	2
		102	14.02-102	2008/12/18	Y	N	N	fin.	-	DCD_14.02-102	0	2
		102	14.02-103	2008/12/18	Y	N	N	fin.	-	DCD_14.02-103	0	2
		102	14.02-104	2008/12/18	Y	N	N	fin.	-	DCD_14.02-104	0	2
		102	14.02-105	2008/12/18	N	N	N	fin.	-	-	N/A	N/A
		102	14.02-106	2008/12/18	Y	N	N	fin.	-	DCD_14.02-106	0	2
		123	14.02-107	2008/12/18	Y	N	N	fin.	-	DCD_14.02-107	0	2
		194	14.02-108	2009/2/24	Y	N	N		-			
				2009/4/1	Y	N	N		-	DCD_14.02-108	2	2
		243	14.02-109	2009/3/27	Y	Y	N	fin.	-	DCD_14.02-109	1	2
		243	14.02-110	2009/3/27	Y	N	N	fin.	-	DCD_14.02-110	1	2
		243	14.02-111	2009/3/27	Y	N	N	fin.	-	DCD_14.02-111	1	2
		243	14.02-112	2009/3/27	Y	Y	N	fin.	-	DCD_14.02-112	1	2
		271	14.02-113	2009/3/30	Y	Y	N	fin.	-	DCD_14.02-113	3	2
		271	14.02-114	2009/3/30	Y	Y	N	fin.	-	DCD_14.02-114	1	2
		337	14.02-115	2009/5/18	Y	N	N		-	DCD_14.02-115	2	2
		337	14.02-116	2009/5/18	Y	Y	N		-	DCD_14.02-116	2	2
		371	14.02-117	2009/6/17	Y	N	N		-	DCD_14.02-117	3	2
		409	14.02-118	2009/7/10	Y	N	N		-	DCD_14.02-118	3	2
		-	-	-	-	-	-	-	COL 14.2(3) deleted	MAP-14-001	0	2
		455	14.02-119	2009/10/1	Y	N	N		-	DCD_14.02-119	-	2
		521	14.02-120	2010/2/5	Y	Y	N		-	DCD_14.02-120	2	3
		554	14.02-121	2010/4/15	Y	N	N		-	DCD_14.02-121	3	3
		600	14.02-122	2010/7/20	Y	Y	N		-	DCD_14.02-122	4	3
		678	14.02-123	2011/3/1	Y	N	N		-	DCD_14.02-123	0	
		739	14.02-124	2011/6/7	N	N	N		-	-	N/A	N/A
		759	14.02-125	2011/7/20	Y	N	N		-	DCD_14.02-125	1	
14.3	Inspections, Tests, Analyses,	32	14.03-1	2008/8/29	Y	Y	N	fin.	-	DCD_14.03-1	0	2
	and Acceptance Criteria	32	14.03-2	2008/8/29	N	N	N	fin.	-	-	N/A	N/A
		32	14.03-3	2008/8/29	N	N	N	fin.	-	-	N/A	N/A
		32	14.03-4	2008/8/29	Y	Y	N	fin.	-	DCD_14.03-4	-	2
		32	14.03-5	2008/8/29	N	N	N	fin.	-	-	N/A	N/A
		156	14.3-1	2009/2/5	Y	N	N	fin.	-	DCD_14.3-1	1	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		156	14.3-2	2009/2/5	Y	N	N	fin.	-	DCD_14.3-2	1	2

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14.3.2	Structural and Systems Engineering	190	14.03.02-2	2009/3/3	Y	N	N		-	DCD_14.03.02-2	2	2
	Inspections, Tests, Analyses,	190	14.03.02-3	2009/3/3	Y	N	N		-	DCD_14.03.02-3	2	2
	and Acceptance Criteria	190	14.03.02-4	2009/3/3	N	N	N		-	-	N/A	N/A
		190	14.03.02-5	2009/3/3	Y	N	N		-	DCD_14.03.02-5	-	2
		190	14.03.02-6	2009/3/3	Y	N	N		-	DCD_14.03.02-6	2	2
		190	14.03.02-7	2009/3/3	Y	N	N		-	DCD_14.03.02-7	2	2
		190	14.03.02-8	2009/3/3	Y	N	N		-	DCD_14.03.02-8	2	2
		452	14.03.02-9	2009/10/1	Y	N	N		-	DCD_14.03.02-9	-	2
		452	14.03.02-10	2009/10/1	Y	N	N		-	DCD_14.03.02-10	-	2
		452	14.03.02-11	2009/10/1	Y	N	N		-	DCD_14.03.02-11	-	2
		452	14.03.02-12	2009/10/1	Y	N	N		-	DCD_14.03.02-12	-	2
		452	14.03.02-13	2009/10/8	Y	N	N		-	DCD_14.03.02-13	-	2
		452	14.03.02-14	2009/10/1	Y	N	N		-	DCD_14.03.02-14	-	2
		596	14.03.02-15	2010/7/5	Y	N	N		-	DCD_14.03.02-15	4	3
		596	14.03.02-16	2010/7/5	Y	N	N		-	DCD_14.03.02-16	4	3
		596	14.03.02-17	2010/7/5	Y	N	N		-	DCD_14.03.02-17	4	3
		596	14.03.02-18	2010/7/5	Y	N	N		-	DCD_14.03.02-18	4	3
		596	14.03.02-19	2010/7/5	Y	N	N		-	DCD_14.03.02-19	4	3
14.3.3	Piping Systems and Components	242	14.03.03-1	2009/4/27	N	N	N		-	-	N/A	N/A
	and Acceptance Criteria	242	14.03.03-2	2009/4/27	N	N	N		-	-	N/A	N/A
		242	14.03.03-3	2009/4/27	Y	N	N		-	DCD_14.03.03-3	3	2
		242	14.03.03-4	2009/4/27	Y	N	N		-	DCD_14.03.03-4	2	2
		242	14.03.03-5	2009/4/27	Y	N	N		-	DCD_14.03.03-5	3	2
		242	14.03.03-6	2009/4/27	Y	N	N		-	DCD_14.03.03-6	3	2
		242	14.03.03-7	2009/4/27	Y	N	N		-	DCD_14.03.03-7	3	2
		242	14.03.03-8	2009/4/27	Y	N	N		-	DCD_14.03.03-8	3	2
		242	14.03.03-9	2009/4/27	Y	N	N		-	DCD_14.03.03-9	3	2
		242	14.03.03-10	2009/4/27	Y	N	N		-	DCD_14.03.03-10	3	2
		242	14.03.03-11	2009/4/27	Y	N	N		-	DCD_14.03.03-11	3	2
		242	14.03.03-12	2009/4/27	Y	N	N		-	DCD_14.03.03-12	3	2
		242	14.03.03-13	2009/4/27	Y	N	N		-	DCD_14.03.03-13	3	2
		242	14.03.03-14	2009/4/27	Y	N	N		-	DCD_14.03.03-14	3	2
		242	14.03.03-15	2009/4/27	Y	N	N		-	DCD_14.03.03-15	3	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		242	14.03.03-16	2009/4/27	Y	N	N		-	DCD_14.03.03-16	3	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		404	14.03.03-17	2009/7/31	Y	N	N		-	DCD_14.03.03-17	4	2
		404	14.03.03-18	2009/7/31	Y	N	N		-	DCD_14.03.03-18	4	2
		404	14.03.03-19	2009/7/31	Y	N	N		-	DCD_14.03.03-19	4	2
		404	14.03.03-20	2009/7/31	Y	N	N		-	DCD_14.03.03-20	4	2
		404	14.03.03-21	2009/7/31	Y	N	N		-	DCD_14.03.03-21	4	2
		404	14.03.03-22	2009/7/31	Y	N	N		-	DCD_14.03.03-22	4	2
		499	14.03.03-23	2009/12/16	Y	N	N		-	DCD_14.03.03-23	1	3
		743	14.03.03-24	2011/5/26	Y	N	N		-	DCD_14.03.03-24	0	
		743	14.03.03-25	2011/5/26	N	N	N		-	-	N/A	N/A
		892	14.03.03-26	02/17/2012	Y	N	N		-	DCD_03.03-26	2	
		892	14.03.03-27	02/17/2012	Y	Y	Y		-	DCD_03.03-27	2	
14.3.4	Reactor Systems -	191	14.03.04-1	2009/4/7	Y	N	N		-	DCD_14.03.04-1	3	2
		191	14.03.04-2	2009/4/7	Y	N	N		-	DCD_14.03.04-2	3	2
		191	14.03.04-3	2009/4/7	Y	N	N		-	DCD_14.03.04-3	3	2
		191	14.03.04-4	2009/4/7	Y	N	N		-	DCD_14.03.04-4	3	2
		191	14.03.04-5	2009/4/7	Y	N	N		-	DCD_14.03.04-5	2	2
		191	14.03.04-6	2009/4/7	Y	N	N		-	DCD_14.03.04-6	3	2
		191	14.03.04-7	2009/4/7	Y	N	N		-	DCD_14.03.04-7	3	2
		191	14.03.04-8	2009/4/7	Y	N	N		-	DCD_14.03.04-8	3	2
		191	14.03.04-9	2009/4/7	Y	N	N		-	DCD_14.03.04-9	3	2
		192	14.03.04-10	2009/4/10	Y	N	N		-	DCD_14.03.04-10	3	2
		192	14.03.04-11	2009/4/10	Y	N	N		-	DCD_14.03.04-11	3	2
		192	14.03.04-12	2009/4/10	Y	N	N		-	DCD_14.03.04-12	3	2
		192	14.03.04-13	2009/4/10	Y	N	N		-	DCD_14.03.04-13	3	2
		192	14.03.04-14	2009/4/10	Y	N	N		-	DCD_14.03.04-14	3	2
		192	14.03.04-15	2009/4/10	Y	N	N		-	DCD_14.03.04-15	3	2
		192	14.03.04-16	2009/4/10	Y	N	N		-	DCD_14.03.04-16	3	2
		192	14.03.04-17	2009/4/10	Y	N	N		-	DCD_14.03.04-17	3	2
		192	14.03.04-18	2009/4/10	Y	N	N		-	DCD_14.03.04-18	3	2

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		193	14.03.04-19	2009/4/9	Y	N	N		-	DCD-14.03.04-19	3	2
		193	14.03.04-20	2009/4/9	Y	N	N		-	DCD-14.03.04-20	3	2
		193	14.03.04-21	2009/4/9	Y	N	N		-	DCD-14.03.04-21	3	2
		193	14.03.04-22	2009/4/9	Y	N	N		-	DCD-14.03.04-22	3	2
		193	14.03.04-23	2009/4/9	Y	N	N		-	DCD-14.03.04-23	3	2
		193	14.03.04-24	2009/4/9	Y	N	N		-	DCD-14.03.04-24	3	2
		193	14.03.04-25	2009/4/9	Y	N	N		-	DCD-14.03.04-25	3	2
		193	14.03.04-26	2009/4/9	Y	N	N		-	DCD-14.03.04-26	3	2
		193	14.03.04-27	2009/4/9	Y	N	N		-	DCD-14.03.04-27	3	2
		193	14.03.04-28	2009/4/9	Y	N	N		-	DCD-14.03.04-28	3	2
		193	14.03.04-29	2009/4/9	Y	N	N		-	DCD-14.03.04-29	3	2
		193	14.03.04-30	2009/4/9	Y	N	N		-	DCD-14.03.04-30	3	2
		196	14.03.04-31	2009/3/5	Y	N	N		-	DCD_14.03.04-31	2	2
		196	14.03.04-32	2009/3/5	Y	N	N		-	DCD_14.03.04-32	2	2
		196	14.03.04-33	2009/3/5	Y	N	N		-	DCD_14.03.04-33	2	2
		196	14.03.04-34	2009/3/5	Y	N	N		-	DCD_14.03.04-34	2	2
		196	14.03.04-35	2009/3/5	Y	N	N		-	DCD_14.03.04-35	2	2
		373	14.03.04-36	2009/6/16	N	N	N		-	-	N/A	N/A
		373	14.03.04-37	2009/6/16	N	N	N		-	-	N/A	N/A
		373	14.03.04-38	2009/6/16	N	N	N		-	-	N/A	N/A
		373	14.03.04-39	2009/6/16	N	N	N		-	-	N/A	N/A
		373	14.03.04-40	2009/6/16	N	N	N		-	-	N/A	N/A
		446	14.03.04-41	2009/9/28	Y	N	N		-	DCD_14.03.04-41	-	2
		503	14.03.04-42	2009/12/21	Y	N	N		-	DCD_14.03.04-42	1	3
14.3.5	Instrumentation and Controls -	181	14.03.05-1	2009/4/6	N	N	N		-	-	N/A	N/A
		181	14.03.05-2	2009/4/6	N	N	N		-	-	N/A	N/A
		181	14.03.05-3	2009/4/6	Y	N	N		-	DCD-14.03.05-3	3	2
		181	14.03.05-4	2009/4/6	Y	Y	N		-	DCD-14.03.05-4	3	2
		181	14.03.05-5	2009/4/6	Y	N	N		-	DCD-14.03.05-5	3	2
		181	14.03.05-6	2009/4/6	Y	N	N		-	DCD-14.03.05-6	3	2
		181	14.03.05-7	2009/4/6	N	N	N		-	-	N/A	
		181	14.03.05-8	2009/4/6	Y	N	N		-	DCD-14.03.05-8	3	2
		181	14.03.05-9	2009/4/6	Y	N	N		-	DCD-14.03.05-9	3	2
		255	14.03.05-10	2009/4/28	Y	N	N		-	DCD-14.03.05-10	3	2
		255	14.03.05-11	2009/4/28	Y	N	N		-	DCD-14.03.05-11	3	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		255	14.03.05-12	2009/4/28	Y	N	N		-	DCD-14.03.05-12	3	2
				5/31/2011	Y	N	N		-	DCD_14.03.05-12	0	
		255	14.03.05-13	2009/4/28	Y	N	N		-	DCD-14.03.05-13	3	2
		255	14.03.05-14	2009/4/28	Y	N	N		-	DCD-14.03.05-14	3	2
		255	14.03.05-15	2009/4/28	Y	N	N		-	DCD-14.03.05-15	3	2
		255	14.03.05-16	2009/4/28	Y	N	N		-	DCD-14.03.05-16	3	2
		255	14.03.05-17	2009/4/28	Y	N	N		-	DCD-14.03.05-17	3	2
		255	14.03.05-18	2009/4/28	Y	N	N		-	DCD-14.03.05-18	3	2
		255	14.03.05-19	2009/4/28	Y	N	N		-	DCD-14.03.05-19	3	2
		255	14.03.05-20	2009/4/28	Y	N	N		-	DCD-14.03.05-20	3	2
		255	14.03.05-21	2009/4/28	Y	N	N		-	DCD-14.03.05-21	3	2
		275	14.03.05-22	2009/4/28	Y	N	N		-	DCD-14.03.05-22	3	2
		275	14.03.05-23	2009/4/28	Y	N	N		-	DCD-14.03.05-23	3	2
		275	14.03.05-24	2009/4/28	Y	N	N		-	DCD-14.03.05-24	3	2
		275	14.03.05-25	2009/4/28	Y	N	N		-	DCD-14.03.05-25	3	2
		275	14.03.05-26	2009/4/28	Y	N	N		-	DCD-14.03.05-26	3	2
		275	14.03.05-27	2009/4/28	-	N	N		-	-	N/A	N/A
		275	14.03.05-28	2009/4/28	Y	N	N		-	DCD-14.03.05-28	3	2
		275	14.03.05-29	2009/4/28	Y	N	N		-	DCD-14.03.05-29	3	2
		275	14.03.05-30	2009/4/28	N	N	N		-	-	N/A	N/A
		275	14.03.05-31	2009/4/28	N	N	N		-	-	N/A	N/A
				5/31/2011	Y	N	N		-	DCD_14.03.05-31	0	
		515	14.03.05-32	2010/1/28	Y	N	N		-	DCD_14.03.05-32	2	3
14.3.6	Electrical Systems -	182	14.03.06-06	2009/4/6	Y	N	N		-	DCD-14.03.06-06	3	2
	Inspections, Tests, Analyses,	182	14.03.06-07	2009/4/6	Y	N	N		-	DCD-14.03.06-07	3	2
	and Acceptance Criteria	182	14.03.06-08	2009/4/6	Y	N	N		-	DCD-14.03.06-08	3	2
		182	14.03.06-09	2009/4/6	Y	N	N		-	DCD-14.03.06-09	3	2
		182	14.03.06-10	2009/4/6	Y	N	N		-	DCD-14.03.06-10	3	2
		182	14.03.06-11	2009/4/6	Y	N	N		-	DCD-14.03.06-11	3	2
		182	14.03.06-12	2009/4/6	Y	N	N		-	DCD-14.03.06-12	3	2
		182	14.03.06-13	2009/4/6	Y	N	N		-	DCD-14.03.06-13	3	2

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		182	14.03.06-14	2009/4/6	Y	N	N		-	DCD-14.03.06-14	3	2
		424	14.03.06-15	2009/9/8	Y	Y	N		-	DCD-14.03.06-15	-	2
		424	14.03.06-16	2009/9/8	Y	Y	N		-	DCD-14.03.06-16	4	2
		424	14.03.06-17	2009/9/8	Y	N	N		-	DCD-14.03.06-17	-	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		424	14.03.06-18	2009/9/8	Y	N	N		-	DCD-14.03.06-18	-	2
		651	14.03.06-19	2011/2/17	N	N	N		-	-	N/A	N/A
		754	14.03.06-20	2011/7/15	Y	N	N		-	DCD_14.03.06-20	1	
		754	14.03.06-21	2011/7/15	N	N	N		-	-	N/A	N/A
		754	14.03.06-22	2011/7/15	Y	N	N		-	DCD_14.03.06-22	1	
		754	14.03.06-23	2011/7/15	Y	N	N		-	DCD_14.03.06-23	1	
		754	14.03.06-24	2011/7/15	Y	N	N		-	DCD_14.03.06-24	1	
		754	14.03.06-25	2011/7/15	Y	N	N		-	DCD_14.03.06-25	1	
		754	14.03.06-26	2011/7/15	Y	N	N		-	DCD_14.03.06-26	1	
		754	14.03.06-27	2011/7/15	N	N	N		-	-	N/A	N/A
		754	14.03.06-28	2011/7/15	Y	N	N		-	DCD_14.03.06-28	1	
14.3.7	Plant Systems -	54	14.03.07-1/14.3.7.3.1-1	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
	Inspections, Tests, Analyses,	54	14.03.07-1/14.3.7.3.1-2	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
	and Acceptance Criteria	54	14.03.07-1/14.3.7.3.1-3	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.01-3	4	2
		54	14.03.07-2/14.3.7.3.2-1	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-2	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-3	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-4	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-5	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.02-5	1	2
		54	14.03.07-2/14.3.7.3.2-6	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.02-6	1	2
		54	14.03.07-2/14.3.7.3.2-7	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-8	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.02-8	1	2
		54	14.03.07-2/14.3.7.3.2-9	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-10	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-11	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.02-1	2	2
		54	14.03.07-2/14.3.7.3.2-12	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-13	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-14	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.02-1	1	2
		54	14.03.07-2/14.3.7.3.2-15	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.02-1	1	2
		54	14.03.07-2/14.3.7.3.2-16	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.02-1	1	2
		54	14.03.07-2/14.3.7.3.2-17	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.02-1	3	2
		54	14.03.07-2/14.3.7.3.2-18	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.02-1	0	2
		54	14.03.07-2/14.3.7.3.2-19	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-20	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-21	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.02-2	0	2
		54	14.03.07-2/14.3.7.3.2-22	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-2/14.3.7.3.2-23	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-1	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-2	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-3	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-4	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-5	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-6	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.04-6	1	2
		54	14.03.07-3/14.3.7.3.4-7	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-8	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-9	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.04-9	1	2
		54	14.03.07-3/14.3.7.3.4-10	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.04-1	0	2
		54	14.03.07-3/14.3.7.3.4-11	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.04-1	3	2
		54	14.03.07-3/14.3.7.3.4-12	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.04-1	0	2
		54	14.03.07-3/14.3.7.3.4-13	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-14	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-3/14.3.7.3.4-15	2008/9/19	N	N	N	fin.	-			
				2009/1/9	Y	N	N		-	CD_14.03.07.03.04-1	2	2
		54	14.03.07-4/14.3.7.3.5-1	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-1	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-2	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-3	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-4	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.06-4	0	2
		54	14.03.07-5/14.3.7.3.6-5	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.06-5	4	2
		54	14.03.07-5/14.3.7.3.6-6	2008/9/19	Y	Y	N	fin.	-	DCD_14.03.07.03.06-6	3	2
		54	14.03.07-5/14.3.7.3.6-7	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.06-7	3	2
		54	14.03.07-5/14.3.7.3.6-8	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.06-8	1	2

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		54	14.03.07-5/14.3.7.3.6-9	2008/9/19	Y	N	N	fin.	-	DCD_14.03.07.03.06-9	2	2
		54	14.03.07-5/14.3.7.3.6-10	2008/9/19	N	N	N	fin.	-			
				2009/1/9	Y	N	N	fin.	-	DCD_14.03.07.03.06-1	2	2
		54	14.03.07-5/14.3.7.3.6-11	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-12	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-13	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.06-1	2	2
		54	14.03.07-5/14.3.7.3.6-14	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.06-1	3	2
		54	14.03.07-5/14.3.7.3.6-15	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-16	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.06-1	1	2
		54	14.03.07-5/14.3.7.3.6-17	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.06-1	1	2
		54	14.03.07-5/14.3.7.3.6-18	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-19	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-20	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.06-2	3	2
		54	14.03.07-5/14.3.7.3.6-21	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-5/14.3.7.3.6-22	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.06-2	3	2
		54	14.03.07-5/14.3.7.3.6-23	2008/9/19	Y	N	N	fin.	-	CD_14.03.07.03.06-2	0	2
		54	14.03.07-6/14.3.7.3.7-1	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-6/14.3.7.3.7-2	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-6/14.3.7.3.7-3	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		54	14.03.07-6/14.3.7.3.7-4	2008/9/19	N	N	N	fin.	-	-	N/A	N/A
		183	14.03.07-7	2009/4/6	Y	N	N			DCD-14.03.07-7	3	2
		183	14.03.07-8	2009/4/6	Y	N	N			DCD-14.03.07-8	3	2
		183	14.03.07-9	2009/4/6	Y	N	N			DCD-14.03.07-9	3	2
		183	14.03.07-10	2009/4/6	Y	N	N			DCD-14.03.07-10	3	2
		183	14.03.07-11	2009/4/6	Y	N	N			DCD-14.03.07-11	3	2
		183	14.03.07-12	2009/4/6	Y	N	N			DCD-14.03.07-12	3	2
		183	14.03.07-13	2009/4/6	Y	N	N			DCD-14.03.07-13	3	2
		183	14.03.07-14	2009/4/6	Y	N	N			DCD-14.03.07-14	3	2
		183	14.03.07-15	2009/4/6	N	N	N			-	N/A	N/A
		447	14.03-01	2009/9/14	Y	N	N		-	DCD-14.03-1	-	2
		184	14.03.07-16	2009/4/9	Y	N	N		-	DCD_14.03.07-16	3	2
		184	14.03.07-17	2009/4/9	Y	N	N		-	DCD_14.03.07-17	3	2
		184	14.03.07-18	2009/4/9	Y	N	N		-	DCD_14.03.07-18	3	2
		184	14.03.07-19	2009/4/9	Y	N	N		-	DCD_14.03.07-19	3	2
		184	14.03.07-20	2009/4/9	Y	N	N		-	DCD_14.03.07-20	3	2
		184	14.03.07-21	2009/4/9	Y	N	N		-	DCD_14.03.07-21	3	2
		184	14.03.07-22	2009/4/9	Y	N	N		-	DCD_14.03.07-22	3	2
		184	14.03.07-23	2009/4/9	Y	N	N		-	DCD_14.03.07-23	3	2
		184	14.03.07-24	2009/4/9	Y	N	N		-	DCD_14.03.07-24	3	2
		184	14.03.07-25	2009/4/9	Y	N	N		-	DCD_14.03.07-25	3	2
		184	14.03.07-26	2009/4/9	Y	N	N		-	DCD_14.03.07-26	3	2
		184	14.03.07-27	2009/4/9	Y	N	N		-	DCD_14.03.07-27	3	2
		184	14.03.07-28	2009/4/9	N	N	N		-	-	N/A	N/A
		184	14.03.07-29	2009/4/9	Y	N	N		-	DCD_14.03.07-29	3	2
		184	14.03.07-30	2009/4/9	N	N	N		-	-	N/A	N/A
		184	14.03.07-31	2009/4/9	Y	N	N		-	DCD_14.03.07-31	3	2
		184	14.03.07-32	2009/4/9	Y	N	N		-	DCD_14.03.07-32	3	2
		184	14.03.07-33	2009/4/9	Y	N	N		-	DCD_14.03.07-33	3	2
		447	14.03-02	2009/9/14	Y	N	N		-	DCD-14.03-2	-	2
		184	14.03.07-34	2009/4/9	Y	N	N		-	DCD_14.03.07-34	3	2
		381	14.03.07-35	2009/7/17	Y	N	N		-	DCD_14.03.07-35	4	2
		381	14.03.07-36	2009/7/17	Y	N	N		-	DCD_14.03.07-36	4	2
		381	14.03.07-37	2009/7/17	Y	N	N		-	DCD_14.03.07-37	4	2
		381	14.03.07-38	2009/7/17	Y	N	N		-	DCD_14.03.07-38	4	2
		381	14.03.07-39	2009/7/17	N	N	N		-	-	N/A	N/A
		381	14.03.07-40	2009/7/17	N	N	N		-	-	N/A	N/A
		381	14.03.07-41	2009/7/17	Y	N	N		-	DCD_14.03.07-41	4	2
		381	14.03.07-42	2009/7/17	Y	N	N		-	DCD_14.03.07-42	4	2
		381	14.03.07-43	2009/7/17	Y	N	N		-	DCD_14.03.07-43	4	2
		381	14.03.07-44	2009/7/17	Y	N	N		-	DCD_14.03.07-44	4	2
		381	14.03.07-45	2009/7/17	Y	N	N		-	DCD_14.03.07-45	-	2
		381	14.03.07-46	2009/7/17	N	N	N		-	-	N/A	N/A
		381	14.03.07-47	2009/7/17	N	N	N		-	-	N/A	N/A
		456	14.03.07-48	2009/10/5	Y	N	N		-	DCD_14.03.07-48	-	2
		456	14.03.07-49	2009/10/5	Y	N	N		-	DCD_14.03.07-49	-	2
		508	14.03.07-50	2009/12/24	Y	N	N		-	DCD_14.03.07-50	1	3
		599	14.03.07-51	2010/7/20	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		599	14.03.07-52	2010/7/20	Y	N	N		-	DCD_14.03.07-52	4	3
		675	14.03.07-53	2011/1/31	N	N	N		-	-	N/A	N/A
		675	14.03.07-54	2011/1/31	N	N	N		-	-	N/A	N/A
		675	14.03.07-55	2011/1/31	Y	Y	N		-	DCD_14.03.07-55	0	
		675	14.03.07-56	2011/1/31	Y	N	N		-	DCD_14.03.07-56	0	
		685	14.03.07-57	2011/2/21	N	N	N		-	-	N/A	N/A
		782	14.03.07-58	2011/8/8	N	N	N		-	-	N/A	N/A
14.3.8	Radiation Protection - Inspections, Tests, Analyses, and Acceptance Criteria											
14.3.9	Human Factors Engineering - Inspections, Tests, Analyses, and Acceptance Criteria	372	14.03.09-1	2009/6/11	Y	N	N		-	DCD_14.03.09-1	3	2
		372	14.03.09-2	2009/6/11	Y	N	N		-	DCD_14.03.09-2	3	2
		372	14.03.09-3	2009/6/11	Y	N	N		-	DCD_14.03.09-3	3	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		372	14.03.09-4	2009/6/11	Y	N	N		-	DCD_14.03.09-4	3	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		372	14.03.09-5	2009/6/11	Y	N	N		-	DCD_14.03.09-5	3	2
				2011/6/7	N	N	N		-	-	N/A	N/A
		405	14.03.09-6	2009/6/26	Y	N	N		-	DCD_14.03.09-6	3	2
		560	14.03.09-7	2010/4/23	Y	N	N		-	DCD_14.03.09-7	3	3
		560	14.03.09-8	2010/4/23	Y	N	N		-	DCD_14.03.09-8	3	3
		838	14.03.09-9	10/27/2011	N	N	N		-	-	N/A	N/A
		838	14.03.09-10	10/27/2011	N	N	N		-	-	N/A	N/A
14.3.10	Emergency Planning - Inspections, Tests, Analyses, and Acceptance Criteria	195	14.03.10-01	2009/3/5	Y	N	N		-	DCD_14.03.10-01	2	2
				2011/6/7	N	Y	N		-	-	N/A	N/A
		195	14.03.10-02	2009/3/5	Y	N	N		-	DCD_14.03.10-02	2	2
		611	14.03.10-13	2010/7/27	Y	N	N		-	DCD_14.03.10-13	4	3
14.3.11	Containment Systems - Inspections, Tests, Analyses, and Acceptance Criteria	51	14.03.11-1	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-1	3	2
		51	14.03.11-2	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-2	3	2
		51	14.03.11-3	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-3	3	2
		51	14.03.11-4	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		51	14.03.11-5	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-5	0	2
		51	14.03.11-6	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-6	3	2
		51	14.03.11-7	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		51	14.03.11-8	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-8	3	2
		51	14.03.11-9	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		51	14.03.11-10	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		51	14.03.11-11	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-11	0	2
		51	14.03.11-12	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-12	0	2
		51	14.03.11-13	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		51	14.03.11-14	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-14	0	2
		51	14.03.11-15	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		51	14.03.11-16	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-16	3	2
		51	14.03.11-17	2008/9/18	Y	N	N	fin.	-	DCD_14.03.11-17	0	2
		198	14.03.11-18	2009/4/9	Y	N	N		-	DCD_14.03.11-18	3	2
		198	14.03.11-19	2009/4/9	N	N	N		-	-	N/A	N/A
		198	14.03.11-20	2009/4/9	Y	N	N		-	DCD_14.03.11-20	3	2
		198	14.03.11-21	2009/4/9	Y	N	N		-	DCD_14.03.11-21	3	2
		198	14.03.11-22	2009/4/9	Y	N	N		-	DCD_14.03.11-22	3	2
		198	14.03.11-23	2009/4/9	Y	N	N		-	DCD_14.03.11-23	3	2
		198	14.03.11-24	2009/4/9	Y	N	N		-	DCD_14.03.11-24	3	2
		198	14.03.11-25	2009/4/9	Y	N	N		-	DCD_14.03.11-25	3	2
		198	14.03.11-26	2009/4/9	Y	N	N		-	DCD_14.03.11-26	3	2
		198	14.03.11-27	2009/4/9	Y	N	N		-	DCD_14.03.11-27	3	2
		222	14.03.11-28	2009/4/23	Y	N	N		-	DCD_14.03.11-28	3	2
		222	14.03.11-29	2009/4/23	Y	N	N		-	DCD_14.03.11-29	3	2
		222	14.03.11-30	2009/4/23	Y	Y	N		-	DCD_14.03.11-30	3	2
		222	14.03.11-31	2009/4/23	Y	N	N		-	DCD_14.03.11-31	3	2
		222	14.03.11-32	2009/4/23	Y	N	N		-	DCD_14.03.11-32	3	2
		222	14.03.11-33	2009/4/23	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		222	14.03.11-34	2009/4/23	Y	N	N		-	DCD_14.03.11-34	3	2
		222	14.03.11-35	2009/4/23	Y	N	N		-	DCD_14.03.11-35	3	2
		222	14.03.11-36	2009/4/23	Y	N	N		-	DCD_14.03.11-36	3	2
		222	14.03.11-37	2009/4/23	Y	N	N		-	DCD_14.03.11-37	3	2
		348	14.03.11-38	2009/6/11	Y	N	N		-	DCD_14.03.11-38	3	2
		348	14.03.11-39	2009/6/11	Y	N	N		-	DCD_14.03.11-39	3	2
		488	14.03.11-40	12/25/09	Y	N	N					
				2010/1/13	Y	N	N		-	DCD_14.3.4.11-40	1	3
		488	14.03.11-41	12/25/09	N	N	N					
				2010/1/13	N	N	N		-	-	N/A	N/A
		488	14.03.11-42	12/25/09	Y	N	N					
				2010/1/13	Y	N	N		-	DCD_14.3.4.11-42	1	3
		550	14.03.11-43	2010/3/25	Y	N	N		-	DCD_14.3.4.11-43	3	3
14.3.12	Physical Security Hardware -	52	14.03.12-1	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
	Inspections, Tests, Analyses,	52	14.03.12-2	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
	and Acceptance Criteria	52	14.03.12-3	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		52	14.03.12-4	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		52	14.03.12-5	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		52	14.03.12-6	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		52	14.03.12-7	2008/9/18	Y	N	N	fin.	-	DCD_14.03.12-7	-	2
		52	14.03.12-8	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		52	14.03.12-9	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		52	14.03.12-10	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		52	14.03.12-11	2008/9/18	Y	N	N	fin.	-	DCD_14.03.12-11	4	2
		261	14.03.12-12	2009/4/3	N	N	N		-	-	N\A	N\A
		261	14.03.12-13	2009/4/3	N	N	N		-	-	N\A	N\A
		261	14.03.12-14	2009/4/3	N	N	N		-	-	N\A	N\A
		261	14.03.12-15	2009/4/3	N	N	N		-	-	N\A	N\A
		261	14.03.12-16	2009/4/3	N	N	N		-	-	N\A	N\A
		261	14.03.12-17	2009/4/3	N	N	N		-	-	N\A	N\A
		261	14.03.12-18	2009/4/3	N	N	N		-	-	N\A	N\A
		396	14.03.12-20	2009/7/17	Y	N	N		-	DCD_14.03.12-20	2	3
		396	14.03.12-21	2009/7/17	N	N	N		-	-	N\A	N\A
		396	14.03.12-22	2009/7/17	N	N	N		-	-	N\A	N\A
		396	14.03.12-23	2009/7/17	N	N	N		-	-	N\A	N\A
		396	14.03.12-24	2009/7/17	N	N	N		-	-	N\A	N\A
		481	14.03.12-25	11/10/2009	N	N	N		-	-	N\A	N/A
		481	14.03.12-26	11/10/2009	Y	N	N		-	DCD_14.03.12-26	0	3
		481	14.03.12-27	11/10/2009	Y	N	N		-	DCD_14.03.12-27	0	3
		481	14.03.12-28	11/10/2009	N	N	N		-	-	N\A	N/A
		481	14.03.12-29	11/10/2009	Y	N	N		-	DCD_14.03.12-29	0	3
		481	14.03.12-30	11/10/2009	Y	N	N		-	DCD_14.03.12-30	0	3
		673	14.03.12-31	2010/12/22	N	N	N		-	-	N\A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
15	Introduction -	297	15.0.0-1	2009/7/3	Y	N	N		-	DCD_15.0.0-1	4	2
	Transient and Accident Analyses	297	15.0.0-2	2009/7/3	Y	N	N		-	DCD_15.0.0-2	4	2
		297	15.0.0-3	2009/7/3	Y	N	N		-	DCD_15.0.0-3	4	2
		297	15.0.0-4	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-5	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-6	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-7	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-8	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-9	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-10	2009/7/3	N	N	N		-	-	N/A	N/A
				2011/12/20	N	N	N		-	-	N/A	N/A
		297	15.0.0-11	2009/7/3	N	N	N		-	-	N/A	N/A
				2012/1/31	N	N	N		-	-	N/A	N/A
		297	15.0.0-12	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-13	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-14	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-15	2009/7/3	Y	N	N		-	DCD_15.0.0-15	4	2
		297	15.0.0-16	2009/7/3	N	N	N		-	-	N/A	N/A
				12/20/2011	N	N	N		-	-	N/A	N/A
		297	15.0.0-17	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-18	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-19	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-20	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-21	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-22	2009/7/3	N	N	N		-	-	N/A	N/A
		297	15.0.0-23	2009/7/3	N	N	N		-	-	N/A	N/A
		687	15.0.0-24	2011/2/25	Y	N	N		-	DCD_15.0.0-24	0	
				2011/9/9	Y	N	N		-	DCD_15.0.0-24	1	
		769	15.0.0-25	2011/7/15	N	N	N		-	-	N/A	N/A
		769	15.0.0-26	2011/7/15	Y	N	N		-	DCD_15.0.0-26	1	
				2011/9/9	Y	N	N		-	DCD_15.0.0-26	1	
		769	15.0.0-27	2011/7/15	N	N	N		-	-	N/A	N/A
				2011/9/9	N	N	N		-	-	N/A	N/A
		769	15.0.0-28	2011/7/15	N	N	N		-	-	N/A	N/A
		769	15.0.0-29	2011/7/15	N	N	N		-	-	N/A	N/A
				2011/9/9	N	N	N		-	-	N/A	N/A
		786	15-30	8/25/2011	Y	N	N		-	DCD_15-30	1	
		786	15-31	8/25/2011	Y	N	N		-	DCD_15-31	1	
		786	15-32	8/25/2011	N	N	N		-	-	N/A	N/A
		809	15-33	9/30/2011	Y	N	N		-	DCD_15-33	1	
		809	15-34	9/30/2011	Y	N	N		-	DCD_15-33, 15.02.01-15.02.05-9	1	
		864	15-35	12/07/2011	N	N	N		-	-	N/A	N/A
		864	15-36	12/07/2011	N	N	N		-	-	N/A	N/A
		882	15-37	01/31/2012	N	N	N		-	-	N/A	N/A
		882	15-38	01/31/2012	Y	N	N		-	DCD_15-38	2	
		882	15-39	01/31/2012	N	N	N		-	-	N/A	N/A
15.0.1	Radiological Consequence Analyses											
	Using Alternative Source Terms											
15.0.2	Review of											
	Transient and											
	Accident Analysis Method											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
15.0.3	Design Basis Accident	38	15.00.03-1	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
	Radiological Consequences	38	15.00.03-2	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
	of Analyses for	38	15.00.03-3	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
	Advanced Light Water Reactors	38	15.00.03-4	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-5	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-6	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-7	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-8	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-9	2008/8/22	Y	N	N	fin.	-	DCD_15.00.03-9	0	2
		38	15.00.03-10	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-11	2008/8/22	Y	N	N	fin.	-	DCD_15.00.03-11	0	2
		38	15.00.03-12	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-13	2008/8/22	Y	N	N	fin.	-	DCD_15.00.03-13	0	2
		38	15.00.03-14	2008/8/22	Y	N	N	fin.	-	DCD_15.00.03-14	-	1
		38	15.00.03-15	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-16	2008/8/22	Y	N	N	fin.	-	DCD_15.00.03-16	0	2
		38	15.00.03-17	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-18	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-19	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-20	2008/10/20	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-21	2008/10/20	N	N	N	fin.	-	-	N/A	N/A
		38	15.00.03-22	2008/8/22	Y	N	N	fin.	-	DCD_15.00.03-22	0	2
		38	15.00.03-23	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		105	15.00.03-24	2009/1/6	N	N	N	fin.	-	-	N/A	N/A
		105	15.00.03-25	2009/1/6	Y	Y	N	fin.	-	DCD_15.00.03-25	0	2
		106	15.00.03-26	2009/1/6	Y	Y	N	fin.	-	DCD_15.00.03-26	0	2
		176	15.00.03-27	2009/3/3	N	N	N		-	-	N/A	N/A
		176	15.00.03-28	2009/3/3	N	N	N		-	-	N/A	N/A
		390	15.00.03-29	2009/7/13	N	N	N		-	-	N/A	N/A
		418	15.00.03-30	2009/8/3	N	N	N		-	-	N/A	N/A
		420	15.00.03-31	2009/8/3	N	N	N		-	-	N/A	N/A
		492	15.00.03-32	2009/12/11	N	N	N		-	-	N/A	N/A
15.1.1-	Decrease in Feedwater Temperature	301	15.1-1	2009/6/16	N	N	N		-	-	N/A	N/A
15.1.4	Increase in Feedwater Flow,	301	15.1-2	2009/6/16	N	N	N		-	-	N/A	N/A
	Increase in Steam Flow,	301	15.1-3	2009/6/16	N	N	N		-	-	N/A	N/A
	and Inadvertent Opening of a	301	15.1-4	2009/6/16	N	N	N		-	-	N/A	N/A
	Steam Generator Relief or Safety Valv	301	15.1-5	2009/6/16	N	N	N		-	-	N/A	N/A
		301	15.1-6	2009/6/16	N	N	N		-	-	N/A	N/A
		787	15.01.01-15,15.01.04-7	8/25/2011	Y	N	N		-	DCD_15.01.01-15,15.01.04-	1	
		787	15.01.01-15,15.01.04-8	8/25/2011	Y	N	N		-	DCD_15.01.01-15,15.01.04-	1	
		811	15.01.01-15,15.01.04-9	9/30/2011	N	N	N		-	-	N/A	N/A
15.1.5	Steam System Piping Failures	302	15.1.5-1	2009/7/3	N	N	N		-	-	N/A	N/A
	Inside and Outside of Containment	302	15.1.5-2	2009/7/3	N	N	N		-	-	N/A	N/A
	(PWR)	302	15.1.5-3	2009/7/3	N	N	N		-	-	N/A	N/A
		302	15.1.5-4	2009/7/3	N	N	N		-	-	N/A	N/A
		302	15.1.5-5 (Deleted)	2009/7/3								
		788	15.01.05-6	8/25/2011	Y	N	N		-	DCD_15.01.05-6	1	
		788	15.01.05-7	8/25/2011	N	N	N		-	-	N/A	N/A
		865	15.01.05-8	12/12/2011	Y	N	N		-	DCD_15.02.05-8	1	
15.2.1-	Loss of External Load;	303	15.2-1	2009/7/3	N	N	N		-	-	N/A	N/A
15.2.5	Turbine Trip;	303	15.2-2	2009/7/3	Y	N	N		-	DCD_15.2-2	4	2
	Loss of Condenser Vacuum;	303	15.2-3	2009/7/3	N	N	N		-	-	N/A	N/A
	Closure of Main Steam	303	15.2-4	2009/7/3	N	N	N		-	-	N/A	N/A
	Isolation Valve (BWR);	303	15.2-5	2009/7/3	N	N	N		-	-	N/A	N/A
	and Steam Pressure	303	15.2-6 (Deleted)	2009/7/3					-			
	Regulator Failure (Closed)	303	15.2-7 (Deleted)	2009/7/3					-			
		303	15.2-8	2009/7/3	Y	N	N		-	DCD_15.2-8	4	2
		789	15.02.01-15.02.05-9	9/30/2011	Y	N	N		-	DCD_15.02.01-15.02.05-9	1	
		789	15.02.01-15.02.05-10	9/30/2011	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
15.2.6	Loss of Nonemergency AC Power	304	15.2.6-1	2009/6/16	N	N	N		-	-	N/A	N/A
	to the Station Auxiliaries											
15.2.7	Loss of Normal Feedwater Flow											
15.2.8	Feedwater System Pipe Breaks	305	15.2.8-1	2009/7/3	N	N	N		-	-	N/A	N/A
	Inside and Outside Containment	305	15.2.8-2	2009/7/3	N	N	N		-	-	N/A	N/A
	(PWR)	305	15.2.8-3	2009/7/3	N	N	N		-	-	N/A	N/A
15.3.1-	Loss of Forced Reactor Coolant Flow	306	15.3.1-1	2009/6/16	N	N	N		-	-	N/A	N/A
15.3.2	Including Trip of Pump Motor and	306	15.3.1-2	2009/6/16	N	N	N		-	-	N/A	N/A
	Flow Controller Malfunctions	306	15.3.1-3	2009/6/16	N	N	N		-	-	N/A	N/A
		306	15.3.1-4	2009/6/16	N	N	N		-	-	N/A	N/A
		306	15.3.1-5	2009/6/16	N	N	N		-	-	N/A	N/A
		306	15.3.1-6	2009/6/16	N	N	N		-	-	N/A	N/A
		306	15.3.1-7	2009/6/16	N	N	N		-	-	N/A	N/A
				2011/12/20	N	N	N		-	-	N/A	N/A
		306	15.3.1-8	2009/6/16	N	N	N		-	-	N/A	N/A
15.3.3-	Reactor Coolant Pump Rotor Seizure	353	15.3.3.1	2009/7/3	N	N	N		-	-	N/A	N/A
15.3.4	and Reactor Coolant Pump	353	15.3.3.2	2009/7/3	N	N	N		-	-	N/A	N/A
	Shaft Break	353	15.3.3.3	2009/7/3	N	N	N		-	-	N/A	N/A
		900	15.03.03-15.03.04-4	03/07/2012	N	N	N					
		889	15.04.01-10	1/31/2012	N	N	N		-	-	N/A	N/A
15.4.1	Uncontrolled Control Rod Assembly	308	15.4.1-1	2009/7/3	N	N	N		-	-	N/A	N/A
	Withdrawal from a	308	15.4.1-2	2009/7/3	N	N	N		-	-	N/A	N/A
	Subcritical or	308	15.4.1-3	2009/7/3	N	N	N		-	-	N/A	N/A
	Low Power Startup Condition	308	15.4.1-4	2009/7/3	N	N	N		-	-	N/A	N/A
		308	15.4.1-5	2009/7/3	N	N	N		-	-	N/A	N/A
		308	15.4.1-6	2009/7/3	N	N	N		-	-	N/A	N/A
		308	15.4.1-7	2009/7/3	N	N	N		-	-	N/A	N/A
		308	15.4.1-8	2009/7/3	N	N	N		-	-	N/A	N/A
		308	15.4.1-9	2009/7/3	N	N	N		-	-	N/A	N/A
		889	15.04.01-10	1/31/2012	N	N	N		-	-	N/A	N/A
15.4.2	Uncontrolled Control Rod Assembly	309	15.4.2-1	2009/5/15	N	N	N		-	-	N/A	N/A
	Withdrawal at Power	309	15.4.2-2	2009/5/15	N	N	N		-	-	N/A	N/A
15.4.3	Control Rod Misoperation	310	15.4.3-1	2009/7/3	N	N	N		-	-	N/A	N/A
	(System Malfunction or	310	15.4.3-2	2009/7/3	N	N	N		-	-	N/A	N/A
	Operator Error)	310	15.4.3-3	2009/7/3	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		310	15.4.3-4	2009/7/3	N	N	N		-	-	N/A	N/A
		310	15.4.3-5	2009/7/3	Y	N	N		-	DCD_15.4.3-5	4	2
		310	15.4.3-6	2009/7/3	N	N	N		-	-	N/A	N/A
		310	15.4.3-7	2009/7/3	N	N	N		-	-	N/A	N/A
		310	15.4.3-8	2009/7/3	N	N	N		-	-	N/A	N/A
		310	15.4.3-9	2009/7/3	N	N	N		-	-	N/A	N/A
		310	15.4.3-10	2009/7/3	N	N	N		-	-	N/A	N/A
		310	15.4.3-11	2009/7/3	N	N	N		-	-	N/A	N/A
		888	15.04.03-12	1/31/2012	N	N	N		-	-	N/A	N/A
15.4.4-	Startup of an Inactive Loop or											
15.4.5	Recirculation Loop at an	903	15.04.04-15.04.05-1	03/16/2012	N	N	N		-	-	N/A	N/A
	Incorrect Temperature,											
	and Flow Controller Malfunction											
	Causing an Increase											
	in BWR Core Flow Rate											
15.4.6	Inadvertent Decrease in	311	15.4.6-1	2009/6/16	N	N	N		-	-	N/A	N/A
	Boron Concentration in the	311	15.4.6-2	2009/6/16	N	N	N		-	-	N/A	N/A
	Reactor Coolant System (PWR)	311	15.4.6-3	2009/6/16	N	N	N		-	-	N/A	N/A
		311	15.4.6-4	2009/6/16	N	N	N		-	-	N/A	N/A
		311	15.4.6-5	2009/6/16	Y	N	N			DCD_15.4.6-5	4	2
				2011/1/14	N	N	N		-	-	N/A	N/A
		682	15.04.06-6	2011/4/15	Y	Y	N		-	DCD_15.04.06-6	0	
		682	15.04.06-7	2011/4/15	N	N	N		-	-	N/A	N/A
		682	15.04.06-8	2011/4/15	N	N	N		-	-	N/A	N/A
		708	15.04.06-9	2011/4/15	Y	N	N		-	DCD_15.04.06-9	0	
		902	15.04.06-10	2012/3/7	N	N	N		-	-	N/A	N/A
15.4.7	Inadvertent Loading	312	15.4.7-1	2009/5/15	N	N	N		-	-	N/A	N/A
	and Operation of a Fuel Assembly	312	15.4.7-2	2009/5/15	N	N	N		-	-	N/A	N/A
	in an Improper Position	312	15.4.7-3	2009/5/15	N	N	N		-	-	N/A	N/A
15.4.8	Spectrum of	313	15.4.8-1	2009/7/3	N	N	N		-	-	N/A	N/A
	Rod Ejection Accidents (PWR)	313	15.4.8-2	2009/7/3	N	N	N		-	-	N/A	N/A
				2011/7/29	N	N	N		-	-	N/A	N/A
		313	15.4.8-3	2009/7/3	N	N	N		-	-	N/A	N/A
		313	15.4.8-4	2009/7/3	N	N	N		-	-	N/A	N/A
		313	15.4.8-5	2009/7/3	N	N	N		-	-	N/A	N/A
		313	15.4.8-6	2009/7/3	N	N	N		-	-	N/A	N/A
		313	15.4.8-7	2009/7/3	N	N	N		-	-	N/A	N/A
		313	15.4.8-8	2009/7/3	N	N	N		-	-	N/A	N/A
		313	15.4.8-9	2009/7/3	N	N	N		-	-	N/A	N/A
		313	15.4.8-10 (Deleted)	2009/7/3								
		785	15.04.08-11	8/31/2011	Y	N	N		-	DCD_15.04.08-11	1	
15.5.1-	Inadvertent Operation of	307	15.5.2-1	2009/6/16	N	N	N		-	-	N/A	N/A
15.5.2	ECCS and Chemical	307	15.5.2-2	2009/6/16	N	N	N		-	-	N/A	N/A
	and Volume Control	307	15.5.2-3	2009/6/16	N	N	N		-	-	N/A	N/A
	System Malfunction that											
	Increases Reactor Coolant Inventory											
15.5.7	Radioactive Releases											
	from a Subsystem or Component											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
15.6.1	Inadvertent Opening of a	314	15.6.1-1	2009/5/15	N	N	N		-	-	N/A	N/A
	PWR Pressurizer Pressure											
	Relief Valve											
	or a BWR Pressure Relief Valve											
15.6.3	Radiological Consequences	298	15.6.3-1 (Deleted)	2009/7/3								
	of Steam Generator Tube Failure	298	15.6.3-2	2009/7/3	N	N	N		-	-	N/A	N/A
		808	15.06.03-3	2011/9/22	N	N	N		-	-	N/A	N/A
				2011/12/9	N	N	N		-	-	N/A	N/A
		808	15.06.03-4	2011/9/22	N	N	N		-	-	N/A	N/A
		808	15.06.03-5	2011/9/22	N	N	N		-	-	N/A	N/A
		808	15.06.03-6	2011/9/22	Y	N	N		-	DCD_15.06.03-6	1	
		808	15.06.03-7	2011/9/22	N	N	N		-	-	N/A	N/A
		808	15.06.03-8	2011/9/22	N	N	N		-	-	N/A	N/A
				2011/12/9	N	N	N		-	-	N/A	N/A
15.6.5	Loss-of-Coolant Accidents	352	15.6.5-1	2009/7/17	N	N	N		-	-	N/A	N/A
	Resulting From Spectrum of	352	15.6.5-2	2009/7/17	N	N	N		-	-	N/A	N/A
	Postulated Piping Breaks	352	15.6.5-3	2009/7/17	N	N	N		-	-	N/A	N/A
	Within the Reactor Coolant	352	15.6.5-4	2009/7/17	N	N	N		-	-	N/A	N/A
	Pressure Boundary	352	15.6.5-5	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-6	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-7	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-8	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-9	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-10	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-11	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-12	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-13	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-14	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-15	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-16	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-17	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-18	2009/7/17	Y	N	N		-	DCD_15.6.5-18	4	2
		352	15.6.5-19	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-20	2009/7/17	N	N	N		-	-	N/A	N/A
				2011/6/13	N	N	N		-	-	N/A	N/A
		352	15.6.5-21	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-22	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-23	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-24	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-25	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-26	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-27	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-28	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-29	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-30	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-31	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-32	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-33	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-34	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-35	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-36	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-37	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-38	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-39	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-40	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-41	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-42	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-43	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-44	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-45	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-46	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-47	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-48	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-49	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-50	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-51	2009/7/17	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		352	15.6.5-52	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-53	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-54	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-55	2009/7/17	N	N	N		-	-	N/A	N/A
		352	15.6.5-56	2009/7/17	N	N	N		-	-	N/A	N/A
		513	15.06.05-57	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-58	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-59	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-60	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-61	2010/2/15	N	N	N		-	-	N/A	N/A
		514	15.06.05-62	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-63	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-64	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-65	2010/2/15	N	N	N		-	-	N/A	N/A
		514	15.06.05-66	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-67	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-68	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-69	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-70	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-71	2010/2/15	N	N	N		-	-	N/A	N/A
		514	15.06.05-72	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-73	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-74	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-75	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-76	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-77	2010/2/5	N	N	N		-	-	N/A	N/A
		514	15.06.05-78	2010/2/5	N	N	N		-	-	N/A	N/A
		706	15.06.05-79	2011/4/28	N	N	N		-	-	N/A	N/A
		706	15.06.05-80	2011/3/29	N	N	N		-	-	N/A	N/A
		706	15.06.05-81	2011/4/28	N	N	N		-	-	N/A	N/A
		706	15.06.05-82	2011/4/28	N	N	N		-	-	N/A	N/A
		718	15.06.05-83	2011/5/13	N	N	N		-	-	N/A	N/A
		718	15.06.05-84	2011/5/13	N	N	N		-	-	N/A	N/A
		718	15.06.05-85	2011/5/13	N	N	N		-	-	N/A	N/A
		718	15.06.05-86	2011/5/13	N	N	N		-	-	N/A	N/A
		719	15.06.05-87	2011/5/18	N	N	N		-	-	N/A	N/A
		719	15.06.05-88	2011/4/18	N	N	N		-	-	N/A	N/A
		719	15.06.05-89	2011/5/18	N	N	N		-	-	N/A	N/A
		719	15.06.05-90	2011/4/18	N	N	N		-	-	N/A	N/A
		719	15.06.05-91	2011/5/16	N	N	N		-	-	N/A	N/A
		861	15.06.05-92	12/02/2011	N	N	N		-	-	N/A	N/A
		861	15.06.05-93	12/02/2011	N	N	N		-	-	N/A	N/A
		861	15.06.05-94	12/02/2011	N	N	N		-	-	N/A	N/A
		861	15.06.05-95	12/22/2011	N	N	N		-	-	N/A	N/A
		861	15.06.05-96	12/22/2011	N	N	N		-	-	N/A	N/A
		861	15.06.05-97	12/02/2011	N	N	N		-	-	N/A	N/A
		861	15.06.05-98	xx/yy/2011								
		861	15.06.05-99	12/02/2011	N	N	N		-	-	N/A	N/A
		861	15.06.05-100	12/22/2011	N	N	N		-	-	N/A	N/A
15.8	Anticipated Transients Without Scram											

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No.	Title	cc	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
16.1	General, Plant Sys,	133	16-12	2009/1/29	Y	Y	N		-	DCD_16-12	1	2
	Refueling, & Adm Ctrls:	133	16-13	2009/1/29	Y	Y	N		-	DCD_16-13	1	2
	Technical Specifications	133	16-14	2009/1/29	Y	Y	N		-	DCD_16-14	1	2
		133	16-15	2009/1/29	N	N	N		-	-	N/A	N/A
		133	16-16	2009/1/29	Y	Y	N		-	DCD_16-16	1	2
		133	16-17	2009/1/29	Y	Y	N		-	DCD_16-17	1	2
		133	16-18	2009/1/29	Y	Y	N		-	DCD_16-18	1	2
		133	16-19	2009/1/29	Y	Y	N		-	DCD_16-19	1	2
		133	16-20	2009/1/29	N	N	N		-	-	N/A	N/A
		161	16-115	2009/2/20	Y	Y	N		-	DCD_16-115	1	2
		161	16-116	2009/2/20	Y	Y	N		-	DCD_16-116	1	2
		161	16-117	2009/3/19	N	N	N		-	-	N/A	N/A
				2012/2/8	Y	Y	Y		-	DCD_16-117	2	
		161	16-118	2009/2/20	Y	Y	N		-	DCD_16-118	1	2
		161	16-119	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-120	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-121	2009/2/20	Y	Y	N		-	DCD_16-121	1	2
		161	16-122	2009/2/20	Y	Y	N		-	DCD_16-122	1	2
		161	16-123	2009/2/20	Y	Y	N		-	DCD_16-123	1	2
		161	16-124	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-125	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-126	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-127	2009/2/20	Y	Y	N		-	DCD_16-127	2	2
		161	16-128	2009/2/20	Y	Y	N		-	DCD_16-128	1	2
		161	16-129	2009/2/20	Y	Y	N		-	DCD_16-129	1	2
		161	16-130	2009/2/20	Y	Y	N		-	DCD_16-130	TBD	
		161	16-131	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-132	2009/2/20	Y	Y	N		-	DCD_16-132	1	2
		161	16-133	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-134	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-135	2009/2/20	N	N	N		-	-	N/A	N/A
				2011/10/19	**N**	**N**	**N**		-	-	N/A	N/A
		161	16-136	2009/2/20	Y	Y	N		-	DCD_16-136	1	2
				2011/10/7	**Y**	**Y**	N		-		1	
		161	16-137	2009/2/20	N	N	N		-	-	N/A	N/A
		161	16-138	2009/2/20	Y	Y	N		-	DCD_16-138	1	2
		161	16-139	2009/2/20	Y	Y	N		-	DCD_16-139	TBD	
		161	16-140	2009/2/20	N	N	N		-	-	N/A	N/A
		162	16-141	2009/2/20	Y	Y	N		-	DCD_16-141	1	2
		162	16-142	2009/2/20	Y	Y	N		-	DCD_16-142	1	2
		162	16-143	2009/2/20	N	N	N		-	-	N/A	N/A
		162	16-144	2009/2/20	Y	Y	N		-	DCD_16-144	1	2
		162	16-145	2009/2/20	Y	Y	N		-	DCD_16-145	1	2
		162	16-146	2009/2/20	N	N	N		-	-	N/A	N/A
		162	16-147	2009/2/20	Y	Y	N		-	DCD_16-147	1	2
		162	16-148	2009/2/20	N	N	N		-	-	N/A	N/A
		162	16-149	2009/2/20	N	N	N		-	-	N/A	N/A
		162	16-150	2009/2/20	Y	Y	N		-	DCD_16-150	1	2
		162	16-151	2009/2/20	Y	Y	N		-	DCD_16-151	1	2
		162	16-152	2009/2/20	N	N	N		-	-	N/A	N/A
		162	16-153	2009/2/20	Y	Y	N		-	DCD_16-153	1	2
		162	16-154	2009/2/20	Y	Y	N		-	DCD_16-154	1	2
		162	16-155	2009/2/20	Y	Y	N		-	DCD_16-155	2	2
		162	16-156	2009/2/20	N	N	N		-	-	N/A	N/A
		162	16-157	2009/2/20	Y	Y	N		-	DCD_16-157	1	2
		166	16-158	2009/3/18	Y	Y	N		-	DCD_16-158	3	2
		166	16-159	2009/3/18	Y	Y	N		-	DCD_16-159	3	2
		166	16-160	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-160	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-161	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-161	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	

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		166	16-162	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-162	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-163	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-163	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-164	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-164	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-165	2009/3/18	N	N	N		-	-	N/A	N/A
		166	16-166	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-166	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-0007	2	
		166	16-167	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-167	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-168	2009/3/18	Y	Y	N		-	DCD_16-168	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-169	2009/3/18	Y	Y	N		-	DCD_16-169	3	2
		166	16-170	2009/3/18	Y	Y	N		-	DCD_16-170	3	2
		166	16-171	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-171	3	2
		166	16-172	2009/3/18	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-173	2009/3/18	N	N	N		-			
				2009/7/3	N	N	N		-	-	N/A	N/A
		166	16-174	2009/3/18	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-175	2009/3/18	Y	Y	N		-	DCD_16-175	3	2
		166	16-176	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-176	3	2
		166	16-177	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-177	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-178	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-178	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-179	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-179	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-180	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-180	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-181	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-181	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-182	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-182	3	2
		166	16-183	2009/3/18	N	N	N		-	-	N/A	N/A
		166	16-184	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-184	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	TBD	
		166	16-185	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-185	3	2
		166	16-186	2009/3/18	Y	N	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-186	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-187	2009/3/18	N	N	N		-			
				2009/7/3	N	N	N		-	-	N/A	N/A
		166	16-188	2009/3/18	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-189	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-189	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-190	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-190	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-191	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-191	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
				2009/3/18	Y	Y	N		-			

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		166	16-192	2009/7/3	Y	Y	N		-	DCD_16-192	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-193	2009/3/18	Y	N	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-193	3	2
		166	16-194	2009/3/18	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-194	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		166	16-195	2009/3/18	Y	N	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-195	3	2
		167	16-196	2009/3/23	Y	Y	N		-	DCD_16-196	3	2
		167	16-197	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-198	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-199	2009/3/23	Y	N	N		-	DCD_16-199	3	2
		167	16-200	2009/3/23	Y	Y	N		-	DCD_16-200	3	2
		167	16-201	2009/3/23	Y	Y	N		-	DCD_16-201	3	2
		167	16-202	2009/3/23	Y	Y	N		-	DCD_16-202	3	2
		167	16-203	2009/3/23	Y	Y	N		-	DCD_16-203	3	2
		167	16-204	2009/3/23	Y	N	N		-	DCD_16-204	3	2
		167	16-205	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-205	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-206	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-206	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-207	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-208	2009/3/23	Y	Y	N		-	DCD_16-208	3	2
		167	16-209	2009/3/23	Y	Y	N		-	DCD_16-209	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-210	2009/3/23	Y	Y	N		-	DCD_16-210	3	2
		167	16-211	2009/3/23	Y	Y	N		-	DCD_16-211	3	2
		167	16-212	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-212	3	2
		167	16-213	2009/3/23	Y	N	N		-	DCD_16-213	3	2
		167	16-214	2009/3/23	Y	Y	N		-	DCD_16-214	3	2
		167	16-215	2009/3/23	Y	Y	N		-	DCD_16-215	3	2
		167	16-216	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-217	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-218	2009/3/23	Y	Y	N		-	DCD_16-218	3	2
		167	16-219	2009/3/23	Y	Y	N		-	DCD_16-219	3	2
		167	16-220	2009/3/23	Y	Y	N		-	DCD_16-220	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-221	2009/3/23	Y	Y	N		-	DCD_16-221	3	2
		167	16-222	2009/3/23	Y	Y	N		-	DCD_16-222	3	2
		167	16-223	2009/3/23	Y	Y	N		-	DCD_16-223	3	2
		167	16-224	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-224	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-225	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-225	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-226	2009/3/23	Y	Y	N		-	DCD_16-226	3	2
		167	16-227	2009/3/23	Y	Y	N		-	DCD_16-227	-	2
		167	16-228	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-228	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-229	2009/3/23	Y	Y	N		-	DCD_16-229	3	2
		167	16-230	2009/3/23	N	N	N		-			
				2009/7/3	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	DCD_16-230	2	
		167	16-231	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	DCD_16-231	2	
		167	16-232	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-232	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-233	2009/3/23	Y	Y	N		-	DCD_16-233	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-234	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-235	2009/3/23	Y	Y	N		-	DCD_16-235	3	2
		167	16-236	2009/3/23	Y	N	N		-	DCD_16-236	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-237	2009/3/23	Y	N	N		-	DCD_16-237	3	2

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		167	16-238	2009/3/23	Y	Y	N		-	DCD_16-238	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-239	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-240	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-240	3	2
		167	16-241	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-241	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-242	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-243	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-244	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-245	2009/3/23	Y	Y	N		-	DCD_16-245	3	2
		167	16-246	2009/3/23	Y	N	N		-	DCD_16-246	3	2
		167	16-247	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-247	3	2
		167	16-248	2009/3/23	Y	Y	N		-	DCD_16-248	3	2
		167	16-249	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-249	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-250	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-250	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-251	2009/3/23	Y	N	N		-	DCD_16-251	3	2
		167	16-252	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-252	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-253	2009/3/23	Y	Y	N		-	DCD_16-253	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-254	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-255	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-255	3	2
		167	16-256	2009/3/23	Y	Y	N		-	DCD_16-256	3	2
		167	16-257	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-257	3	2
		167	16-258	2009/3/23	Y	Y	N		-	DCD_16-258	3	2
		167	16-259	2009/3/23	Y	Y	N		-	DCD_16-259	3	2
		167	16-260	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-261	2009/3/23	Y	Y	N		-	DCD_16-261	3	2
		167	16-262	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-262	3	2
		167	16-263	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-263	3	2
		167	16-264	2009/3/23	Y	Y	N		-	DCD_16-264	3	2
		167	16-265	2009/3/23	Y	Y	N		-	DCD_16-265	3	2
		167	16-266	2009/3/23	Y	Y	N		-	DCD_16-266	3	2
		167	16-267	2009/3/23	Y	Y	N		-	DCD_16-267	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-268	2009/3/23	Y	Y	N		-	DCD_16-268	3	2
		167	16-269	2009/3/23	Y	N	N		-	DCD_16-269	3	2
		167	16-270	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-271	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-272	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-273	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-274	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-275	2009/3/23	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-276	2009/3/23	Y	N	N		-			
				2009/7/3	Y	N	N		-	DCD_16-276	3	2
		167	16-277	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-277	3	2
		167	16-278	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-279	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-279	3	2
		167	16-280	2009/3/23	N	N	N		-			
				2009/7/3	Y	N	N		-	DCD_16-280	3	2

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		167	16-281	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-281	-	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-282	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-282	-	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-283	2009/3/23	Y	Y	N		-	DCD_16-283	3	2
		167	16-284	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-285	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-285	3	2
		167	16-286	2009/3/23	Y	Y	N		-	DCD_16-286	3	2
		167	16-287	2009/3/23	Y	Y	N		-	DCD_16-287	3	2
		167	16-288	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-288	3	2
		167	16-289	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-289	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-290	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-290	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		167	16-291	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-291	3	2
		167	16-292	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-292	3	2
		167	16-293	2009/3/23	Y	Y	N		-	DCD_16-293	3	2
		167	16-294	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-294	3	2
		167	16-295	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-296	2009/3/23	N	N	N		-	-	N/A	N/A
		167	16-297	2009/3/23	Y	Y	N		-			
				2009/7/3	Y	Y	N		-	DCD_16-297	3	2
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		399	16-298	2009/7/13	N	N	N		-	-	N/A	N/A
				2010/12/22	Y	N	N		-	DCD_16-298	0	
				2011/5/30	Y	Y	N		-	-	N/A	N/A
				2011/10/6	Y	Y	N		-	DCD_16-298	TBD	
		463	16-299	10/28/2009	N	N	N		-	-	N/A	N/A
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		520	16-300	2010/2/18	Y	Y	N		-	DCD_16-300	2	3
		590	16-301	2010/7/12	Y	Y	N		-	DCD_16-301	4	3
				2012/1/27	Y	Y	Y		-	MIC-03-16-00007	2	
		674	16-302	2011/1/18	Y	Y	N		-	DCD_16-302	0	
		747	16-303	2011/5/27	Y	Y	N		-	DCD_16-303	0	
		816	16-304	2011/9/16	Y	Y	N		-	DCD_16-304	1	
16.2	SLs, Reactivity,											
	Core Op Limits, & Special Ops:											
	Technical Specifications											
16.3	Instrumentation:	36	01-1	2008/8/22	Y	N	N	fin.	-	DCD_16.3_01-1	-	1
	Technical Specifications	72	16-1	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-2	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-3	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-4	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-5	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-6	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-7	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-8	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-9	2008/10/8	Y	Y	N	fin.	-	DCD_16-9	0	2
		72	16-10	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
		72	16-11	2008/10/8	N	N	N	fin.	-	-	N/A	N/A
16.4	CS & ECCS: Technical Specificatio	135	16-48	2009/2/4	Y	Y	N		-	DCD_16-48	1	2
		135	16-49	2009/2/4	Y	Y	N		-	DCD_16-49	1	2
		135	16-50	2009/2/4	Y	Y	N		-	DCD_16-50	1	2
		135	16-51	2009/2/4	Y	Y	N		-	DCD_16-51	1	2

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		135	16-52	2009/2/4	Y	Y	N		-	DCD_16-52	1	2
		135	16-53	2009/2/4	N	N	N		-	-	N/A	N/A
		135	16-54	2009/2/4	Y	Y	N		-	DCD_16-54	1	2
		135	16-55	2009/2/4	Y	Y	N		-	DCD_16-55	1	2
		135	16-56	2009/2/4	Y	Y	N		-	DCD_16-56	1	2
		135	16-57	2009/2/4	Y	Y	N		-	DCD_16-57	1	2
		135	16-58	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-66	2009/2/4	Y	Y	N		-	DCD_16-66	1	2
		146	16-67	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-68	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-69	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-70	2009/2/4	Y	Y	N		-	DCD_16-70	1	2
		146	16-71	2009/2/4	Y	Y	N		-	DCD_16-71	1	2
		146	16-72	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-73	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-74	2009/2/4	Y	N	N		-	DCD_16-74	1	2
		146	16-75	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-76	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-77	2009/2/4	Y	Y	N		-	DCD_16-77	1	2
		146	16-78	2009/2/4	Y	Y	N		-	DCD_16-78	1	2
		146	16-79	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-80	2009/2/4	Y	Y	N		-	DCD_16-80	1	2
		146	16-81	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-82	2009/2/4	Y	Y	N		-	DCD_16-82	1	2
		146	16-83	2009/2/4	Y	Y	N		-	DCD_16-83	1	2
		146	16-84	2009/2/4	Y	Y	N		-	DCD_16-84	1	2
		146	16-85	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-86	2009/2/4	Y	Y	N		-	DCD_16-86	1	2
		146	16-87	2009/2/4	Y	Y	N		-	DCD_16-87	1	2
		146	16-88	2009/2/4	Y	Y	N		-	DCD_16-88	1	2
		146	16-89	2009/2/4	Y	Y	N		-	DCD_16-89	1	2
		146	16-90	2009/2/4	N	N	N		-	-	N/A	N/A
		146	16-91	2009/2/4	Y	Y	N		-	DCD_16-91	1	2
		146	16-92	2009/2/4	Y	Y	N		-	DCD_16-92	1	2
		146	16-93	2009/2/4	Y	Y	N		-	DCD_16-93	1	2
		146	16-94	2009/2/4	Y	Y	N		-	DCD_16-94	1	2
		146	16-95	2009/2/4	Y	Y	N		-	DCD_16-95	1	2
		146	16-96	2009/2/4	Y	Y	N		-	DCD_16-96	1	2
		146	16-97	2009/2/4	Y	Y	N		-	DCD_16-97	1	2
		146	16-98	2009/2/4	N	N	N		-	-	N/A	N/A
X		146	16-99	2009/2/4	Y	Y	N		-	DCD_16-99	2	2
		158	16-100	2009/2/20	Y	Y	N		-	DCD_16-100	1	2
		158	16-101	2009/2/20	N	N	N		-	-	N/A	N/A
		158	16-102	2009/2/20	N	N	N		-	-	N/A	N/A
		158	16-103	2009/2/20	N	N	N		-	-	N/A	N/A
		158	16-104	2009/2/20	N	N	N		-	-	N/A	N/A
				2009/6/22	Y	Y	N		-	DCD_16-104	3	
		158	16-105	2009/2/20	Y	Y	N		-	DCD_16-105	1	2
		158	16-106	2009/2/20	Y	Y	N		-	DCD_16-106	1	2
		158	16-107	2009/2/20	Y	Y	N		-	DCD_16-107	2	2
		158	16-108	2009/2/20	Y	Y	N		-	DCD_16-108	1	2
		158	16-109	2009/2/20	Y	Y	N		-	DCD_16-109	1	2
		158	16-110	2009/2/20	N	N	N		-	-	N/A	N/A
		158	16-111	2009/2/20	Y	Y	N		-	DCD_16-111	1	2
		158	16-112	2009/2/20	Y	Y	N		-	DCD_16-112	1	2
		158	16-113	2009/2/20	N	N	N		-	-	N/A	N/A
		158	16-114	2009/2/20	Y	Y	N		-	DCD_16-114	1	2
		OI	16-146-1804/79	10/14/2009	N	N	N		-	-	N/A	N/A
		OI	16-135-1818/51	10/14/2009	Y	Y	N		-	DCD_16-135-1818/51	0	3
		OI	16-135-1818/53	10/14/2009	Y	Y	N		-	DCD_16-135-1818/53	0	3
		OI	16-2.4-50	10/16/2009	N	N	N		-		N/A	N/A
		OI	16-9.2.1-26	10/14/2009	N	N	N		-		N/A	N/A
		OI	16-133-1827/136	10/16/2009	N	N	N		-		N/A	N/A
		OI	16-133-1827/15	2009/10/28	Y	Y	N		-	DCD_16-133-1827/15	0	3
		OI	16-133-1827/20	2009/10/28	N	N	N		-	-	N/A	N/A
		OI	16-1769/284	10/28/2009	N	N	N		-	-	N/A	N/A
		OI	16-1784/172	11/10/2009	Y	Y	N		-	DCD_16-1784/172	1	3
		OI	16-1784/174	11/10/2009	Y	Y	N		-	DCD_16-1784/174	1	3
		OI	16-1784/186	11/10/2009	Y	Y	N		-	DCD_16-1784/186	-	2
		OI	16-1784/188	11/10/2009	Y	Y	N		-	DCD_16-1784/188	1	3
		OI	16-1784/192	11/10/2009	Y	Y	N		-	DCD_16-1784/192	-	2

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		OI	16-1769/209	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/220	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/228	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/230	11/10/2010	N	N	N		-	-	N/A	N/A
		OI	16-1769/231	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/232	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/233	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/238	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/241	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/242	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/270	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/271	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/272	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/273	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/274	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/275	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-1769/282	11/10/2009	Y	Y	N		-	DCD_16-1769/282	-	2
		OI	16-1769/290	11/10/2009	N	N	N		-	-	N/A	N/A
		OI	16-134-1825/26	10/30/2009	Y	Y	N		-	DCD_16-134-1825/26	0	3
		OI	16-134-1825/27	10/30/2009	N	N	N		-	-	N/A	N/A
		OI	16-72-853	10/30/2009	Y	Y	N		-	DCD_16-72-853	0	3
16.5	Containment Systems:	136	16-59	2009/2/4	Y	Y	N		-	DCD_16-59	1	2
	Technical Specifications	136	16-60	2009/2/4	Y	Y	N		-	DCD_16-60	1	2
				2009/6/16	Y	Y	N		-	DCD_16-60	3	2
		136	16-61	2009/2/4	Y	Y	N		-	DCD_16-61	1	2
		136	16-62	2009/2/4	N	N	N		-	-	N/A	N/A
		136	16-63	2009/2/4	Y	N	N		-	DCD_16-63	1	2
		136	16-64	2009/2/4	Y	Y	N		-	DCD_16-64	1	2
		136	16-65	2009/2/4	Y	Y	N		-	DCD_16-65	1	2
16.6	Electrical Power Sys:	134	16-21	2009/2/4	Y	Y	N		-	DCD_16-21	1	2
	Technical Specifications	134	16-22	2009/2/4	Y	Y	N		-	DCD_16-22	1	2
		134	16-23	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-24	2009/2/4	Y	Y	N		-	DCD_16-24	1	2
		134	16-25	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-26	2009/2/4	Y	Y	N		-	DCD_16-26	1	2
		134	16-27	2009/2/4	Y	Y	N		-	DCD_16-27	1	2
		134	16-28	2009/2/4	Y	Y	N		-	DCD_16-28	1	2
		134	16-29	2009/2/4	Y	Y	N		-	DCD_16-29	1	2
		134	16-30	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-31	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-32	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-33	2009/2/4	Y	Y	N		-	DCD_16-33	1	2
		134	16-34	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-35	2009/2/4	Y	Y	N		-	DCD_16-35	1	2
		134	16-36	2009/2/4	Y	Y	N		-	DCD_16-36	1	2
		134	16-37	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-38	2009/2/4	Y	Y	N		-	DCD_16-38	1	2
		134	16-39	2009/2/4	Y	Y	N		-	DCD_16-39	1	2
		134	16-40	2009/2/4	Y	Y	N		-	DCD_16-40	1	2
		134	16-41	2009/2/4	Y	Y	N		-	DCD_16-41	1	2
		134	16-42	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-43	2009/2/4	Y	Y	N		-	DCD_16-43	1	2
		134	16-44	2009/2/4	N	N	N		-	-	N/A	N/A
		134	16-45	2009/2/4	Y	Y	N		-	DCD_16-45	1	2
		134	16-46	2009/2/4	Y	Y	N		-	DCD_16-46	1	2
		134	16-47	2009/2/4	Y	Y	N		-	DCD_16-47	2	2

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17.1	Quality Assurance											
	During the Design and											
	Construction Phases											
17.4	Reliability Assurance Program (RAP)	101	17.04-1	2008/12/12	Y	N	N	fin.	-	DCD_17.04-1	-	2
		101	17.04-2	2008/12/12	Y	N	N	fin.	-	DCD_17.04-2	-	2
		101	17.04-3	2008/12/12	Y	N	N	fin.	-	DCD_17.04-3	-	2
		101	17.04-4	2008/12/12	Y	N	N	fin.	-	DCD_17.04-4	2	2
		101	17.04-5	2008/12/12	Y	N	N	fin.	-	DCD_17.04-5	-	2
		101	17.04-6	2008/12/12	Y	N	N	fin.	-	DCD_17.04-6	1	2
		101	17.04-7	2008/12/12	Y	N	N	fin.	-	DCD_17.04-7	1	2
		101	17.04-8	2008/12/12	Y	N	N	fin.	-	DCD_17.04-8	1	2
		101	17.04-9	2008/12/12	Y	N	N	fin.	-	DCD_17.04-9	-	2
		101	17.04-10	2008/12/12	Y	N	N	fin.	-	DCD_17.04-10	1	2
		101	17.04-11	2008/12/12	Y	N	N	fin.	-	DCD_17.04-11	1	2
		101	17.04-12	2008/12/12	Y	N	N	fin.	-	DCD_17.04-12	1	2
		101	17.04-13	2008/12/12	Y	N	N	fin.	-	DCD_17.04-13	2	2
		101	17.04-14	2008/12/12	Y	N	N	fin.	-	DCD_17.04-14	1	2
		101	17.04-15	2008/12/12	Y	N	N	fin.	-	DCD_17.04-15	-	2
		101	17.04-16	2008/12/12	N	N	N	fin.	-	-	N/A	N/A
		101	17.04-17	2008/12/12	N	N	N	fin.	-	-	N/A	N/A
		101	17.04-18	2008/12/12	Y	N	N	fin.	-	DCD_17.04-18	-	2
		150	17.04-19	2009/3/10	Y	N	N		-	DCD_17.04-19	2	2
		150	17.04-20	2009/3/10	N	N	N		-	-	N/A	N/A
		150	17.04-21	2009/2/6	Y	N	N		-	DCD_17.04-21	1	2
		150	17.04-22	2009/2/6	Y	N	N		-	DCD_17.04-22	1	2
		150	17.04-23	2009/3/10	Y	N	N		-	DCD_17.04-23	2	2
		150	17.04-24	2009/3/10	Y	N	N		-	DCD_17.04-24	2	2
		150	17.04-25	2009/2/6	Y	N	N		-	DCD_17.04-25	1	2
		150	17.04-26	2009/2/6	Y	N	N		-	DCD_17.04-26	1	2
		150	17.04-27	2009/2/6	Y	N	N		-	DCD_17.04-27	1	2
		150	17.04-28	2009/2/6	Y	N	N		-	DCD_17.04-28	1	2
		150	17.04-29	2009/2/6	Y	N	N		-	DCD_17.04-29	-	2
		150	17.04-30	2009/3/10	Y	N	N		-	DCD_17.04-30	2	2
		150	17.04-31	2009/2/6	N	N	N		-	-	N/A	N/A
		150	17.04-32	2009/2/6	Y	N	N		-	DCD_17.04-32	1	2
		150	17.04-33	2009/2/6	Y	N	N		-	DCD_17.04-33	1	2
		150	17.04-34	2009/2/6	Y	N	N		-	DCD_17.04-34	1	2
		150	17.04-35	2009/2/6	N	N	N		-	-	N/A	N/A
		175	17.04-36	2009/3/3	Y	N	N		-	DCD_17.04-36	2	2
		175	17.04-37	2009/4/3	Y	N	N		-	DCD_17.04-37	2	2
		175	17.04-38	2009/4/3	Y	N	N		-	DCD_17.04-38	2	2
		175	17.04-39	2009/3/3	Y	N	N		-	DCD_17.04-39	2	2
		385	17.04-40	2009/7/10	Y	N	N		-	DCD_17.04-40	-	2
		385	17.04-41	2009/7/10	Y	N	N		-	DCD_17.04-41	-	2
		385	17.04-42	2009/7/10	Y	N	N		-	DCD_17.04-42	-	2
		385	17.04-43	2009/7/10	Y	N	N		-	DCD_17.04-43	-	2
		385	17.04-44	2009/7/10	Y	N	N		-	DCD_17.04-44	-	2
		385	17.04-45	2009/7/10	Y	N	N		-	DCD_17.04-45	-	2
		398	17.04-46	2009/7/18	Y	N	N		-	DCD_17.04-46	-	2
		398	17.04-47	2009/7/18	Y	N	N		-	DCD_17.04-47	-	2
		398	17.04-48	2009/7/18	Y	N	N		-	DCD_17.04-48	-	2
		398	17.04-49	2009/7/18	Y	N	N		-	DCD_17.04-49	-	2
		606	17.4-50	2010/9/3	Y	N	N		-	DCD_17.4-50	TBD	
		606	17.4-51	2010/9/3	Y	Y	N		-	DCD_17.4-51	TBD	
		606	17.4-52	2010/9/3	Y	N	N		-	DCD_17.4-52	TBD	
		606	17.4-53	2010/9/3	Y	N	N		-	DCD_17.4-53	TBD	
		606	17.4-54	2010/9/3	N	N	N		-	-	N/A	N/A
		606	17.4-55	2010/9/3	Y	N	N		-	DCD_17.4-55	TBD	
		606	17.4-56	2010/9/3	Y	N	N		-	DCD_17.4-56	TBD	
		606	17.4-57	2010/9/3	Y	N	N		-	DCD_17.4-57	TBD	
		606	17.4-58	2010/9/3	Y	N	N		-	DCD_17.4-58	TBD	
17.5	Quality Assurance Program											
	Description -											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
Design Certification, Early Site Permit												
	and New License Applicants											
17.6	Maintenance Rule	137	17.06-1	2009/1/21	Y	N	N		-	DCD_17.06-1	1	2

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
18.1	HFE Program Management	281	18-6	2009/3/31	Y	N	N		-	DCD_18.6	2	2
		295	18-7	2009/4/28	Y	N	N		-	DCD_18.7	-	2
		295	18-8	2009/4/28	N	N	N		-	-	N/A	N/A
		295	18-9	2009/4/28	N	N	N		-	-	N/A	N/A
		295	18-10	2009/4/28	Y	N	N		-	DCD_18.10	3	2
		295	18-11	2009/4/28	N	N	N		-	-	N/A	N/A
		295	18-12	2009/4/28	N	N	N		-	-	N/A	N/A
		295	18-13	2009/4/28	N	N	N		-	-	N/A	N/A
		295	18-14	2009/4/28	N	N	N		-	-	N/A	N/A
		295	18-15	2009/4/28	Y	N	N		-	DCD_18.15	3	2
		295	18-16	2009/4/28	N	N	N		-	-	N/A	N/A
		295	18-17	2009/4/28	Y	N	N		-	DCD_18.17	3	2
		295	18-18	2009/4/28	Y	N	N		-	DCD_18.18	3	2
		295	18-19	2009/4/28	N	N	N		-	-	N/A	N/A
		728	18-106	4/28/2011	Y	N	N		-	DCD_18-106	0	
				5/12/2011	Y	N	N		-		TBD	
		728	18-107	4/28/2011	Y	N	N		-	DCD_18-107	0	
				5/12/2011	Y	N	N		-		TBD	
		728	18-108	4/28/2011	Y	N	N		-	DCD_18-108	0	
				5/12/2011	Y	N	N		-		TBD	
		728	18-109	4/28/2011	Y	N	N		-	DCD_18-109	0	
				5/12/2011	Y	N	N		-		TBD	
		728	18-110	4/28/2011	Y	N	N		-	DCD_18-110	TBD	
				5/12/2011	Y	N	N		-		0	
		728	18-111	4/28/2011	Y	N	N		-	DCD_18-111	TBD	
				5/12/2011	Y	N	N		-		TBD	
		728	18-112	4/28/2011	N	N	N		-	-	N/A	N/A
				5/12/2011	N	N	N		-	-	N/A	N/A
		728	18-113	5/12/2011	N	N	N		-	-	N/A	N/A
		728	18-114	4/28/2011	Y	N	N		-	DCD_18-114	0	
				5/12/2011	Y	N	N		-	DCD_18-115	TBD	
		755	18-115	5/31/2011	N	N	N		-	-	N/A	N/A
		755	18-116	5/31/2011	Y	N	N		-	DCD_18-116	0	
		755	18-117	5/31/2011	Y	N	N		-	DCD_18-117	0	
		755	18-118	5/31/2011	N	N	N		-	-	N/A	N/A
		755	18-119	5/31/2011	N	N	N		-	-	N/A	N/A
		756	18-120	5/31/2011	Y	N	N		-	DCD_18-120	0	
		780	18-129	8/19/2011	Y	N	N		-	DCD_18-129	1	
18.2	Operating Experience Review	77	18.3	2008/11/4	N	N	N	fin.	-	-	N/A	N/A
		368	18-45	2009/6/8	N	N	N		-	-	N/A	N/A
		368	18-46	2009/6/8	N	N	N		-	-	N/A	N/A
		406	18-48	2009/7/24	N	N	N		-	-	N/A	N/A
		410	18-49	2009/7/24	N	N	N		-	-	N/A	N/A
		529	18-66	2010/3/1	N	N	N		-	-	N/A	N/A
		529	18-67	2010/3/1	Y	N	N		-	DCD_18-67	3	3
		529	18-68	2010/3/1	N	N	N		-	-	N/A	N/A
		820	18-186	2011/9/29	N	N	N		-	-	N/A	N/A
18.3	Functional Requirements Analysis and Function Allocation	336	18-28	2009/5/27	N	N	N		-	-	N/A	N/A
		336	18-29	2009/5/27	N	N	N		-	-	N/A	N/A
		336	18-30	2009/5/27	N	N	N		-	-	N/A	N/A
		336	18-31	2009/5/27	N	N	N		-	-	N/A	N/A
		336	18-32	2009/5/27	N	N	N		-	-	N/A	N/A
		336	18-33	2009/5/27	N	N	N		-	-	N/A	N/A
		336	18-34	2009/5/27	N	N	N		-	-	N/A	N/A
		336	18-35	2009/5/27	N	N	N		-	-	N/A	N/A
		594	18-69	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-70	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-71	2010/7/9	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		594	18-72	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-73	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-74	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-75	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-76	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-77	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-78	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-79	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-80	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-81	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-82	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-83	2010/7/9	N	N	N		-	-	N/A	N/A
		594	18-84	2010/7/9	N	N	N		-	-	N/A	N/A
		793	18-141	12/16/2011	N	N	N		-	-	N/A	N/A
		793	18-142	12/16/2011	Y	N	N		-	DCD_18-142	1	
		793	18-143	12/16/2011	N	N	N		-	-	N/A	N/A
		793	18-144	12/16/2011	N	N	N		-	-	N/A	N/A
		793	18-145	12/16/2011	N	N	N		-	-	N/A	N/A
		793	18-146	12/16/2011	N	N	N		-	-	N/A	N/A
		793	18-147	12/16/2011	Y	N	N		-	DCD_18-147	1	
		793	18-148	12/16/2011	N	N	N		-	-	N/A	N/A
		793	18-149	12/16/2011	N	N	N		-	-	N/A	N/A
18.4	Task Analysis	342	18-43	2009/6/17	Y	N	N		-	DCD_18-43	3	2
		417	18-64	2009/7/24	Y	N	N		-	DCD_18-64	3	2
		781	18-130	12/15/2011	N	N	N		-	-	N/A	N/A
		781	18-131	12/15/2011	Y	N	N		-	DCD_18-131	1	
		781	18-132	12/15/2011	Y	N	N		-	DCD_18-132	1	
		781	18-133	12/15/2011	Y	N	N		-	DCD_18-133	1	
		781	18-134	12/15/2011	Y	N	N		-	DCD_18-134	1	
		781	18-135	12/15/2011	Y	N	N		-	DCD_18-135	1	
		781	18-136	12/15/2011	Y	N	N		-	DCD_18-136	1	
		781	18-137	12/15/2011	N	N	N		-	-	N/A	N/A
		781	18-138	12/15/2011	Y	N	N		-	DCD_18-138	1	
		781	18-139	12/15/2011	Y	N	N		-	DCD_18-139	1	
18.5	Staffing and Qualifications	75	18.1	2008/11/4	N	N	N	fin.	-	-	N/A	N/A
		76	18.2	2008/11/4	N	N	N	fin.	-	-	N/A	N/A
		79	18-4	2008/11/4	N	N	N	fin.	-	-	N/A	N/A
		79	18-5	2008/11/4	N	N	N	fin.	-	-	N/A	N/A
		335	18-27	2009/5/27	N	N	N		-	-	N/A	N/A
		725	18-98	2011/4/27	N	N	N		-	-	N/A	N/A
		725	18-99	2011/4/27	N	N	N		-	-	N/A	N/A
		725	18-100	2011/4/27	Y	N	N		-	DCD_18-100	0	
		725	18-101	2011/4/27	N	N	N		-	-	N/A	N/A
		725	18-102	2011/4/27	N	N	N		-	-	N/A	N/A
		725	18-103	2011/4/27	Y	N	N		-	DCD_18-103	0	
		725	18-104	2011/4/27	N	N	N		-	-	N/A	N/A
		725	18-105	2011/4/27	N	N	N		-	-	N/A	N/A
		792	18-140	8/25/2011	Y	N	N		-	DCD_18-140	1	
18.6	Human Reliability Analysis	334	18-24	2009/5/27	N	N	N		-	-	N/A	N/A
		334	18-25	2009/5/27	N	N	N		-	-	N/A	N/A
		334	18-26	2009/5/27	N	N	N		-	-	N/A	N/A
		664	18-94	2010/12/22	N	N	N		-	-	N/A	N/A
		664	18-95	2010/12/22	N	N	N		-	-	N/A	N/A
		664	18-96	2010/12/22	N	N	N		-	-	N/A	N/A
		664	18-97	2010/12/22	N	N	N		-	-	N/A	N/A
18.7	Human-System Interface Design	411	18-50	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-51	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-52	2009/7/24	Y	N	N		-	DCD_18-52	3	2
		412	18-53	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-54	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-55	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-56	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-57	2009/7/24	Y	N	N		-	DCD_18-57	-	2
		412	18-58	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-59	2009/7/24	N	N	N		-	-	N/A	N/A

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		412	18-60	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-61	2009/7/24	N	N	N		-	-	N/A	N/A
		412	18-62	2009/7/24	Y	N	N		-	DCD_18-57	-	2
		421	18-65	2009/7/24	N	N	N		-	-	N/A	N/A
		595	18-85	2010/7/9	N	N	N		-	-	N/A	N/A
		595	18-86	2010/7/9	N	N	N		-	-	N/A	N/A
		595	18-87	2010/7/9	N	N	N		-	-	N/A	N/A
		595	18-88	2010/7/9	N	N	N		-	-	N/A	N/A
		595	18-89	2010/7/9	Y	N	N		-	DCD_18-89	4	3
		595	18-90	2010/7/9	N	N	N		-	-	N/A	N/A
		595	18-91	2010/7/9	Y	N	N		-	DCD_18-91	4	3
		595	18-92	2010/7/9	N	N	N		-	-	N/A	N/A
		595	18-93	2010/7/9	N	N	N		-	-	N/A	N/A
		797	18-178	10/27/2011	Y	N	N		-	DCD_18-178	1	
		797	18-179	10/27/2011	N	N	N		-	-	N/A	N/A
		797	18-180	10/27/2011	N	N	N		-	-	N/A	N/A
		797	18-181	10/27/2011	N	N	N		-	-	N/A	N/A
		797	18-182	10/27/2011	Y	N	N		-	DCD_18-182	1	
		797	18-183	10/27/2011	N	N	N		-	-	N/A	N/A
		797	18-184	10/27/2011	N	N	N		-	-	N/A	N/A
		797	18-185	10/27/2011	Y	N	N		-	DCD_18-185	1	
18.8	Procedure Development											
		344	18-37	2009/6/18	Y	N	N		-	DCD_18.37	3	2
		344	18-38	2009/6/18	N	N	N		-	-	N/A	N/A
		344	18-39	2009/6/18	N	N	N		-	-	N/A	N/A
		344	18-40	2009/6/18	N	N	N		-	-	N/A	N/A
		344	18-41	2009/6/18	Y	N	N		-	DCD_18.41	3	2
		344	18-42	2009/6/18	Y	N	N		-	DCD_18.42	3	2
		367	18-44	2009/6/8	N	N	N		-	-	N/A	N/A
		792	18-140	8/25/2011	Y	N	N		-	DCD_18-140	1	
		844	18-188	10/21/2011	Y	N	N		-	DCD_18-188	1	
18.9	Training Program Development	339	18-36	2009/6/2	N	N	N		-	-	N/A	N/A
		370	18-47_1	2009/6/17	Y	N	N		-	DCD_18-47_1	3	2
		370	18-47_2	2009/6/17	N	N	N		-	-	N/A	N/A
		370	18-47_3	2009/6/17	N	N	N		-	-	N/A	N/A
		370	18-47_4	2009/6/17	N	N	N		-	-	N/A	N/A
		370	18-47_5	2009/6/17	N	N	N		-	-	N/A	N/A
		370	18-47_6	2009/6/17	Y	N	N		-	DCD_18-47_6	3	2
		370	18-47_7	2009/6/17	Y	N	N		-	DCD_18-47_7	3	2
18.10	Human Factors	413	18-63	2009/7/24	N	N	N		-	-	N/A	N/A
	Verification and Validation											
		796	18-150	2/16/2012	Y	N	N		-	DCD_18-150	2	
		796	18-151	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-152	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-153	2/16/2012	Y	N	N		-	DCD_18-153	2	
		796	18-154	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-155	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-156	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-157	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-158	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-159	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-160	2/16/2012	Y	N	N		-	DCD_18-150	2	
		796	18-161	2/16/2012	Y	N	N		-	DCD_18-150	2	
		796	18-162	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-163	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-164	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-165	2/16/2012	Y	N	N		-	DCD_18-150	2	

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		796	18-166	2/16/2012	Y	N	N		-	DCD_18-150	2	
		796	18-167	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-168	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-169	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-170	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-171	2/16/2012	Y	N	N		-	DCD_18-150	2	
		796	18-172	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-173	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-174	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-175	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-176	2/16/2012	N	N	N		-	-	N/A	N/A
		796	18-177	2/16/2012	Y	N	N		-	DCD_18-177	2	
18.11	Design Implementation	333	18-21	2009/5/27	N	N	N		-	-	N/A	N/A
		333	18-22	2009/5/27	N	N	N		-	-	N/A	N/A
		333	18-23	2009/5/27	N	N	N		-	-	N/A	N/A
18.12	Human Performance Monitoring	332	18-20	2009/5/27	N	N	N		-	-	N/A	N/A
		777	18-121	08/24/2011	N	N	N		-	-	N/A	N/A
		777	18-122	08/24/2011	N	N	N		-	-	N/A	N/A
		777	18-123	08/24/2011	N	N	N		-	-	N/A	N/A
		777	18-124	08/24/2011	N	N	N		-	-	N/A	N/A
		777	18-125	08/24/2011	N	N	N		-	-	N/A	N/A
		777	18-126	08/24/2011	Y	N	N		-	DCD_18-126	1	
		777	18-127	08/24/2011	N	N	N		-	-	N/A	N/A
		777	18-128	08/24/2011	Y	N	N		-	DCD_18-128	1	
		843	18-187	10/21/2011	Y	N	N		-	DCD_18-187	1	
18.13	Minimum Inventory											

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No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
19	Probabilistic Risk Assessment	1	19-1	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
	and Severe Accident Evaluation	1	19-2	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
	for New Reactors	1	19-3	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-4	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-5	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-6	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-7	2008/5/16	Y	Y	N	fin.	-	DCD_19-7	-	1
		1	19-8	2008/6/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-9	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-10	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-11	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-12	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-13	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-14	2008/5/16	N		N	fin.	-	-	N/A	N/A
		1	19-15	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-16	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-17	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-18	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-19	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-20	2008/6/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-21	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-22	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-23	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-24	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-25	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-26	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		1	19-27	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
		25	19-28	2008/7/25	N	N	Y	fin.	-	-	N/A	N/A
		25	19-29	2008/7/25	N	N	Y	fin.	-	-	N/A	N/A
		25	19-30	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-31	2008/7/25	N	N	Y	fin.	-	-	N/A	N/A
		25	19-32	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-33	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-34	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-35	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-36	2008/7/25	N	N	Y	fin.	-	-	N/A	N/A
		25	19-37	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-38	2008/7/25	N	N	Y	fin.	-	-	N/A	N/A
		25	19-39	2008/7/25	N	N	Y	fin.	-	-	N/A	N/A
		25	19-40	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-41	2008/7/25	N	N	N	fin.	-	-	N/A	N/A
		25	19-42	2008/7/25	N	N	Y	fin.	-	-	N/A	N/A
		25	19-43	2008/7/25	Y	N	N	fin.	-	DCD_19-43	-	2
		39	19-44	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-45	2008/11/11	N	N	Y	fin.	-	-	N/A	N/A
		39	19-46	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-47	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-48	2008/8/28	Y	Y	N	fin.	-	DCD_19-48	-	1
		39	19-49	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-50	2008/8/28	Y	Y	N	fin.	-	DCD_19-50	-	2
		39	19-51	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-52	2008/8/28	Y	Y	Y	fin.	-	DCD_19-52	-	2
		39	19-53	2008/8/28	Y	Y	N	fin.	-	DCD_19-53	-	2
		39	19-54	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-55	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-56	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-57	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-58	2008/8/28	Y	Y	N	fin.	-	DCD_19-58	-	2
		39	19-59	2008/8/28	Y	Y	N	fin.	-	DCD_19-59	-	2
		39	19-60	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-61	2008/8/28	Y	Y	N	fin.	-	DCD_19-61	1	2
		39	19-62	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-63	2008/8/28	Y	Y	N	fin.	-	DCD_19-63	-	2
		39	19-64	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-65	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-66	2008/8/28	Y	Y	N	fin.	-	DCD_19-66	-	2
		39	19-67	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-68	2008/9/25	Y	Y	Y	fin.	-	DCD_19-68	-	2
		39	19-69	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-70	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-71	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-72	2008/8/28	Y	Y	N	fin.	-	DCD_19-72	-	2

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			19-73	2008/8/28	N	N	N	fin.	-			
		39		2009/1/9	Y	N	N	fin.	-	DCD_19-73	-	2
		39	19-74	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-75	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		39	19-76	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		39	19-77	2008/9/25	Y	N	N	fin.	-	DCD_19-77	-	2
		39	19-78	2008/9/25	N	N	N	fin.	-	-	N/A	N/A
		35	19-79	2008/8/22	N	N	Y	fin.	-	-	N/A	N/A
		35	19-80	2008/8/22	N	N	Y	fin.	-	-	N/A	N/A
		35	19-81	2008/8/22	N	N	Y	fin.	-	-	N/A	N/A
		35	19-82	2008/8/22	N	N	Y	fin.	-	-	N/A	N/A
		35	19-83	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		35	19-84	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		35	19-85	2008/8/22	N	N	N	fin.	-	-	N/A	N/A
		40	19-86	2008/8/28	Y	Y	N	fin.	-	DCD_19-86	-	2
		40	19-87	2008/8/28	Y	Y	N	fin.	-	DCD_19-87	1	2
		40	19-88	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		40	19-89	2008/8/28	Y	Y	N	fin.	-	DCD_19-89	1	2
		40	19-90	2008/9/25	Y	Y	N	fin.	-	DCD_19-90	3	2
		40	19-91	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		40	19-92	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		40	19-93	2008/8/28	Y	Y	N	fin.	-	DCD_19-93	3	2
		40	19-94	2008/8/28	Y	Y	N	fin.	-	DCD_19-94	1	2
		40	19-95	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		40	19-96	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		40	19-97	2008/8/28	Y	Y	N	fin.	-	DCD_19-97	1	2
		40	19-98	2008/8/28	Y	Y	N	fin.	-	DCD_19-98	3	2
		40	19-99	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		40	19-100	2008/8/28	N	N	N	fin.	-	-	N/A	N/A
		53	19-101	2008/9/18	Y	N	Y	fin.	-	DCD_19-101	1	2
		53	19-102	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		53	19-103	2008/9/18	N	N	Y	fin.	-	-	N/A	N/A
		53	19-104	2008/9/18	N	N	Y	fin.	-	-	N/A	N/A
		53	19-105	2008/9/18	N	N	Y	fin.	-	-	N/A	N/A
		56	19-106	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		56	19-107	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		56	19-108	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		56	19-109	2008/9/18	N	N	N	fin.	-	-	N/A	N/A
		56	19-110	2008/9/18	N	N	Y	fin.	-	-	N/A	N/A
		69	19-111	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		69	19-112	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		69	19-113	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		69	19-114	2008/10/7	N	N	N	fin.	-	-	N/A	N/A
		69	19-115	2008/10/7	Y	N	N	fin.	-	DCD_19-115	-	2
		81	19-116	2008/11/5	N	N	N	fin.	-	-	N/A	N/A
		81	19-117	2008/11/5	N	N	N	fin.	-	-	N/A	N/A
		81	19-118	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-119	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-120	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-121	2008/11/5	N	N	N	fin.	-	-	N/A	N/A
		81	19-122	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-123	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-124	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-125	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-126	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		81	19-127	2008/11/5	N	N	Y	fin.	-	-	N/A	N/A
		86	19-128	2008/11/19	N	N	N	fin.	-	-	N/A	N/A
		86	19-129	2008/11/19	N	N	Y	fin.	-	-	N/A	N/A
		86	19-130	2008/11/19	N	N	Y	fin.	-	-	N/A	N/A
		86	19-131	2008/11/19	N	N	Y	fin.	-	-	N/A	N/A
		86	19-132	2008/11/19	N	N	Y	fin.	-	-	N/A	N/A
		86	19-133	2008/11/19	N	N	Y	fin.	-	-	N/A	N/A
		86	19-134	2008/11/19	N	N	Y	fin.	-	-	N/A	N/A
		86	19-135	2008/11/19	Y	N	Y	fin.	-	DCD_19-135	-	2
		88	19-136	2008/11/27	N	N	N	fin.	-	-	N/A	N/A
		88	19-137	2008/11/27	Y	N	N	fin.	-	DCD_19-137	-	2
		88	19-138	2009/1/9	N	N	N	fin.	-		N/A	N/A
		88	19-139	2009/1/9	N	N	N	fin.	-		N/A	N/A
		88	19-140	2009/1/9	Y	N	N		-	DCD_19-140	-	2
		88	19-141	2009/1/9	Y	N	N	fin.	-	DCD_19-141	1	2
		88	19-142	2009/1/9	Y	N	N	fin.	-	DCD_19-142	1	2
		88	19-143	2008/11/27	N	N	N	fin.	-	-	N/A	N/A

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		88	19-144	2009/1/9	Y	N	N	fin.	-	DCD_19-144	1	2
		88	19-145	2009/1/9	N	N	N	fin.	-	-	N/A	N/A
		88	19-146	2008/11/27	N	N	N	fin.	-	-	N/A	N/A
		88	19-147	2009/1/9	Y	N	N	fin.	-	DCD_19-147	-	2
		88	19-148	2008/11/27	N	N	N	fin.	-	-	N/A	N/A
		88	19-149	2009/1/9	N	N	N	fin.	-		N/A	N/A
		88	19-150	2008/11/27	Y	N	N	fin.	-	DCD_19-150	-	2
		92	19-151	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-152	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-153	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-154	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-155	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-156	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-157	2008/12/5	Y	N	N	fin.	-	DCD_19-157	0	2
		92	19-158	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-159	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-160	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-161	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-162	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-163	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-164	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-165	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-166	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-167	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-168	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-169	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-170	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-171	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-172	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-173	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-174	2008/12/5	Y	N	N	fin.	-	DCD_19-174	1	2
		92	19-175	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-176	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-177	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-178	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-179	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-180	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-181	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		92	19-182	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		97	19-183	2008/12/8	N	N	N	fin.	-	-	N/A	N/A
		97	19-184	2008/12/8	N	N	Y	fin.	-	-	N/A	N/A
		97	19-185	2008/12/8	Y	N	N	fin.	-	DCD_19-185	-	2
		97	19-186	2008/12/8	N	N	N	fin.	-	-	N/A	N/A
		97	19-187	2008/12/8	N	N	N	fin.	-	-	N/A	N/A
		97	19-188	2008/12/8	N	N	Y	fin.	-	-	N/A	N/A
		97	19-189	2008/12/8	N	N	Y	fin.	-	-	N/A	N/A
		97	19-190	2008/12/8	N	N	N	fin.	-	-	N/A	N/A
		97	19-191	2008/12/8	N	N	N	fin.	-	-	N/A	N/A
		98	19-192	2008/12/5	N	N	N	fin.	-	-	N/A	N/A
		98	19-193	2008/12/5	N	N	Y	fin.	-	-	N/A	N/A
		100	19-194	2008/12/11	N	N	Y	fin.	-	-	N/A	N/A
		100	19-195	2008/12/11	N	N	N	fin.	-	-	N/A	N/A
		100	19-196	2008/12/11	N	N	N	fin.	-	-	N/A	N/A
		100	19-197	2008/12/11	N	N	Y	fin.	-	-	N/A	N/A
		100	19-198	2008/12/11	N	N	N	fin.	-	-	N/A	N/A
		100	19-199	2008/12/11	N	N	Y	fin.	-	-	N/A	N/A
		100	19-200	2008/12/11	N	N	N	fin.	-	-	N/A	N/A
		104	19-201	2008/12/19	N	N	N	fin.	-	-	N/A	N/A
		104	19-202	2008/12/19	N	N	Y	fin.	-	-	N/A	N/A
		104	19-203	2008/12/19	N	N	Y	fin.	-	-	N/A	N/A
		104	19-204	2008/12/19	N	N	Y	fin.	-	-	N/A	N/A
		104	19-205	2008/12/19	Y	N	N	fin.	-	DCD_19-205	-	2
		138	19-206	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-207	2009/3/10	Y	N	Y		-	DCD_19-207	-	2
		138	19-208	2009/3/10	Y	N	Y		-	DCD_19-208	-	2
		138	19-209	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-210	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-211	2009/2/6	Y	N	N		-	DCD_19-211	3	2
		138	19-212	2009/2/6	Y	N	Y		-	DCD_19-212	-	2
		138	19-213	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-214	2009/3/10	Y	N	N		-	DCD_19-214	-	2
		138	19-215	2009/2/6	N	N	N		-	-	N/A	N/A

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		138	19-216	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-217	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-218	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-219	2009/2/6	Y	N	N		-	DCD_19-219	1	2
		138	19-220	2009/2/6	Y	N	N		-	DCD_19-220	1	2
		138	19-221	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-222	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-223	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-224	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-225	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-226	2009/2/6	Y	N	Y		-	DCD_19-226	-	2
		138	19-227	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-228	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-229	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-230	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-231	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-232	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-233	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-234	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-235	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-236	2009/3/10	Y	N	N		-	DCD_19-236	-	2
		138	19-237	2009/2/6	Y	N	Y		-	DCD_19-237	-	2
		138	19-238	2009/2/6	Y	N	N		-	DCD_19-238	1	2
		138	19-239	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-240	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-241	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-242	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-243	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-244	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-245	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-246	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-247	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-248	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-249	2009/3/10	N	N	N		-	-	N/A	N/A
		138	19-250	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-251	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-252	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-253	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-254	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-255	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-256	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-257	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-258	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-259	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-260	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-261	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-262	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-263	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-264	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-265	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-266	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-267	2009/2/6	N	N	N		-	-	N/A	N/A
		138	19-268	2009/2/6	Y	N	N		-	DCD_19-268	1	2
		138	19-269	2009/2/6	N	N	Y		-	-	N/A	N/A
		138	19-270	2009/2/6	N	N	N		-	-	N/A	N/A
		148	19-271	2009/2/6	Y	Y	N		-	DCD_19-271	1	2
		148	19-272	2009/2/6	N	N	N		-	-	N/A	N/A
		148	19-273	2009/2/6	N	N	N		-	-	N/A	N/A
		148	19-274	2009/2/6	N	N	Y		-	-	N/A	N/A
		148	19-275	2009/3/10	Y	N	N		-	DCD_19-275	-	2
		148	19-276	2009/2/6	N	N	N		-	-	N/A	N/A
		148	19-277	2009/2/6	Y	N	N		-	DCD_19-277	3	2
		149	19-278	2009/2/6	N	N	N		-	-	N/A	N/A
		149	19-279	2009/2/6	N	N	N		-	-	N/A	N/A
		149	19-280	2009/3/10	N	N	N		-	-	N/A	N/A
		149	19-281	2009/3/10	N	N	N		-	-	N/A	N/A
		149	19-282	2009/2/6	Y	N	N		-	DCD_19-282	1	2
		149	19-283	2009/3/12	Y	N	N		-	DCD_19-283	-	2
		149	19-284	2009/2/6	N	N	N		-	-	N/A	N/A
		151	19-285	2009/3/13	N	N	Y		-	-	N/A	N/A
		151	19-286	2009/3/13	N	N	N		-	-	N/A	N/A
		151	19-287	2009/2/6	N	N	Y		-	-	N/A	N/A

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		151	19-290	2009/3/13	N	N	N		-	-	N/A	N/A
		177	19-291	2009/3/5	N	N	N		-	-	N/A	N/A
		178	19-292	2009/4/3	Y	N	Y		-	DCD_19-292	4	2
		178	19-293	2009/4/3	N	N	N		-	-	N/A	N/A
		178	19-294	2009/4/3	N	N	N		-	-	N/A	N/A
		178	19-295	2009/4/3	N	N	N		-	-	N/A	N/A
		178	19-296	2009/4/3	N	N	N		-	-	N/A	N/A
		178	19-297	2009/4/3	N	N	N		-	-	N/A	N/A
		178	19-298	2009/4/3	N	N	N		-	-	N/A	N/A
		178	19-299	2009/4/3	N	N	N		-	-	N/A	N/A
		197	19-300	2009/3/11	N	N	N		-	-	N/A	N/A
		197	19-301	2009/3/11	N	N	N		-	-	N/A	N/A
		197	19-302	2009/3/11	N	N	N		-	-	N/A	N/A
		197	19-303	2009/4/28	N	N	N		-	-	N/A	N/A
		197	19-304	2009/4/10	N	N	N		-	-	N/A	N/A
		197	19-305	2009/3/11	N	N	N		-	-	N/A	N/A
		266	19-306	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-307	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-308	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-309	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-310	2009/5/8	Y	N	N		-	DCD_19-310	3	2
		266	19-311	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-312	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-313	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-314	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-315	2009/5/8	Y	N	N		-	DCD_19-315	3	2
		266	19-316	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-317	2009/5/8	Y	N	N		-	DCD_19-317	-	2
		266	19-318	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-319	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-320	2009/5/8	N	N	N		-	-	N/A	N/A
		266	19-321	2009/5/8	N	N	N		-	-	N/A	N/A
		364	19-322	2009/6/12	Y	N	Y		-	DCD_19-322	-	2
		364	19-323	2009/6/12	Y	N	N		-	DCD_19-323	3	2
		364	19-324	2009/6/12	Y	N	Y		-	DCD_19-324	-	2
		364	19-325	2009/6/12	N	N	N		-	-	N/A	N/A
		364	19-326	2009/6/12	Y	N	N		-	DCD_19-326	3	2
		364	19-327	2009/6/12	Y	N	N		-	DCD_19-327	3	2
		364	19-328	2009/6/12	N	N	N		-	-	N/A	N/A
		364	19-329	2009/6/12	N	N	Y		-	-	N/A	N/A
		364	19-330	2009/6/12	N	N	N		-	-	N/A	N/A
		364	19-331	2009/6/12	N	N	Y		-	-	N/A	N/A
		364	19-332	2009/6/12	N	N	Y		-	-	N/A	N/A
		364	19-333	2009/6/12	N	N	N		-	-	N/A	N/A
		369	19-334	2009/6/12	Y	N	Y		-	DCD_19-334	-	2
		369	19-335	2009/6/12	Y	N	N		-	DCD_19-335	-	2
		369	19-336	2009/7/10	Y	N	N		-	DCD_19-336	-	2
		369	19-337	2009/6/12	Y	N	N		-	DCD_19-337	3	2
		369	19-338	2009/6/12	Y	N	N		-	DCD_19-338	-	2
		369	19-339	2009/6/12	N	N	N		-	-	N/A	N/A
		369	19-340	2009/7/10	Y	N	N		-	DCD_19-340	-	2
		369	19-341	2009/6/12	Y	N	Y		-	DCD_19-341	3	2
		369	19-342	2009/7/10	N	N	Y		-	-	N/A	N/A
		369	19-343	2009/6/12	Y	N	N		-	DCD_19-343	-	2
		369	19-344	2009/7/10	Y	N	N		-	DCD_19-344	-	2
		395	19-345	2009/7/17	N	N	N		-	-	N/A	N/A
		395	19-346	2009/7/17	Y	N	N		-	DCD_19-346	-	2
		395	19-347	2009/7/17	Y	N	N		-	DCD_19-347	4	2
		395	19-348	2009/7/17	Y	N	N		-	DCD_19-348	4	2
		395	19-349	2009/7/17	N	N	N		-	-	N/A	N/A
		395	19-350	2009/7/17	N	N	N		-	-	N/A	N/A
		395	19-351	2009/7/17	Y	N	N		-	DCD_19-351	4	2
		395	19-352	2009/7/17	N	N	N		-	-	N/A	N/A
		395	19-353	2009/7/17	N	N	N		-	-	N/A	N/A
		395	19-354	2009/7/17	N	N	N		-	-	N/A	N/A
		395	19-355	2009/7/17	Y	N	N		-	DCD_19-355	4	2
		395	19-356	2009/7/17	Y	N	N		-	DCD_19-356	-	2
		395	19-357	2009/7/17	Y	N	N		-	DCD_19-357	-	2
		395	19-358	2009/7/17	Y	N	N		-	DCD_19-358	-	2
		423	19-359	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-360	2009/9/7	Y	N	N		-	DCD_19-360	-	2
		423	19-361	2009/9/7	N	N	N		-	-	N/A	N/A

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		423	19-362	2009/9/7	Y	N	N		-	DCD_19-362	0	3
		423	19-363	2009/9/7	Y	N	N		-	DCD_19-363	0	3
		423	19-364	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-365	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-366	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-367	2009/9/7	Y	N	Y		-	DCD_19-367	-	2
		423	19-368	2009/9/7	Y	N	N		-	DCD_19-368	0	3
		423	19-369	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-370	2009/9/7	Y	N	N		-	DCD_19-370	-	2
		423	19-371	2009/9/7	Y	N	N		-	-	0	3
		423	19-372	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-373	2009/9/7	Y	N	Y		-	DCD_19-373	0	3
		423	19-374	2009/9/7	Y	N	N		-	DCD_19-374	-	2
		423	19-375	2009/9/7	Y	N	N		-	DCD_19-375	1	3
		423	19-376	2009/9/7	Y	N	N		-	DCD_19-376	0	3
		423	19-377	2009/9/7	N	N	Y		-	-	N/A	N/A
		423	19-378	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-379	2009/9/7	Y	N	Y		-	DCD_19-379	-	2
		423	19-380	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-381	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-382	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-383	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-384	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-385	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-386	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-387	2009/9/7	Y	N	N		-	DCD_19-387	0	3
		423	19-388	2009/9/7	N	N	N		-	-	N/A	N/A
		423	19-389	2009/9/7	Y	N	N		-	DCD_19-389	-	2
		433	19-390	2009/8/28	N	N	N		-	-	N/A	N/A
		443	19-391	2009/10/1	N	N	N		-	-	N/A	N/A
		443	19-392	2009/10/1	N	N	N		-	-	N/A	N/A
		443	19-393	2009/10/1	Y	N	N		-	DCD_19-393	-	2
		443	19-394	2009/10/1	N	N	N		-	-	N/A	N/A
		443	19-395	2009/10/1	N	N	N		-	-	N/A	N/A
		443	19-396	2009/10/1	Y	N	N		-	DCD_19-396	0	3
		443	19-397	2009/10/1	Y	N	N		-	DCD_19-397	0	3
		454	19-398	2009/10/9	N	N	Y		-	-	N/A	N/A
		454	19-399	2009/10/9	N	N	Y		-	-	N/A	N/A
		454	19-400	2009/10/9	N	N	Y		-	-	N/A	N/A
		454	19-401	2009/10/9	Y	N	Y		-	DCD_19-401	-	2
		479	19-402	2009/11/25	Y	N	N		-	DCD_19-402	1	3
		479	19-403	2009/11/25	Y	N	N		-	DCD_19-403	1	3
		479	19-404	2009/11/25	Y	N	N		-	DCD_19-404	1	3
		479	19-405	2009/11/25	N	N	N		-	-	N/A	N/A
		479	19-406	2009/11/25	N	N	N		-	-	N/A	N/A
		480	19-*** (1)	2009/11/26	N	N	N		-	-	N/A	N/A
		480	19-*** (2)	2009/11/26	N	N	N		-	-	N/A	N/A
		480	19-*** (3)	2009/11/26	N	N	N		-	-	N/A	N/A
		480	19-*** (4)	2009/11/26	N	N	N		-	-	N/A	N/A
		480	19-*** (5)	2009/11/26	N	N	N		-	-	N/A	N/A
		480	19-*** (6)	2009/11/26	N	N	N		-	-	N/A	N/A
		528	19-407	2010/3/3	Y	N	N		-	DCD_19-407	2	3
		528	19-408	2010/3/3	Y	N	N		-	DCD_19-408	2	3
		528	19-409	2010/3/3	Y	N	N		-	DCD_19-409	2	3
		528	19-410	2010/3/3	Y	N	N		-	DCD_19-410	2	3
		528	19-411	2010/3/3	N	N	N		-	-	N/A	N/A
		528	19-412	2010/3/3	Y	N	N		-	DCD_19-412	3	3
		528	19-413	2010/3/3	Y	N	N		-	DCD_19-413	3	3
		528	19-414	2010/3/3	Y	N	N		-	DCD_19-414	2	3
		528	19-415	2010/3/3	Y	N	N		-	DCD_19-415	2	3
		528	19-416	2010/3/3	Y	N	N		-	DCD_19-416	2	3
		528	19-417	2010/3/3	Y	N	N		-	DCD_19-417	2	3
		528	19-418	2010/3/3	Y	N	N		-	DCD_19-418	2	3
		528	19-419	2010/3/3	Y	N	N		-	DCD_19-419	2	3
		528	19-420	2010/3/3	Y	N	N		-	DCD_19-420	2	3
		528	19-421	2010/3/3	Y	N	N		-	DCD_19-421	3	3
		528	19-422	2010/3/3	Y	N	N		-	DCD_19-422	2	3
		564	19-423	2010/4/28	Y	N	N		-	DCD_19-423	3	3
		564	19-424	2010/4/28	Y	N	N		-	DCD_19-424	3	3
		564	19-425	2010/4/28	Y	N	N		-	DCD_19-425	3	3
		564	19-426	2010/4/28	Y	Y	N		-	DCD_19-426	3	3
		564	19-427	2010/4/28	Y	N	N		-	DCD_19-427	3	3

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		564	19-428	2010/4/28	Y	N	N		-	DCD_19-428	3	3
		566	19-429	2010/4/28	Y	N	N		-	DCD_19-429	3	3
			19-430									
			19-431									
			19-432									
			19-433									
			19-434									
			19-435									
		601	19-436	2010/7/26	Y	N	N		-	DCD_19-436	4	3
		601	19-437	2010/7/26	Y	N	N		-	DCD_19-437	4	3
		607	19-438	2010/9/3	Y	N	Y		-	DCD_19-438	5	3
		608	19-439	2010/9/3	Y	N	N		-	DCD_19-439	-	3
		608	19-440	2010/9/3	Y	N	N		-	DCD_19-440	5	3
		609	19-441	2010/9/3	Y	N	N		-	DCD_19-441	-	3
		610	19-442	2010/9/3	N	N	N		-	-	N/A	N/A
		619	19-443	2010/9/10	N	N	N		-	-	N/A	N/A
		622	19-444	2010/9/29	N	N	Y		-	-	N/A	N/A
		622	19-445	2010/9/29	N	N	N		-	-	N/A	N/A
		622	19-446	2010/9/29	N	N	Y		-	-	N/A	N/A
		627	19-447	2010/11/1	Y	N	N		-	DCD_19-447	-	3
		627	19-448	2010/11/29	N	N	N		-	-	N/A	N/A
		627	19-449	2010/11/1	Y	N	Y		-	DCD_19-449	-	3
		627	19-450	2010/11/1	Y	N	Y		-	DCD_19-450	-	3
		627	19-451	2010/11/1	N	N	N		-	-	N/A	N/A
		627	19-452	2010/11/1	N	N	N		-	-	N/A	N/A
		627	19-453	2010/11/1	N	N	N		-	-	N/A	N/A
		627	19-454	11/1/2010	Y	N	N		-	DCD_19-454	5	3
		639	19-455	10/29/2010	Y	N	N		-	DCD_19-455	5	3
		639	19-456	10/29/2010	Y	N	N		-	DCD_19-456	5	3
		639	19-457	10/29/2010	Y	N	N		-	DCD_19-457	5	3
		639	19-458	10/29/2010	Y	N	Y		-	DCD_19-458	5	3
		639	19-459	10/29/2010	N	N	N		-	-	N/A	N/A
		639	19-460	10/29/2010	N	N	N		-	-	N/A	N/A
		639	19-461	10/29/2010	N	N	Y		-	-	N/A	N/A
		639	19-462	10/29/2010	N	N	N		-	-	N/A	N/A
		639	19-463	10/29/2010	N	N	N		-	-	N/A	N/A
		639	19-464	10/29/2010	Y	N	Y		-	DCD_19-464	5	3
		639	19-465	10/29/2010	N	N	N		-	-	N/A	N/A
		640	19-466	10/29/2010	N	N	N		-	-	N/A	N/A
		640	19-467	10/29/2010	Y	N	N		-	DCD_19-467	5	3
		640	19-468	10/29/2010	N	N	N		-	-	N/A	N/A
		640	19-469	10/29/2010	Y	N	N		-	DCD_19-469	5	3
		640	19-470	10/29/2010	Y	N	N		-	DCD_19-470	5	3
		640	19-471	10/29/2010	N	N	Y		-	-	N/A	N/A
		640	19-472	10/29/2010	Y	N	Y		-	DCD_19-472	-	3
		641	19-473	10/29/2010	N	N	N		-	-	N/A	N/A
		641	19-474	10/29/2010	N	N	N		-	-	N/A	N/A
		641	19-475	10/29/2010	N	N	N		-	-	N/A	N/A
		641	19-476	10/29/2010	Y	N	Y		-	DCD_19-476	-	3
		641	19-477	10/29/2010	N	N	Y		-	-	N/A	N/A
		641	19-478	10/29/2010	Y	N	N		-	DCD_19-478	5	3
		641	19-479	10/29/2010	Y	N	Y		-	DCD_19-479	-	3
		641	19-480	10/29/2010	N	N	N		-	-	N/A	N/A
		641	19-481	10/29/2010	N	N	N		-	-	N/A	N/A
		641	19-482	10/29/2010	N	N	N		-	-	N/A	N/A
		641	19-483	10/29/2010	Y	N	Y		-	DCD_19-483	-	3
		649	19-484	2010/11/12	N	N	N		-	-	N/A	N/A
		649	19-485	2010/11/12	Y	N	Y		-	DCD_19-485	6	3
		649	19-486	2010/11/12	N	N	Y		-	-	N/A	N/A
		649	19-487	2010/11/12	N	N	Y		-	-	N/A	N/A
		649	19-488	2010/11/12	Y	N	N		-	DCD_19-488	-	3
		649	19-489	2010/11/12	Y	N	Y		-	DCD_19-489	6	3
		649	19-490	2010/11/12	Y	N	N		-	DCD_19-490	6	3
		649	19-491	2010/11/12	Y	N	Y		-	DCD_19-491	6	3
		669	19-492	2010/12/27	Y	N	N		-	DCD_19-492	1	
		669	19-493	2010/12/27	Y	N	Y		-	DCD_19-493	1	
				2011/7/20	Y	N	Y		-		1	
		669	19-494	2010/12/27	N	N	N		-	-	N/A	N/A
		669	19-494	2012/2/8	Y	Y	Y		-	DCD_19-494	2	
		681	19-495	2011/2/17	Y	N	N		-	DCD_19-495	0	

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		681	19-496	2011/2/17	Y	N	N		-	DCD_19-496	0	
		681	19-497	2011/2/17	Y	N	N		-	DCD_19-497	TBD	
		681	19-498	2011/2/17	Y	N	N		-	DCD_19-498	TBD	
		707	19-499	2011/3/29	Y	N	N		-	DCD_19-499	0	
		714	19-500	2011/4/8	Y	N	N		-	DCD_19-500	0	
		714	19-501	2011/4/8	N	N	N		-	-	N/A	N/A
		744	19-502	2011/5/27	N	N	N		-	-	N/A	N/A
				2011/8/2	N	N	N		-	-	N/A	N/A
				2011/9/8	N	N	N		-	-	N/A	N/A
		744	19-503	2011/5/27	N	N	N		-	-	N/A	N/A
				2011/8/2	Y	N	N		-	DCD_19-503	1	
				2011/9/8	Y	N	N		-		TBD	
		744	19-504	2011/5/27	N	N	N		-	-	N/A	N/A
				2011/8/2	N	N	N		-	-	N/A	N/A
				2011/9/8	N	N	N		-	-	N/A	N/A
		744	19-505	2011/5/27	N	N	N		-	-	N/A	N/A
				2011/8/2	N	N	N		-	-	N/A	N/A
				2011/9/8	N	N	N		-	-	N/A	N/A
		749	19-506	2011/5/27	N	N	N		-	-	N/A	N/A
				2011/7/20	Y	N	N		-	DCD_19-506	1	
		750	19-507	2011/6/30	N	N	N		-	-	N/A	N/A
		750	19-508	2011/6/30	Y	Y	N		-	DCD_19-508	0	
		750	19-509	2011/6/30	N	N	N		-	-	N/A	N/A
		750	19-510	2011/6/30	Y	N	N		-	DCD_19-510	0	
		750	19-511	2011/6/30	Y	N	N		-	DCD_19-511	0	
		750	19-512	2011/6/30	Y	N	N		-	DCD_19-512	0	
		750	19-513	2011/6/30	Y	N	N		-	DCD_19-513	0	
		750	19-514	2011/6/30	Y	N	N		-	DCD_19-514	0	
		750	19-515	2011/6/30	N	N	N		-	-	N/A	N/A
		750	19-516	2011/6/30	Y	N	N		-	DCD_19-516	0	
		750	19-517	2011/6/30	N	N	N		-	-	N/A	N/A
		750	19-518	2011/6/30	Y	Y	N		-	DCD_19-518	0	
		750	19-519	2011/6/30	Y	N	N		-	DCD_19-519	0	
		752	19-520	2011/7/12	N	N	N		-	-	N/A	N/A
		752	19-521	2011/7/12	N	N	N		-	-	N/A	N/A
		752	19-522	2011/8/23	Y	N	N			DCD_19-522	N/A	N/A
		752	19-523	2011/6/3	N	N	N		-	-	N/A	N/A
		761	19-524	2011/6/29	Y	N	Y		-	DCD_09-524	TBD	
		761	19-525	2011/6/29	Y	Y	N		-	DCD_09-525	0	
		761	19-526	2011/6/29	Y	Y	N		-	DCD_09-526	0	
		764	19-527	2011/7/15	N	N	N		-	-	N/A	N/A
		764	19-528	2011/7/15	N	N	N		-	-	N/A	N/A
		764	19-529	2011/9/8	N	N	N		-	-	N/A	N/A
		764	19-530	2011/9/8	N	N	N		-	-	N/A	N/A
		764	19-531	2011/7/15	N	N	N		-	-	N/A	N/A
		773	19-532	2011/8/23	Y	N	N		-	DCD_19-532	1	
				2012/3/2	Y	N	N		-	DCD_09-532 S01	2	
		773	19-533	2011/8/23	Y	N	N		-	DCD_19-533	1	
		773	19-534	2011/8/23	Y	N	N		-	DCD_19-534	1	
		773	19-535	2011/8/23	Y	N	N		-	DCD_19-535	1	
				2012/3/2	Y	N	N		-	DCD_19-535 S01	2	
		773	19-537	2011/8/23	Y	N	N		-	DCD_19-537	1	
		773	19-538	2011/8/23	Y	N	N		-	DCD_19-538	1	
				2012/3/2	Y	N	N			DCD_19-538 S01	2	
		773	19-539	2011/8/23	Y	N	N		-	DCD_19-539	1	
		773	19-540	2011/8/23	N	N	N		-	-	N/A	N/A
		773	19-541	2011/8/23	Y	N	N		-	DCD_19-541	1	
		773	19-542	2011/8/23	Y	N	N		-	DCD_19-542	1	
		773	19-543	2011/8/23	Y	N	N		-	DCD_19-543	1	
				2012/3/2	Y	N	N		-	DCD_19-543 S01	2	
		773	19-544	2011/8/23	Y	N	N		-	DCD_19-544	1	
				2012/3/2	Y	N	N		-	DCD_19-544	2	
		773	19-545	2011/8/23	Y	N	N		-	DCD_19-545	1	
		783	19-546	2011/8/24	N	N	N		-	-	N/A	N/A
		783	19-547	2011/8/24	Y	N	N		-	DCD_19-547	1	
		783	19-548	2011/8/24	N	N	N		-	-	N/A	N/A
		823	19-549	2011/10/5	Y	N	Y		-		TBD	
		832	19-550	10/27/2011	Y	N	N		-	DCD_19-550	1	
		832	19-551	10/27/2011	Y	N	N		-	DCD_19-551	1	
		834	19-552	11/08/2011	Y	N	N		-	DCD_19-552	1	
		834	19-553	11/08/2011	Y	N	N		-	DCD_19-553	1	

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SRP Section		DCD RAI Response							Other Drivers	Change ID Number for DCD forthcoming Revision	DCD Tracking Report Revision	DCD Revision
No.	Title	RAI No.	Question No.	Response Date	Impact on DCD	Impact on COLA	Impact on PRA	Response Status				
		834	19-554	11/08/2011	Y	N	N		-	DCD_19-554	1	
		834	19-555	11/08/2011	N	N	N		-	-	N/A	N/A
		834	19-556	11/08/2011	Y	N	N		-	DCD_19-556	1	
		834	19-557	11/08/2011	Y	N	N		-	DCD_19-557	1	
		834	19-558	11/08/2011	N	N	N		-	-	N/A	N/A
		872	19-561	12/20/2011	Y	N	N		-	DCD_19-561	TBD	
		872	19-562	12/20/2011	N	N	N		-	-	N/A	N/A
		890	19-563	2/15/2012	N	N	N		-	-	N/A	N/A
		898	19-564	2/28/2012	Y	Y	Y		-	DCD_19-564	2	
19.1	Determining the Technical Adequacy	151	19-288	2009/4/10	N	N	N		-	-	N/A	N/A
	of Probabilistic Risk Assessment	151	19-289	2009/4/9	N	N	N		-	-	N/A	N/A
	Results for Risk-Informed Activities	577	19.01-1	2010/5/26	Y	N	N		-	DCD_19.01-1	4	3
		621	19.01-2	2010/9/29	Y	N	N		-	DCD_19.01-2	5	3
		621	19.01-3	2010/9/29	Y	N	N		-	DCD_19.01-3	5	3
		621	19.01-4	2010/9/29	Y	N	N		-	DCD_19.01-4	5	3
		621	19.01-5	2010/9/29	Y	N	N		-	DCD_19.01-5	5	3
		621	19.01-5	2011/7/20	Y	N	N		-	DCD_19-506	1	
		621	19.01-6	2010/9/29	Y	N	Y		-	DCD_19.01-6	5	3
		621	19.01-7	2010/9/29	Y	N	Y		-	DCD_19.01-7	5	3
		-	-	-	-	-	-	-	COL 19.3(5) deleted	MAP-19-001	-	2
		628	19.01-8	2010/10/14	Y	N	N		-	DCD_19.01-8	5	3
		668	19.01-9	2010/12/27	N	N	N		-	-	N/A	N/A
		668	19.01-10	2010/12/27	Y	N	N		-	DCD_19.01-10	1	
		668	19.01-10	02/07/2012	Y	Y	Y		-	DCD_19.01-10 S01	2	
		668	19.01-11	2010/12/27	Y	N	N		-	DCD_19.01-10	TBD	
19.2	Review of Risk Information	2	01-1	2008/5/16	N	N	N	fin.	-	-	N/A	N/A
	Used to Support Permanent Plant -											
	Specific Changes											
	to the Licensing Basis:											
	General Guidance											

US-APWR DCD (Revision 3)

Tracking Report Revision 2

Tier 1

Tier 1 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-07-00003	2.5.1.1	2.5-3	MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised the description of the item 24.	-
MIC-03-07-00004	2.5.1.1	2.5-3	MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised the description of the item 25a and 25b.	-
MIC-03-07-00001	Table 2.5.1-3 (Sheet 2, 3 of 3)	2.5-8 2.5-9	MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised the title of the table.	-
DCD_07.06-26	Table 2.5.1-4	2.5-9	Response to RAI No. 702 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Deleted the second item.	-
MIC-03-07-00003 MIC-03-07-00004	Table 2.5.1-6	2.5-11 through 2.5-19	MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised the number of the sheet. Revised the item 24. Revised the item 25a and 25b.	-
DCD_14.03.05-31	2.5.2.1	2.5-25	Response to RAI No. 275 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the word “through hot shutdown”	-
DCD_14.03.05-	Table	2.5-27	Response to RAI No. 275	Added the following	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
31	2.5.2-1		MHI Letter No. UAP-HF-11159 Date 05/31/2011	items. - Supply boric acid water to RCS (SIS) - Component cooling by operating CCW and ESW (CCWS and ESWS)	
DCD_14.03.05-31	Table 2.5.2-2	2.5-27	Response to RAI No. 275 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the word "through hot shutdown" in the title of the table.	-
MIC-03-07-00005	Table 2.5.3-2	2.5-33	MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the word ""automatic" to the 2nd item, and added "Main Steam Line Isolation Valve".	-
MIC-03-07-00005	Table 2.5.3-3	2.5-34	MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added "low-low pressurizer pressure" and "Main Steam Isolation".	-
DCD_03.07.02-35	Table 2.2-2	2.2-6 2.2-21	Response to RAI No. 542 MHI Letter No. UAP-HF-11195 Date 06/30/2011	Revised Table 2.2-2 to accurately reflect concrete wall thickness.	-
MIC-03-T1-00001	2.6.6.1	2.6-52 [2.6-51]	1/20/2011 ITAAC public meeting comment resolution	Reworded to be consistent with Tier 2 description.	0

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-T1-00001	Table 2.6.6-1	2.6-54 2.6-55 [2.6-53 2.6-54]	1/20/2011 ITAAC public meeting comment resolution	Reworded to be consistent with Tier 2 description.	0
MIC-03-T1-00001	Table 2.7.1.2-5 (Sheet 9 of 9)	2.7-21	2/17/2011 ITAAC public meeting comment resolution	Clarified ITAAC test conditions.	0
MIC-03-T1-00001	2.7.5.3.1.4 Table 2.7.5.3-1	2.7-207 2.7-208 [2.7-208, 2.7-209]	3/15/2011 ITAAC public meeting comment resolution	Deleted item 4 and combined into Table 2.2-4, Items 23.a and 23.b. (See Change ID No. DCD_09.02.02-48)	0
MIC-03-T1-00001	2.7.5.4.1.4	2.7-211 [2.7-212]	3/15/2011 ITAAC public meeting comment resolution	Deleted item 11 and combined into Table 2.2-4, Items 23.a and 23.b. (See Change ID No.DCD_09.02.02-48)	0
MIC-03-T1-00001	Table 2.7.5.4-3(Sheet 4 of 4)	2.7-217 [2.7-218]	3/15/2011 ITAAC public meeting comment resolution	Deleted item 11 and combined into Table 2.2-4, Items 23.a and 23.b. (See Change ID No. DCD_09.02.02-48)	0
MIC-03-T1-00001	2.7.6.4.1	2.7-234 [2.7-235]	3/15/2011 ITAAC public meeting comment resolution	Reworded to use consistent ITAAC word for seismic Category II/I interaction.	0

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-T1-00001	Table 2.7.6.4-2 (Sheet 1 of 4)	2.7-237 [2.7-238]	3/15/2011 ITAAC public meeting comment resolution	Reworded to use consistent ITAAC word for seismic Category II/I interaction.	0
MIC-03-T1-00001	2.7.6.5.1	2.7-241 [2.7-242]	3/15/2011 ITAAC public meeting comment resolution	Rewording to use consistent ITAAC word for seismic Category II/I interaction.	0
MIC-03-T1-00001	Table 2.7.6.5-1 (Sheet 1 of 5)	2.7-243 [2.7-244]	3/15/2011 ITAAC public meeting comment resolution	Rewording to use consistent ITAAC word for seismic Category II/I interaction.	0
DCD_09.02.02-80 This change is superseded by the amend RAI Response.	Figure 2.7.3.3-1(sheet 2 of 2) Table 2.7.3.3-2 (Sheet 8 of 8) 2.7.3.3-4 (sheet 3 of 3) 2.7.3.6-1 2.7. 3.6-2	2.7-128 2.7-114 2.7-118 2.7-150	Response to RAI No. 697 MHI Letter No. UAP-HF-11133 Date 05/12/2011	Revised the Figure 2.7.3.3-1 (sheet 2 of 2) to reflect alternative cooling water line. Revised the Figure 2.7.3.6-1 to change the valve number. Revised the Table 2.7.3.3-2, Table 2.7.3.3-4, Table 2.7.3.6-1 and Table 2.7.3.6-2 to reflect alternative cooling water line isolation valves.	-
DCD_14.03.06-	2.6.1.1	2.6-2	Response to	Revised Sections	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
20	Table 2.6.1-3 2.6.4.1 Table 2.6.4-1 (Sheet 4 of 10)	2.6-7 2.6-33 2.6-39	RAI No. 754 MHI Letter No. UAP-HF-11222 Date 7/15/2011	2.6.1.1 design description 5 and 2.6.4.1 design description12.b and Tables 2.6.1-3 ITAAC #5 and 2.6.4-1 ITAAC #12.b.	
DCD_14.03.06-22	Table 2.6.4-1 (Sheet 4, 5 of 10)	2.6-39 2.6-40	Response to RAI No. 754 MHI Letter No. UAP-HF-11222 Date 7/15/2011	Revised Section 2.6.4.1 Design Description 11 and Table 2.6.4-1, ITAAC#11.	-
DCD_14.03.06-23	2.6.4.1 Table 2.6.4-1 (Sheet 4, 5 of 10)	2.6-33 2,6-40	Response to RAI No. 754 MHI Letter No. UAP-HF-11222 Date 7/15/2011	Revised Section 2.6.4.1 Design Description 16 and Table 2.6.4-1 ITAAC #16.	-
DCD_14.03.06-24	2.6.4.2 Table 2.6.4-1 (Sheet 5 of 10)	2.6-34 2.6-40	Response to RAI No. 754 MHI Letter No. UAP-HF-11222 Date 7/15/2011	Revised Section 2.6.4.2 Design Description 19 and Table 2.6.4-1 ITAAC #19 Added 2 new paragraphs.	-
DCD_14.03.06-25	2.6.4.2 Table 2.6.4-1 (Sheet 9 of 10)	2.6-34	Response to RAI No. 754 MHI Letter No. UAP-HF-11222 Date 7/15/2011	Revised Section 2.6.4.2 Design Description 25 and Table 2.6.4-1 ITAAC #25	-
DCD_14.03.06-26	2.6.4.2 Table 2.6.4-1 (Sheet 9 of 10)	2.6-35 2.6-44	Response to RAI No. 754 MHI Letter No. UAP-HF-11222	Revised Section 2.6.4.2 Design Description 30 and Table 2.6.4-1 ITAAC	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			Date 7/15/2011	#30	
DCD_14.03.06-28	Table 2.6.4-2	2.6-46	Response to RAI No. 754 MHI Letter No. UAP-HF-11222 Date 7/15/2011	Revised Table 2.6.4-2.	-
DCD_09.02.02-48	2.2.3.1 Table 2.2-4 Table 2.5.1-4 Table 2.7.3.3-2 sheets 1 and 2	2.2-4 2.2-26 2.5-9 2.7-107 2.7-108	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Revised Subsection 2.2.3.1, Item 23 to Seismic Category II include systems and components. Revised Table 2.2-4, Item 23 to Seismic Category II include systems and components. Revised Table 2.5.1-4: Deletion of “Component Cooling Water Supply and Return Header Tie Line Isolation Interlock. Revised Table 2.7.3.3-2 (Sheet 1 of 8): Remove Low-low CCW surge tank level, (S+UV) and P signals as applicable to control of NCS-MOV-020 A, B, C, D. Revised Table 2.7.3.3-2 (Sheet 2 of 8): Remove Low-low	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				CCW surge tank level, (S+UV) and P signals as applicable to control of NCS-MOV-007 A, B, C, D.	
DCD_09.02.02-49	2.7.3.3.1 Table 2.7.3.3-1 (sheets 1 and 2) Table 2.7.3.3-3 (sheets 1 and 2) Table 2.7.3.3-4 (sheets 2) Table 2.7.3.3-5 (sheet 5) Figure 2.7.3.3-1 (sheets 1 and 2)	2.7-103 2.7-105 2.7-106 2.7-111 2.7-112 2.7-115 2.7-116 2.7-124 2.7-128 2.7-129	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Revised 2.7.3.3.1: reflect 7 days without surge tank makeup. Revised Table 2.7.3.3-1: reflect revised valve isolation component location. Revised Table 2.7.3.3-2 and 2.7.3.3-4: reflect deleted isolation valve for non-seismic portion. Revised Table 2.7.3.3-2 and 2.7.3.3-4: reflect isolation valve for non-safety piping. Revised Table 2.7.3.3-3: reflect revised piping characteristics. Revised Table 2.7.3.3-5: add	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Design Commitment of 7 days without surge tank makeup Revised Figure 2.7.3.3-1: reflect revised valve isolation configuration for non-safety piping. Revised Figure 2.7.3.3-1: reflect revised surge tank design.	
DCD_09.02.02-51	Figure 2.7.3.3-1	-	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Revised Figure 2.7.3.3-1to delete the RWSP as source for surge tank makeup.	-
DCD_09.02.01-52	Table 2.7.3.1-2 (Sheet 2)	2.7-91	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 7/27/2011	Revised Tier 1 Table 2.7.3.1-2 to match the new description added to Subsection 9.2.1.2.2.2.	-
DCD_09.02.02-58	Table 2.7.3.3-1 (sheets 2) Table 2.7.3.3-2 (sheets 2, 3, 4) Table 2.7.3.3-	2.7-106 2.7-108 2.7-109 2.7-110 2.7-115 2.7-116	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Delete references to NCS-MOV-445A/B, MOV-447A/B, MOV-448A/B in table 2.7.3.3-1, 2, 3 and 4, table 2.7.3.3-4, table	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3 (sheets 1 and 2) Table 2.7.3.3-4 (sheet 1) Table 2.11.2-1 (sheet 9) Table 2.11.2-2 (sheet 10)	2.7-117 2.11-17 2.11-27		2.11.2-1 and 2. Update information for NCS-MOV-401A/B, MOV-402A/B, MOV-436A/B and MOV-438A/B in table 2.7.3.3-1, 2, 3 and 4, table 2.7.3.3-4, table 2.11.2-1 and 2.	
DCD_09.02.02-68 This change is superseded by the amend RAI Response.	2.7.3.3.1 Table 2.7.3.3-2 (sheet 1) Table 2.7.3.3-5 (sheet 5 and 6 of 8)	2.7-102 2.7-107 2.7-123	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Revise “Design Description” in subsection 2.7.3.3.1 for the supply headers A2 & C2. Correct “Active Safety Function” for valves NCS-VLV-016A/B/C/D in table 2.7.3.3-2 Revise surge tank volume consistent with design change in Table 2.7.3.3-5. Add ITAAC for flow rate to CCWS important users in Table 2.7.3.3-5.	-
DCD_09.02.02-76	2.7.3.6.1 Table 2.7.3.6-1 Table 2.7.3.6-2 Table 2.7.3.6-	2.7-149 2.7-150 2.7-151 2.7-152	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date	Revised the following in Subsection 2.7.3.6.1. “The functional	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3 Figure 2.7.3.6-1		07/15/2011	arrangement of the non-ECWS is as described in the Design Description of Subsection 2.7.3.6.1 Deleted Table 2.7.3.6-1, 2.7.3.6-2 and Figure 2.7.3.6-1. Revised the design commitment and the acceptance criteria of 1st item as follows; “The functional arrangement of the non-ECWS is as described in the Design Description of Subsection 2.7.3.6.1 “The as-built non-ECWS conforms to the functional arrangement described in the Design Description of Subsection 2.7.3.6.1	
DCD_09.02.02-77	Table 2.7.3.5-5 (Sheet 7)	2.7-146	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date	Revised Inspection, Test, Analyses of 14th item as follows; “Inspection and analysis of the as-	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			07/15/2011	built ECW compression tank size will be performed to verify that the tank volume accommodates system thermal expansion and contraction, and 7-day system operation without makeup."	
DCD_09.02.02-80	Figure 2.7.3.6-1 Table 2.7.3.3-2 Table 2.7.3.3-4 Table 2.7.3.6-1 Table 2.7.3.6-2	2.7-128 2.7-152 2.7-114 2.7-118 2.7-150	Amended Response to RAI No. 697 MHI Letter No. UAP-HF-11239 Date 07/29/2011	Revised Table 2.7.3.3-2 to add the valves associated with the alternative sources. Revised Table 2.7.3.3-4 to add the NCS-MOV-241 and 242. Revised Table 2.7.3.6-1 to delete the VWS-MOV-424 and 425. Revised Table 2.7.3.6-2 to delete the VWS-MOV-424 and 425.	-
DCD_09.04.03-16	Table 2.7.5.4-3 (sheet 3 of 4)	2.7-216	Response to RAI No. 779 MHI Letter No. UAP-HF-11259 Date 8/11/2011	Revised design commitment of ITAAC No.10 as follows; "The auxiliary	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				building HVAC system provides a flow rate and a flow balance that maintains a negative pressure in the radiological controlled areas during normal operation." Revised acceptance criteria of ITAAC No.10 as follows; "A report exists and concludes that the as-built auxiliary building HVAC system maintains exhaust airflow ≥216,000 cfm and exhaust airflow greater than or equal to supply airflow, with any two of operating as-built auxiliary building exhaust fans, that maintains a negative pressure in the radiological controlled areas under normal operating conditions."	
DCD_09.02.02-	2.2.3.1 Table 2.2-4 Table 2.5.1-4	2.2-4 2.2-26 2.5-9	2nd Amended Response to	Revised Subsection 2.2.3.1, Item 23 to	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
48	Table 2.7.3.3-2 sheets 1 and 2	2.7-107 2.7-108	RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Seismic Category II include systems and components. Revised Table 2.2-4, Item 23 to Seismic Category II include systems and components. Revised the table 2.5.1-4 to reflect the interlock of A2(C2) CCW supply line isolation. Revised Table 2.7.3.3-2 (Sheet 1 of 8): Remove Low-low CCW surge tank level, (S+UV) and P signals as applicable to control of NCS-MOV-020 A, B, C, D. Revised Table 2.7.3.3-2 (Sheet 2 of 8): Remove Low-low CCW surge tank level, (S+UV) and P signals as applicable to control of NCS-MOV-007 A, B, C, D.	
DCD_09.02.02-68	Table 2.7.3.3-2 (Sheet 1 of 8)	2.7-102 2.7-107 2.7-114	2nd Amended Response to RAI No. 571 MHI Letter No.	Revise "Design Description" in subsection 2.7.3.3.1 for the supply	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	Table 2.7.3.3-4 (Sheet 2 of 3) Table 2.7.3.3-5 (sheet 5 and 6 of 8)	2.7-118 2.7-124 2.7-125	UAP-HF-11365 Date 10/27/2011	headers A2 & C2. Correct “Active Safety Function” for valves NCS-VLV-016A/B/C/D in table 2.7.3.3-2 Revised the table 2.7.3.3-2 to reflect change of the channel number of CCW surge tank level gauge. Revised the table 2.7.3.3-2 to reflect addition of the channel of CCW surge tank level gauge. Revised the table 2.7.3.3-4 to reflect change of the channel number of CCW surge tank level gauge. Revised the table 2.7.3.3-4 to reflect addition of the channel of CCW surge tank level gauge. Revise surge tank volume consistent with design change	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				in Table 2.7.3.3-5. Add ITAAC for flow rate to CCWS important users in Table 2.7.3.3-5.	
DCD_07.01-30	Table 2.5.4-3	2.5-44	Response to RAI No. 722 MHI Letter No. UAP-HF-11159 Date 5/31/2011	Revise the item 1 and added items 2 and 3 in Table 2.5.4-3.	-
DCD_16-298	Table 2.5.4-3	2.5-44	UAP-HF-11340 Date 10/6/2011	Revise the Table-2.5.4-3 to consist with Table 7.5-5.	-
DCD_08.03.01-38	2.6.5.1 Table 2.6.5-1	2.6-46,47 2.6-50	Response to RAI No. 394 MHI Letter No. UAP-HF-11404 Date 11/22/2011	Revised the description for adopting different manufacturers for the AAC GTG and Class 1E GTG ensures diversity.	-
DCD_07.08-24	2.5.3.1 Table 2.5.3-4 (sheet 2,3)	2.5-31 2.5-32 2.5-36 2.5-37	Response to RAI No. 775 MHI Letter No. UAP-HF-11412 Date 11/29/2011	Revised Section 2.5.3.1 for RAI response. Revised Sheet 2 and 3 of Table 2.5.3-4 for RAI response	-
DCD_09.01.03-8	Table 2.7.6.3-1 Table 2.7.6.3-3	2.7-225 2.7-226	Response to RAI No. 756 MHI Letter No. UAP-HF-11255 Date 8/10/2011	Added the information of SFP level, SFP temperature and SFP pump discharge flow. Added the pump	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				stop function caused by low-low SFP water level.	
MIC-03-T1-00004	Table 2.1-1 (Sheet 1 of 7)	2.1-2	Correcting inappropriate naming for a parameter	Delete “annual” from the descriptions of Ambient design air temperature	1
MIC-03-T1-00003	Tier 1 2.4.4 Table 2.4.4-5 (Sheet 6 of 10) ITAAC item 7.b.iv	2.4-51 [2.4-50]	GSI-191 Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Acceptance criteria of the minimum strainer surface area is replaced with “2,730 ft^2 per sump”, which is reduced by tolerance from nominal surface area 2,754 ft^2.	1
DCD_06.02.02-38	Tier 1 Figure 2.4.4-1 (Sheet 4 of 4)	2.4-60 [2.4-59]	GSI-191, Response to RAI No. 354 MHI Letter No. UAP-HF-09365 Date 07/07/2009	Add the wording, “(one of 10 pcs).” (Clean-up item)	1
MIC-03-T1-00002	2.5.1.1 Table 2.5.1-2 Table 2.5.1-3 Table 2.5.1-6 (sheet 10) 2.5.6.1 Table 2.5.6-1 (Sheet 1)	2.5-1 2.5-4 2.5-6 2.5-7 2.5-8 2.5-9 2.5-19 [2.5-20] 2.5-49 2.5-51 [2.5-52]	Response to RAI No. 771/778 MHI Letter No. UAP-HF-11244 Date 8/1/2011	Revised the 1st sentence of Section 2.5.1.1. Added the item 31 in Section 2.5.1.1. Added the column of “Response Time Requirement” in Table 2.5.1-2.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	Figure 2.5.6-1	2.5-53 [2.5-54]		Added the column of “Response Time Requirement” in Table 2.5.1-3. Added the item 31 in Table 2.5.1-6. Deleted item 2 in Section 2.5.6.1. Deleted item 2 in Section Table 2.5.6-1. Added “multidivisional S-VDU” in Figure 2.5.6-1.	
DCD_09.04.03-18	2.7.5.4.1.1 Table 2.7.5.4-3 (Sheet 4)	2.7-211 2.7-216	Response to RAI No. 831 MHI Letter No. UAP-HF-12016 Date 1/27/2012	Revised ITAAC for AB HVAC System.	-
DCD_14.03.03-27	2.3.1 Table 2.3-2 (Sheet 1,2)	2.3-2 2.3-6 2.3-7	Response to RAI No. 892 MHI Letter No. UAP-HF-12045 Date 02/17/2012	Tier 1 Table 2.3-2 ITAAC wording is revised to remove unnecessary exceptions from Table 2.3-2 ITAAC #1.a, b, #2.a, b and #3.	-
DCD_07-14_BTP-45	Table 2.5.1-6 (Sheet 8 and 9)	2.5-17 [2.5-18 2.5-19]	Response to RAI No. 833 MHI Letter No. UAP-HF-12052 Date 2/27/2012	Revised Table 2.5.1-6 for RAI response.	-

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

Tier 2

Chapter 1

Chapter 1 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_10.3.6.2	Table 1.9.1-1 (Sheet 4 of 20)	1.9-7	MHI Letter No. UAP-HF-09142 Date 4/1/2009	Revised the item regarding Regulatory Guide Number 1.50 in Table 1.9.1-1 to refer Subsection 10.3.6.2.	-
DCD_10.3.6-4	Table 1.9.1-1 (Sheet 5 of 20)	1.9-6	MHI Letter No. UAP-HF-09142 Date 4/1/2009	Revised the item regarding Regulatory Guide Number 1.37 in Table 1.9.1-1 to refer Subsection 10.3.6.2.	-
DCD_03.09.05-32	1.5.4	1.5-3	Response to RAI No. 663 MHI Letter No. UAP-HF-11012 Date 01/21/2011	Revised Reference 1.5-3 to identify the Proprietary version and revision number.	-
DCD_09.05.08-28	Figures 1.2-7 1.2-13 1.2-27 1.2-28	1.2-57 1.2-63 1.2-77 1.2-78	Response to RAI No. 704 MHI Letter No. UAP-HF-11207 Date 07/04/2011	Revised Figures 1.2-7, 1.2-13, 1.2-27 and 1.2-28 to reasons as discussed in RAI Response.	-
MIC-03-01-00002	1.6	1.6-1	Request from Response to MHI Letter No. UAP-HF-11425 Date NRC, 12/09/2011	Added the description regarding the list of Technical Report.	0

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-01-00002	Table 1.6-1	1.6-2	Request from NRC, Response to MHI Letter No. UAP-HF-11425 Date 12/09/2011	Changed the title of Table 1.6-1 to identify as Topical Report List.	0
MIC-03-01-00002	Table 1.6-2 (new table)	1.6-2 [1.6-3 through 1.6-7]	Request from NRC, Response to MHI Letter No. UAP-HF-11425 Date 12/09/2011	Added the list of Technical Report.	0
MIC-03-01-00001	Table 1.8-2 (sheet 18 of 34)	1.8-24	Correction for track change	Removed track changes of "~~*The COL Applicant is to provide values to the component Table 9.2.4-1 based on system and component descriptions from Section 9.2.4.2.1 and 9.2.4.2.2 respectively.*~~*Deleted.*" (Contents are not change)	0
DCD_07.01-35	New Subsection 1.4.2.4	1.4-2	Response to RAI No. 733 MHI Letter No. UAP-HF-11261 Date 8/12/2011	Added a new Subsection 1.4.2.4 for RAI response.	-
DCD_06.02.05-45	Table 1.8-2 (sheet 34 of 34)	1.8-40	Response to RAI No. 803 MHI Letter No. UAP-HF-11304 Date 9/9/2011	Created new COL action item to confirm SA equipment survivability	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_03.03.02-5	Table 1.8-2 (Sheet 2)	1.8-8	Response to RAI No. 817 MHI Letter No. UAP-HF-11326 Date 9/26/2011	COL applicant to verify that wake effects from site location features do not invalidate plant wind load design.	-
DCD_10.04.06-17	Table 1.8-2 (Sheet 22)	1.8-28	Amended Response to RAI No. 807 MHI Letter No. UAP-HF-11328 Date 9/29/2011	Added a new COL item as COL 10.3(4) in Table 1.8-2.	-
DCD_09.04.02-7	Table 1.9.2-9 (Sheets 20 and 21)	1.9-209 1.9-210	Response to RAI No. 824 MHI Letter No. UAP-HF-11344 Date 10/06/2011	Revise the status for the criterion 3 of SRP 9.4.2 as follows; Replaced “Criteria 3 is N/A. (Not air. cleanup system)” with “Criterion 3: Fuel handling area is served by auxiliary building HVAC system. Auxiliary building HVAC system interfaces to the air cleanup system of containment low volume purge system.” Revise the status for the criterion 3 of SRP 9.4.3 as	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				follows; Replaced "Criterion 3: Air clean up function is provided for TSC HVAC system only." with "Criterion 3: Air clean up function is provided for TSC HVAC system and Auxiliary building HVAC system. Auxiliary building HVAC system interfaces to the air cleanup system of containment low volume purge system.	
DCD_03.06.01-9	Table 1.8-2 (Sheet 4)	1.8-10	Response to RAI No. 795 MHI Letter No. UAP-HF-11362 Date 10/26/2011	It explicitly state to update the as-design pipe hazards analysis report to include the impact of all site specific high and moderate piping systems.	-
DCD_11.04-19	Table 1.8-2 (Sheet 23)	1.8-29	Response to Amended RAI No. 534 MHI Letter No. UAP-HF-11320 Date 09/21/2011	Editorial correction Replace Ref.11.2-24 with ref.11.2-25 on COL 11.2(8).	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_06.02.02-66	Table 1.8-2 (sheet 15)	1.8-20	Response to RAI No. 836 MHI Letter No. UAP-HF-11383 Date 11/11/2011	Added “blowdown water” because that will contact with aluminum in post-LOCA condition.	-
MIC-03-01-00002 S1	Table 1.6-1	1.6-2	Request from NRC, Response to MHI Letter No. UAP-HF-11425 Date 12/09/2011	Appropriate sections for each report are reviewed and identified	-
MIC-03-01-00002 S1	Table 1.6-2 (new table)	1.6-2 [1.6-3 through 1.6-7]	Request from NRC, Response to MHI Letter No. UAP-HF-11425 Date 12/09/2011	Appropriate sections for each report are reviewed and identified	-
DCD_08.03.01-38	1.2.1.5.6	1.2-45	Response to Amended RAI No. 394 MHI Letter No. UAP-HF-11404 Date 11/22/2011	Replaced “with the Class 1E GTGs, different rating GTGs with diverse starting system are provided as AAC sources.” with “, a different manufacturer is adopted for the AAC GTGs from the Class 1E GTGs, and the AAC GTGs are provided with diverse starting mechanisms as compared to the	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Class 1E GTGs.”	
DCD_10.04.08-11	Table 1.9.2-10 (sheet 15)	1.9-235	Response to RAI No. 862 MHI Letter No. UAP-HF-11430 Date 12/12/2011	Corrected status of the SGBDS conformance with SRP appropriately.	-
MIC-03-01-00006	Table 1.6-2	1.6-2	GSI-191 Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Added technical reports associated with GSI-191 as IBR.	1
DCD_06.02.02-35	Table 1.8-2 (Sheet 14 of 36)	1.8-20	GSI-191, Response to RAI No. 354-2585 MHI Letter No. UAP-HF-09365 Date 07/07/2009	COL6.2 (5) is updated to contain design basis limits of latent debris and miscellaneous debris in containment for RAI response.	1
MIC-03-01-00007	Table 1.8-2 (Sheet 14 of 36) [Sheet 15 of 36]	1.8-20 [1.8-21]	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	COL6.2(6) is added to control the use of insulation in containment for consistency with those quantities used for safety evaluation.	1
MIC-03-01-00008	Table 1.9.1-1 (Sheet 8 of 20)	1.9-10	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Reference subsection should be correctly read as “6.2.2.2.6 and 6.2.2.3”.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-01-00009	Table 1.9.3-1 (Sheet 24 to 29 of 29)	1.9-407 through 1.9-412	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Removed redundant description. Instead, add summary of conformance with GSI-191 as well as RG 1.82R3.	1
DCD_03.07.02-88	Table 1.8-2 (sheet 5)	1.8-11	Response to RAI No. 800 MHI Letter No. UAP-HF-11298 Date 09/07/2011	Changed ''site-specific seismic category I SSCs'' to ''site-specific safety-related SSCs'' in the COL 3.7 (9) item.	-
DCD_03.07.02-102	Table 1.8-2 (Sheet 5)	1.8-11	Response to RAI No. 810 MHI Letter No. UAP-HF-11324 Date 09/22/2011	Added the description regarding COL Action Item in the COL 3.7 (11) item.	-
DCD_03.07.02-107	Table 1.8-2 (Sheet 7)	1.8-13	Response to RAI No. 810 MHI Letter No. UAP-HF-11324 Date 09/22/2011	Deleted the description regarding the SASSI relief option for additional COL Applicant nuclear sites in the COL 3.7 (25) item.	-
DCD_03.07.02-95	Table 1.9.2-3 (Sheet 13)	1.9-68	Response (60 day) to RAI No. 810 MHI Letter No. UAP-HF-11402 Date 11/22/2011	Added the new write-up in the third ''Status'' column.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_09.04.03-18	1.2.1.5.4.5	1.2-37	Response to RAI No. 831 MHI Letter No. UAP-HF-12016 Date 1/27/2012	Revised the description for control function of radioactive airborne materials by AB HVAC System.	-
DCD_09.04.03-19	Table 1.8-2 (Sheet 21)	1.8-26	Response to RAI No. 831 MHI Letter No. UAP-HF-12016 Date 1/27/2012	Added the new item to “Table 1.8-2”.	-
DCD_14.03.03-27	Table 1.8-2 (Sheet 32)	1.8-36	Response to RAI No. 892 MHI Letter No. UAP-HF-12045 Date 02/17/2012	Revised COL Item List same as Chapter 14	-
DCD_07-14_BTP-45	Table 1.9.1-1 (sheets 14 & 16) Table 1.9.2-7 (sheets 2 – 8)	1.9-16 1.9-17 [1.9-18] 1.9-153 through 1.9-159 [1.9-155 through 1.9-160]	Response to RAI No. 833 MHI Letter No. UAP-HF-12052 Date 2/27/2012	Revised Tables 1.9.1-1 and 1.9.2-7 for RAI response.	-
DCD_19-543 S01	Figure 1.2-9 Figure 1.2-36	1.2-59 1.2-86	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-12056 Date 3/2/2012	Revised to credit the screening effect of the Auxiliary Building	-
DCD_19-564	Table 1.8-2 (Sheet 36)	1.8-40	Response to RAI No. 898	Revised COL Action item 19.3(6)	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			MHI Letter No. UAP-HF-12053 Date 02/28/2012	and developed two new COL Action items 19.3(8) and 19.3(9).	
MIC-03-03-00066	Table 1.8-2 (Sheet 5 of 36) Table 1.8-2 (Sheet 6 [7] of 36)	1.8-11 1.8-12 [1.8-13]	DCD Markups Associated with SC Technical Reports and ACI 349 MHI Letter no. UAP-HF-12047 Date 2/29/2012	Updated table note	-
DCD_03.09.06-53	Table 1.8-2 (Sheet 10)	1.8-16	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2012	Corrected the COL Item 3.9(8)	-
DCD_03.09.06-55	Table 1.8-2 (Sheet 10)	1.8-16	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2012	Corrected the COL Item 3.9(8)	-
DCD_03.09.06-66	Table 1.8-2 (Sheet 10)	1.8-16	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2012	Corrected the COL Item 3.9(6)	-
DCD_03.09.06-68	Table 1.8-2 (Sheet 10)	1.8-16	Amended Response to RAI No. 801 MHI Letter No.	Corrected the COL Item 3.9(6) and 3.9(8)	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			UAP-HF-12062 Date 03/08/2012		
MIC-03-01-00014	Table 1.8-1	1.8-3 1.8-4	Result of Site Specific Interface Review at making DCD R3 UTR Rev2	Adding the DCD section number for following Interfaces Circulating Water System Essential Service Water system and Ultimate Heat Sink Deleting the DCD section number for "Offsite Power System"	2
MIC-03-01-00013	Table 1.8-2 Sheet 3, Sheet 7 Sheet 9[10]	1.8-9 1.8-13 1.8-15 [1.8-16]	Result of COL ITEMS Consistency Review at making DCD Rev3 UTR Rev2	In COL 3.5(2), the P1 should have a subscript. In COL 3.7(25), "ASCSASSI" should be "ASC SASSI" In COL 3.8(30),"ACI 349" should be "ACI 349-06" COL 3.9(6) has	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				been deleted in Section 3.9.9 of the DCD.	
	Sheet 10	1.8-16		In COL 3.9(8), COL 3.9(8) should read "The COL Applicant is to administratively control the IST program for pumps, valves and dynamic restraints and to control the ASME OM Code edition and addenda to be used for the IST program."	
	Sheet 11[12]	1.8-17		Table 1.8-2 is missing COL 3.12(5) which reads "The COL holder for the first plant is to perform the pressurizer surge line monitoring subsequent to the COL item 14.2(11)."	
	Sheet 12[13]	1.8-18		In COL 5.2(2), deleted the word	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
		[1.8-19]		"the" here because it does not appear in the Chapter 5 COL 5.2(2) description.	
	Sheet 13	1.8-19		In COL 5.2(11), deleted the word "the" here because it does not appear in Chapter 5 COL 5.2(11) description.	
	Sheet 15[16]	1.8-21 [1.8-22]		COL 7.9(1) has been deleted in Chapter 7.	
	Sheet 16[17]	1.8-22 [1.8-23]		In COL 8.2(11), a second paragraph needs to be added here per DCD_15.0.0-24 reading: "The grid stability study shows in part that, with no external electrical system failures, the grid will remain stable and the transmission system voltage and frequency will remain within the interface requirements (±10% for voltage	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				and ±5% for frequency) to maintain the RCP flow assumed in the Chapter 15 analysis for a minimum of 3 seconds following reactor/turbine generator trip." COL 8.3(12) is missing. It should read: "The COL Applicant is to provide the cable monitoring program for underground and inaccessible cables within the scope of the maintenance rule (10 CFR 50.65)"	
	Sheet 17[18]	1.8-23 [1.8-24]		In COL 9.1(6), the periods in the middle of the sentence should be commas. In COL 9.2(2), COL 9.2(2) has been updated and should read: "The COL Applicant is to provide protection of the site-specific portions of the ESWS against adverse environmental,	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				operating, and accident conditions that can occur, such as countermeasure to freezing by safety-related heat tracing, low temperature operation, and thermal overpressurization."	
	Sheet 18[19]	1.8-24 [1.8-25]		In COL 9.2(6), wording was changed to match the revised wording of the corresponding COL Item in Chapter 9. In COL 9.2(7), wording was changed to match the revised wording of the corresponding COL Item in Chapter 9.	
	Sheet 19[20]	1.8-25 [1.8-26]		In COL 9.2(22), Chapter 9 COL 9.2(22) description omits the "at least	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				30 years" wording. In COL 9.2(25), "filing" has been changed to "filling"	
	Sheet 20 [21]	1.8-26 [1.8-27]		In COL 9.2(33), revised phrase "blowdown line" to "backwash line" to match the wording in the corresponding COL Item in Chapter 9. In COL 9.4(4), wording was changed to match the revised wording of the corresponding COL Item in Chapter 9.	
	Sheet 21 [22, 23]	1.8-27 [1.8-28 1.8-29]		In COL 9.5(3), revised to match the wording in the Chapter 9 COL 9.5(3) , i.e., "…the provided apparatus…". COL 9.5(7) has	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				been deleted in Chapter 9 COL 9.5(9) has been deleted in Chapter 9. In COL 10.2(1), revised to match corresponding COL Item in Chapter 10. In COL 10.3(1), "NSAC-202L-R2" has been updated to "NSAC-202L-R3"	
	Sheet 22[24]	1.8-28 [1.8-30]		In COL 11.2(3), revised “hydrogeological data for performing” to “hydrogeological data and for performing”. "Table2 ECL" should be "Table 2 ECLs"	
	Sheet 23[24]	1.8-29 [1.8-30]		In COL 11.3(3), revisedto delete text "design parameters and" which does not appear in the	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Chapter 11 COL 11.3(3) description.	
	Sheet 24 [25, 26]	1.8-30 [1.8-31, 1.8-32]		In COL 11.4(10), "plan" should be "plant" In COL 11.5(1), deleted unnecessary space before parentheses in the COL Item No. to read COL 11.5(1).	
	Sheet 25 [27]	1.8-31 [1.8-33]		In COL 12.1(7), revised wording to match corresponding COL Item in Chapter 12.	
	Sheet 29 [31]	1.8-35 [1.8-37]		In COL 13.6(5), deleted the lone parenthesis.	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	Sheet 30[32] Sheet 31[32]	1.8-36 [1.8-38] 1.8-37 [1.8-38]		In COL 14.3(2), revised wording to match the corresponding COL Item in Chapter 14. In COL 16.1(3), no such item exists in Chapter 16. In COL 16.1_3.3.2(1), Two COLs are missing. COL 16.1_3.3.2(2) - LCO 3.3.2 and associated Bases for hazardous chemical are to be confirmed by the evaluation with site-specific condition. COL 16.1_3.3.4(1) - Component controls and instrumentation required for safe shutdown related to COL 16.1_3.3.5(1) has been deleted in Chapter 16.	
MIC-03-01-00010	Table 1.8-2 Sheet 34 [35]	1.8-40 [1.8-41]	Inconsistency of Chapter 19 COL Item	Corrected the COL Item 19.3(4) on table 1.8-2 consistent with	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				chapter 19	
MIC-03-01-00011	Table 1.8-2 Sheet 34 [36]	1.8-40 [1.8-42]	Inconsistency of Chapter 19 COL Item	Corrected the COL Item 19.3(5) on Table 1.8-2 consistent with Chapter 19	2
MIC-03-01-00012	Table 1.8-2 Sheet 34 [36]	1.8-40 [1.8-42]	Inconsistency of Chapter 19 COL Item	Corrected the COL Item 19.3(6) on Table 1.8-2 consistent with Chapter 19	2

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

Table 1.8-1 Significant Site Specific Interfaces with the Standard US-APWR Design (Sheet 1 of 4)

Interface	Interface Type	Description of Items Considered to be Outside the Standard Scope of Design	DCD Section
Circulating Water System	CDI	The system design of the circulating water system (CWS) is CDI. A typical "reference plant" physical layout, configuration and the associated design basis information for the CWS are presented in the DCD. The final system configuration for the CWS is site-specific.	1.2 8.3.1, 12.3 10.1 10.4.5 10.4.13 11.2.3.1 14.2.12.1.33
Essential Service Water System and Ultimate Heat Sink	CDI	Certain functional aspects of the ESWS and the UHS must meet interface requirements to be consistent with the standard plant design. The UHS is a safety-related system required to remove the heat transferred from the ESWS during normal operation, design basis events and safe shutdown. Decisions regarding the UHS design are to be based on available water sources and how the cooling water can be supplied to the ESWS. A typical configuration for the ESWS and UHS is presented in this DCD as CDI. The final configuration of the ESWS will be comprised of the ESWPT (see below) and UHS related structures (including piping and piping support layout) and is site-specific.	1.2 9.2.1 9.2.5 12.3 Ch 16, 3.7.9 2.4 3.8
Essential Service Water Pipe Tunnel	CDI	The portions of the essential service water pipe tunnel (ESWPT) is outside the standard US-APWR buildings and is CDI. The termination points of the ESWPT are under the T/B and at the UHS related structures. A typical design for the ESWPT is presented in figures in this DCD and is CDI. The final configuration, including physical layout of the ESWPT, is site-specific.	1.2 8.3.1 App. 9A 11.5 12.3

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Table 1.8-1 Significant Site Specific Interfaces with the Standard US-APWR Design (Sheet 2 of 4)

Interface	Interface Type	Description of Items Considered to be Outside the Standard Scope of Design	DCD Section
Offsite Power System	CDI	The offsite power system, transmission circuits, and components that are located outside the high voltage terminals of the main and reserve transformers are CDI. The interface requirements between the standard plant design and the local electrical grid are addressed in this DCD. A typical configuration of the transformers is presented in the DCD, and is CDI. The final configuration of the offsite power transmission system including location and design of the main switchyard area physical layout of the equipment; as well as design details such as transmission tie line voltage level, is site-specific.	~~8.1,~~ 8.2
Power Source Fuel Storage Vault	CDI	The typical design of the power source fuel storage vaults (PSFSVs) as presented in figures in this DCD is CDI. The final configuration of the PSFSVs including physical location in relation to the standard US-APWR buildings is site-specific.	1.2 App. 9A 12.3
Potable and Sanitary Water System	CDI	The design and configuration of the potable and sanitary water systems (PSWS) is CDI. The potable water system provides water supply and distribution fit for human consumption, and the sanitary water system provides collection of sanitary wastewater, with standard plant design features to prevent the potential for contamination from radioactive sources.	9.2.4
Steam Generator Blowdown System	CDI	The portions of steam generator blowdown system (SGBDS) that are downstream of the processing equipment for steam generator blowdown are CDI; including the flow path to the waste water system that is outside of the US-APWR standard plant design.	9.3.2 10.4.8 14.2.12.1.83
Equipment and Floor Drainage Systems	CDI	The portions of equipment and floor drainage systems that are outside the US-APWR standard plant design buildings are CDI and addressed by the COL Applicant; this includes the discharge path to the waste water system. The waste water system used for processing effluent from the systems is a site-specific design and is not part of the standard design.	9.3.2 9.3.3 10.4.8 14.2.12.1.83

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Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 3 of 36)

COL ITEM NO.	COL ITEM
COL 3.3(4)	*The COL Applicant is to provide the wind load design method and importance factor for site-specific category I and category II buildings and structures. The COL Applicant shall also verify that the site location does not have features promoting channeling effects or buffeting in the wake of upwind obstructions that invalidate the standard plant wind load design methods described above.*
COL 3.3(5)	*The COL Applicant is to note the vented and unvented requirements of this subsection to the site-specific category I buildings and structures.*
COL 3.4(1)	*The COL Applicant is to address the site-specific design of plant grading and drainage.*
COL 3.4(2)	*The COL Applicant is to demonstrate the DBFL bounds their specific site, or is to identify and address applicable site conditions where static flood level exceed the DBFL and/or generate dynamic flooding forces.*
COL 3.4(3)	*Site-specific flooding hazards from engineered features, such as from cooling water system piping, is to be addressed by the COL Applicant.*
COL 3.4(4)	*The COL Applicant is to address any additional measures below grade to protect against exterior flooding and the intrusion of ground water into seismic category I buildings and structures.*
COL 3.4(5)	*The COL Applicant is to identify and design, if necessary, any site-specific flood protection measures such as levees, seawalls, floodwalls, site bulkheads, revetments, or breakwaters per the guidelines of RG 1.102 (Reference 3.4-3), or dewatering system if the plant is not built above the DBFL.*
COL 3.4(6)	*The COL Applicant is to identify any site-specific physical models used to predict prototype performance of hydraulic structures and systems.*
COL 3.4(7)	*The COL Applicant is responsible for the protection from internal flooding for those site-specific SSCs that provide nuclear safety-related functions or whose postulated failure due to internal flooding could adversely affect the ability of the plant to achieve and maintain a safe shutdown condition.*
COL 3.5(1)	*The COL Applicant is to have plant procedures in place prior to fuel load that specify unsecured equipment, including portable pressurized gas cylinders, located inside or outside containment and required for maintenance or undergoing maintenance is to be removed from containment prior to operation, moved to a location where it is not a potential hazard to SSCs important to safety, or seismically restrained to prevent it from becoming a missile.*
COL 3.5(2)	*The COL Applicant is to commit to actions to maintain P_1 within this acceptable limit as outlined in RG 1.115, “Protection Against LowTrajectory Turbine Missiles” (Reference 3.5-6) and SRP Section 3.5.1.3, “Turbine Missiles” (Reference 3.5-7).*
COL 3.5(3)	*As described in DCD, Section 2.2, the COL Applicant is to establish the presence of potential hazards, except aircraft, which is reviewed in Subsection 3.5.1.6, and the effects of potential accidents in the vicinity of the site.*

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Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 7 of 36)

COL ITEM NO.	COL ITEM
COL 3.7(21)	*The COL Applicant is responsible for the seismic design of those seismic category I and seismic category II SSCs that are not part of the US-APWR standard plant using site-specific SSE design ground motion.* MIC-03-03-00066
COL 3.7(22)	*The COL Applicant is required to perform site-specific seismic analyses, including SSI analysis which may consider seismic wave transmission incoherence ~~and analysis of the CAV~~ of the seismic input motion, in order to determine if high-frequency exceedances of the CSDRS could be transmitted to SSCs in the plant superstructure with potentially damaging effects.* MIC-03-03-00066
COL 3.7(23)	*The COL Applicant is to verify that the results of the site-specific SSI analysis for the broadened ISRS and basement walls lateral soil pressures are enveloped by the US-APWR standard design.*
COL 3.7(24)	*The COL Applicant is to verify that the site-specific ratios V/A and AD/V[2] (A, V, D, are PGA, ground velocity, and ground displacement, respectively) are consistent with characteristic values for the magnitude and distance of the appropriate controlling events defining the site-specific uniform hazard response spectra.*
COL 3.7(25)	*The COL Applicant referencing the US-APWR standard design is required to perform a site-specific SSI analysis for the R/B-PCCV-containment internal structure, and PS/B model, utilizing the program ACS SASSI (Reference 3.7-17) which contains time history input incoherence function capability. The SSI analysis using SASSI is required in order to confirm that site-specific effects are enveloped by the standard design. ~~After the SASSI analysis is first performed for a specific unit, subsequent COLAs for other units may be able to forego SASSI analyses if the FIRS and GMRS derived for those subsequent units are much smaller than the US-APWR standard plant CSDRS, and if the subsequent unit can also provide justification through comparison of site-specific geological and seismological characteristics.~~* MIC-03-01-00013 DCD_03.07.02-107
COL 3.7(26)	*SSI effects are also considered by the COL Applicant in site-specific seismic design of any seismic category I and II structures that are not included in the US-APWR standard plant. Consideration of structure-to-structure interaction is discussed in Subsection 3.7.2.8. The site-specific SSI analysis is performed for buildings and structures including, but not limited to, to the following:* • *Seismic category I ESWPT* • *Seismic category I PSFSV* • *Seismic category I UHSRS*
COL 3.7(27)	*It is the responsibility of the COL Applicant to perform any site-specific seismic analysis for dams that may be required.*
COL 3.7(28)	*The overall basemat dimensions, basemat embedment depths, and maximum height of the US-APWR R/B, PCCV, and containment internal structure on their common basemat are given in Table 3.7.1-3 and as updated by the COL Applicant to include site-specific seismic category I structures.*

Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 10 of 36)

COL ITEM NO.	COL ITEM
COL 3.8(29)	The COL Applicant is to provide design and analysis procedures for the ESWPT, UHSRS, and PSFSVs.
COL 3.8(30)	When a coefficient of friction of 0.7 is used in calculating sliding resistance F_S, roughening of fill concrete is required per criteria given in Section 11.7.9 of ACI 349-06 (Reference 3.8-8). If a coefficient of friction of less than 0.7 is used by the COL Applicant, roughening of fill concrete is not required.
COL 3.9(1)	The COL Applicant is to assure snubber functionality in harsh service conditions, including snubber materials (e.g., lubricants, hydraulic fluids, seals).
COL 3.9(2)	The first COL Applicant is to complete the vibration assessment program, including the vibration test results, consistent with guidance of RG 1.20. Subsequent COL Applicant need only provide information in accordance with the applicable portion of position C.3 of RG 1.20 for Non-Prototype internals.
COL 3.9(3)	Deleted
COL 3.9(4)	Deleted
COL 3.9(5)	Deleted
COL 3.9(6)	~~The COL Applicant is to provide the program plan for IST of dynamic restraints in accordance with Nonmandatory Appendix A of ASME OM Code.~~Deleted.
COL 3.9(7)	Deleted
COL 3.9(8)	~~The COL Applicant is to administratively control the edition and addenda to be used for the IST program plan, and to provide a full description of their IST program plan for pumps, and dynamic restraints.~~The COL Applicant is to administratively control the IST program for pumps, valves and dynamic restraints and to control the ASME OM Code edition and addenda to be used for the IST program.
COL 3.9(9)	Deleted
COL 3.9(10)	The COL Applicant is to identify the site-specific active pumps.
COL 3.9(11)	The COL Applicant is to provide site-specific, safety-related pump IST parameters and frequency.
COL 3.9(12)	The COL Applicant is to provide type of testing and frequency of site-specific valves subject to IST in accordance with the ASME Code.
COL 3.10(1)	The COL Applicant is to document and implement an equipment qualification program for seismic category I equipment and provide milestones and completion dates.
COL 3.10(2)	Deleted

MIC-03-01-00013

DCD_03.09.06-66 and 68
MIC-03-01-00013

DCD_03.09.06-53,55, and 68
MIC-03-01-00013

Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 12 of 36)

COL ITEM NO.	COL ITEM
COL 3.11(6)	*The COL Applicant is to qualify site-specific electrical and mechanical equipment (including instrumentation and control, and certain accident monitoring equipment) using a qualification process that is equivalent to that delineated for the US-APWR Standard Plant, as described in Technical Report MUAP-08015.*
COL 3.11(7)	*The COL Applicant is to identify chemical and radiation environmental requirements for site-specific qualification of electrical and mechanical equipment (including instrumentation and control, and certain accident monitoring equipment).*
COL 3.11(8)	*The COL Applicant is to provide the site-specific mechanical equipment requirements.*
COL 3.11(9)	*Optionally, the COL Applicant may revise the parameters based on site-specific considerations.*
COL 3.12(1)	*Deleted*
COL 3.12(2)	*If any piping is routed in tunnels or trenches in the yard, the COL Applicant is to generate site-specific seismic response spectra, which may be used for the design of these piping systems.*
COL 3.12(3)	*If the COL Applicant finds it necessary to lay ASME Code, Section III (Reference 3.12-2), Class 2 or 3 piping exposed to wind or tornado loads, then such piping must be designed to the plant design basis loads.*
COL 3.12(4)	*The COL Applicant is to screen piping systems that are sensitive to high frequency modes for further evaluation.*
COL 3.12(5)	*The COL holder for the first plant is to perform the pressurizer surge line monitoring subsequent to the COL item 14.2(11).*
COL 3.13(1)	*Deleted*
COL 3.13(2)	*Deleted*
COL 3.13(3)	*The COL Applicant is to retain quality records including certified material test reports for all property test and analytical work performed on nuclear threaded fasteners in accordance with the requirements of 10 CFR 50.71.*
COL 3.13(4)	*The COL Applicant is to address compliance with ISI requirements as summarized in Subsection 3.13.2.*
COL 3.13(5)	*The COL Applicant is to commit to complying with the requirements of ASME Code, Section XI, IWA-5000 (Reference 3.13-14), and the requirements of 10 CFR 50.55a(b)(2)(xxvi) (Reference 3.13-11), Pressure Testing Class 1, 2, and 3 Mechanical Joints, and Paragraph (xxvii) Removal of Insulation.*
COL 4.4(1)	*Deleted*
COL 5.2(1)	*ASME Code Cases that are approved in Regulatory Guide 1.84; The COL Applicant addresses the addition of ASME Code Cases that are approved in Regulatory Guide 1.84.*

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Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 13 of 36)

COL ITEM NO.	COL ITEM
COL 5.2(2)	*ASME Code Cases that are approved in Regulatory Guide 1.147; The COL Applicant addresses ~~the~~ Code Cases invoked in connection with the inservice inspection program that are in compliance with Regulatory Guide 1.147.*
COL 5.2(3)	*ASME Code Cases that are approved in Regulatory Guide 1.192; The COL Applicant addresses Code cases invoked in connection with the operation and maintenance that are in compliance with Regulatory Guide 1.192.*
COL 5.2(4)	*Inservice inspection and testing program for the RCPB* *The COL Applicant provides and develops the implementation milestone of the inservice inspection and testing program for the RCPB, in accordance with Section XI of the ASME Code and 10 CFR 50.55a.*
COL 5.2(5)	*Preservice inspection and testing program for the RCPB* *The COL Applicant provides and develops the implementation milestone of the preservice inspection and testing program for the RCPB in accordance with Article NB-5280 of Section III, Division I of the ASME Code.*
COL 5.2(6)	*Deleted*
COL 5.2(7)	*Deleted*
COL 5.2(8)	*Deleted*
COL 5.2(9)	*Deleted*
COL 5.2(10)	*Deleted*
COL 5.2(11)	*ASME Code Edition and Addenda* *The COL Applicant addresses whether ~~the~~ ASME Code editions or addenda other than those specified in Table 5.2.1-1 will be used.*
COL 5.2(12)	*EPRI Primary Water Chemistry Guideline* *The COL Applicant should specify the applicable version of the EPRI "Primary Water Chemistry Guideline" that will be implemented.*
COL 5.2(13)	*ISI accessibility* *The COL Applicant addresses the discussion of the provisions to preserve accessibility to perform ISI for Class 1 components provided design of US-APWR Class 1 component is changed from the DCD design.*
COL 5.2(14)	*Procedures for conversion into common leakage rate* *The COL Applicant addresses and develops a milestone schedule for preparation and implementation of the procedure.*

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Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 16 of 36)

COL ITEM NO.	COL ITEM
COL 6.4(5)	*The number, locations, sensitivity, range, type, and design of the toxic gas detectors are COL items. Depending on proximity to nearby industrial, transportation, and military facilities, and the nature of the activities in the surrounding area, as well as specific chemicals onsite, the COL Applicant is responsible to specify the toxic gas detection requirements necessary to protect the CRE.*
COL 6.5(1)	*Deleted*
COL 6.5(2)	*Deleted*
COL 6.5(3)	*Deleted*
COL 6.5(4)	*Deleted*
COL 6.6(1)	*The COL Applicant is responsible for identifying the implementation milestone for ASME Section XI inservice inspection program for ASME Code Section III Class 2 and 3 systems, components (pumps and valves), piping, and supports, consistent with the requirements of 10 CFR 50.55a (g).*
COL 6.6(2)	*The COL Applicant is responsible for identifying the implementation milestone for the augmented inservice inspection program.*
COL 7.3(1)	*Deleted*
COL 7.4(1)	*The COL Applicant is to provide a description of component controls and indications required for safe shutdown related to the UHS.*
COL 7.5(1)	*The COL Applicant is to provide a description of site-specific PAM variables.*
COL 7.5(2)	*The COL Applicant is to provide a description of the site-specific EOF.*
COL 7.9(1)	*~~The COL Applicant is to provide a description of cyber security provisions.~~Deleted.*
COL 8.2(1)	*The COL Applicant is to address transmission system of the utility power grid and its interconnection to other grids.*
COL 8.2(2)	*Deleted*
COL 8.2(3)	*The COL Applicant is to address the plant switchyard which includes layout, control system and characteristics of circuit breakers and buses, and lightning and grounding protection equipment.*
COL 8.2(4)	*The COL Applicant is to provide detail description of normal preferred power.*
COL 8.2(5)	*The COL Applicant is to provide detail description of alternate preferred power.*
COL 8.2(6)	*Deleted*
COL 8.2(7)	*The COL Applicant is to address protective relaying for each circuit such as lines and buses.*
COL 8.2(8)	*The COL Applicant is to address switchyard dc power as part of switchyard design description.*

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Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 17 of 36)

COL ITEM NO.	COL ITEM
COL 8.2(9)	*The COL Applicant is to address switchyard ac power as part of switchyard design description.*
COL 8.2(10)	*The COL Applicant is to address transformer protection corresponded to site-specific scheme.*
COL 8.2(11)	*The COL Applicant is to address the stability and reliability study of the offsite power system. The stability study is to be conducted in accordance with BTP 8-3 (Reference 8.2-17). The study should address the loss of the unit, loss of the largest unit, loss of the largest load, or loss of the most critical transmission line including the operating range, for maintaining transient stability. A failure modes and effects analysis (FMEA) is to be provided.* *The grid stability study shows in part that, with no external electrical system failures, the grid will remain stable and the transmission system voltage and frequency will remain within the interface requirements (±10% for voltage and ±5% for frequency) to maintain the RCP flow assumed in the Chapter 15 analysis for a minimum of 3 seconds following reactor/turbine generator trip.* MIC-03-01-00013
COL 8.2(12)	*Deleted*
COL 8.3(1)	*The COL Applicant is to provide transmission voltages. This includes also MT and RAT voltage ratings.*
COL 8.3(2)	*The COL Applicant is to provide ground grid and lightning protection.*
COL 8.3(3)	*The COL Applicant is to provide short circuit analysis for ac power system, since the system contribution is site specific.*
COL 8.3(4)	*Deleted*
COL 8.3(5)	*Deleted*
COL 8.3(6)	*Deleted*
COL 8.3(7)	*Deleted*
COL 8.3(8)	*The COL Applicant is to provide short circuit analysis for dc power system.*
COL 8.3(9)	*Deleted*
COL 8.3(10)	*The COL Applicant is to provide protective devise coordination.*
COL 8.3(11)	*The COL Applicant is to provide insulation coordination (surge and lightning).*
COL 8.3(12)	*The COL Applicant is to provide the cable monitoring program for underground and inaccessible cables with the scope of the maintenance rule (10 CFR 50.65).* MIC-03-01-00013
COL 9.1(1)	*Deleted*
COL 9.1(2)	*Deleted*
COL 9.1(3)	*Deleted*
COL 9.1(4)	*Deleted*

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COL ITEM NO.	COL ITEM
COL 9.1(5)	*Deleted*
COL 9.1(6)	*To assure proper handling of heavy loads during the plant life, the COL Applicant is to establish a heavy load handling program, including associated procedural and administrative controls, that satisfies commitments made in Subsection 9.1.5 of the DCD, and that meets the guidance of ANSI/ASME B30.2, ANSI/ASME B30.9, ANSI N14.6, ASME NOG-1, CMAA Specification 70-2000, NUREG-0554, NUREG-0612, and NUREG-0800, Section 9.1.5 and RG 1.206 C.I.9.1.5. During the operating life of the plant, it is anticipated that temporarily installed hoists and mobile cranes will also be used for plant maintenance. The heavy load handling program will include all cranes and hoists on site capable of handling heavy loads, including temporary cranes and hoists. The heavy load handling program will adopt a defense-in-depth strategy to enhance safety when handling heavy loads. For instance, the program will restrict lift heights to practical minimums and limit lifting activities as much as practical to plant modes in which load drops have the smallest potential for adverse consequences, particularly when critical loads are being handled. Further, prior to the lifting of heavy loads after initial fuel loading, the program will institute any additional reviews as necessary to assure that potential drops of these loads due to inadvertent operations or equipment malfunctions, separately or in combination, will not jeopardize safe shutdown functions, cause a significant release of radioactivity, a criticality accident, or inability to cool fuel within the reactor vessel or spent fuel pool. The COL Applicant will prepare a non-critical heavy load procedure that includes sections, on the Design Bases, System Descriptions~~.~~, Safety Evaluation~~.~~, Inspection and Testing Requirements, and Instrumentation Requirements for the program. The heavy load program will include requirements for sufficient operator training, system design, load handling instructions~~.~~, and equipment inspections. Safe load paths will be defined so that heavy loads avoid being moved over or near irradiated fuel or critical equipment. Mechanical stops or electrical interlocks to prevent movement of heavy loads near irradiated fuel or safe shutdown equipment may also be employed.* MIC-03-01-0 0013 MIC-03-01-0 0013
COL 9.1(7)	*Deleted*
COL 9.1(8)	*Deleted*
COL 9.1(9)	*The COL Applicant is to create a procedure that will instruct operators to perform formal inspection of the integrity of the spent fuel racks.*
COL 9.2(1)	*The COL Applicant is to provide the evaluation of the ESWP at the lowest probable water level of the UHS. The COL Applicant is to develop recovery procedures in the event of approaching low water level of UHS.*
COL 9.2(2)	*The COL Applicant is to provide protection of the site-specific portions of the ESWS against adverse environmental, operating, and accident conditions that can occur, such as countermeasure to freezing by safety-related heat tracing, low temperature operation, and thermal overpressurization.* MIC-03-01-0 0013
COL 9.2(3)	*The COL Applicant is to determine source and location of the UHS.*

Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 19 of 36)

COL ITEM NO.	COL ITEM	
COL 9.2(4)	*The COL Applicant is to determine location and design of the ESW intake structure.*	
COL 9.2(5)	*The COL Applicant is to determine location and design of the ESW discharge structure.*	
COL 9.2(6)	*The COL Applicant is to provide ESWP design details – required total dynamic head with adequate margin~~,~~ and NPSH available~~, and the mode of cooling of the ESWP motor~~. The COL Applicant is to assure that the sum of the shut-off head of the selected ESW pumps and the static head will not result in system pressure that exceeds the ESWS design pressure at any location within the system. The COL Applicant is ~~to evaluate~~responsible for the testing of the potential for vortex formation based on the most limiting assumptions that apply.*	MIC-03-01-0 0013 MIC-03-01-0 0013
COL 9.2(7)	*The COL Applicant is to address the piping, valves, lining material specifications for piping and fittings as applicable, including those at the boundary between the safety-related and nonsafety-related portions with clarifications for their connecting locations, and other design of the ESWS related to the site specific conditions. The COL Applicant is also to design the pipes entering and exiting the pipe tunnel based on the location of the UHSRS.*	MIC-03-01-0 0013
COL 9.2(8)	*The COL Applicant is to specify the following ESW chemistry requirements* • *A chemical injection system to provide non-corrosive, non-scale forming conditions to limit biological film formation.* • *Type of biocide, algaecide, pH adjuster, corrosion inhibitor, scale inhibitor and silt dispersant based on the site conditions.*	
COL 9.2(9)	*The COL Applicant is to confirm the storage capacity and usage of the potable water.*	
COL 9.2(10)	*The COL Applicant is to confirm that all State and Local Department of Health and Environmental Protection Standards are applied and followed.*	
COL 9.2(11)	*The COL Applicant is to identify the potable water supply and describe the system operation.*	
COL 9.2(12)	*The COL Applicant is to confirm that the sanitary waste is sent to the onsite plant treatment area or they will use the city sewage system.*	
COL 9.2(13)	*Deleted.*	
COL 9.2(14)	*The COL Applicant is to confirm Table 9.2.4-1 for required components and their values.*	
COL 9.2(15)	*The COL Applicant is to determine the total number of people at the site and identify the usage capacity. Based on these numbers the COL Applicant is to size the potable water tank and associated pumps.*	
COL 9.2(16)	*~~The COL Applicant is to provide values to the component Table 9.2.4-1 based on system and component descriptions from Section 9.2.4.2.1 and 9.2.4.2.2 respectively.~~Deleted.*	MIC-03-01-0 0001

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COL ITEM NO.	COL ITEM
COL 9.2(17)	*The COL Applicant is to determine the total number of sanitary lift stations and is to size the appropriate interfaces.*
COL 9.2(18)	*The COL Applicant is to determine the type of the UHS based on specific site conditions and meteorological data.*
COL 9.2(19)	*The COL Applicant is to design the UHS to receive its electrical power supply, if required by the UHS design, from safety busses so that the safety functions are maintained during LOOP. The UHS also receives its standby electrical power from the onsite emergency power supplies during a LOOP.*
COL 9.2(20)	*The COL Applicant is to provide a detailed description and drawings of the UHS, including water inventory, temperature limits, heat rejection capabilities, instrumentation, and alarms.*
COL 9.2(21)	*The COL Applicant is to determine the source of makeup water to the UHS inventory and the blowdown discharge location based on specific site conditions.*
COL 9.2(22)	*The COL Applicant is to provide results of UHS capability and safety evaluation of the UHS based on specific site conditions and meteorological data. The COL Applicant is to use ~~at least 30 years~~ site specific meteorological data and heat loads data for UHS performance analysis per Regulatory Guide 1.27.*
COL 9.2(23)	*The COL Applicant is to provide test and inspection requirements of the UHS. These include inspection and testing requirements necessary to demonstrate that fouling and degradation mechanisms are adequately managed to maintain acceptable UHS performance and integrity.*
COL 9.2(24)	*The COL Applicant is to provide the required alarms, instrumentation and controls details based on the type of UHS to be provided.*
COL 9.2(25)	*The COL Applicant is to develop system filling, venting, keeping full, and operational procedures to minimize the potential for water hammer; to analyze the system for water hammer impacts; to design the piping system to withstand potential water hammer forces; and to analyze water hammer events in accordance with NUREG-0927.*
COL 9.2(26)	*The COL Applicant is to specify appropriate sizes of piping and pipe fittings such as restriction orifices to prevent potential plugging due to debris buildup, and develop maintenance and test procedures to monitor debris build up and flush out debris.*
COL 9.2(27)	*The COL Applicant is to develop a milestone schedule for implementation of the operating and maintenance procedures for water hammer prevention.*
COL 9.2(28)	*The COL Applicant is to provide the piping, valves, materials specifications, and other design details related to the site-specific UHS.*
COL 9.2(29)	*The COL Applicant is to provide the safety evaluation of the capability of the ESWS to: (1) isolate its site-specific, nonsafety-related portions; and (2) provide measures to prevent long-term corrosion and organic fouling that may degrade its performance, per Generic Letter (GL) 89-13.*

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COL ITEM NO.	COL ITEM
COL 9.2(30)	*The COL Applicant shall conduct periodic inspection, monitoring, maintenance, performance and functional testing of the ESWS and UHS piping and components, including the heat transfer capability of the CCW heat exchangers and essential chiller units, consistent with GL 89-13 and GL.89-13 Supplement 1. The COL Applicant is to develop operating procedures to periodically alternate the operation of the trains to ensure performance of all trains is regularly monitored.*
COL 9.2(31)	*The COL Applicant is to verify the system layout of the ESWS and UHS and is to develop operating procedures to assure that the ESWS and UHS are above saturation conditions for all operating modes.*
COL 9.2(32)	*The COL Applicant is to provide a void detection system with alarms to detect system voiding.*
COL 9.2(33)	*The COL Applicant is to provide the design details of the strainer ~~blowdown~~backwash line, vent line, and their discharge locations.* MIC-03-01-00013
COL 9.3(1)	*The COL Applicant is to provide the high pressure nitrogen gas, low pressure nitrogen gas, the hydrogen gas, carbon dioxide, and oxygen supply systems.*
COL 9.3(2)	*Deleted*
COL 9.3(3)	*Deleted*
COL 9.3(4)	*Deleted*
COL 9.3(5)	*Deleted*
COL 9.3(6)	*Deleted*
COL 9.3(7)	*Deleted*
COL 9.4(1)	*Deleted*
COL 9.4(2)	*Deleted*
COL 9.4(3)	*Deleted*
COL 9.4(4)	*The COL Applicant is to determine the capacity of heating coils provided in the safety-related HVAC system and the capacity of cooling and heating coils provided in the non-safety related HVAC system air handling units that are affected by site specific conditions.* MIC-03-01-00013
COL 9.4(5)	*Deleted*
COL 9.4(6)	*The COL Applicant is to provide a system information and flow diagram of ESW pump area ventilation system if the ESW pump area requires the heating, ventilating and air conditioning.*
COL 9.4(7)	*The COL Applicant is to determine the frequency of performance of periodic auxiliary building HVAC system ventilation flow balancing.* DCD_09.04.03-19
COL 9.5(1)	*The COL Applicant establishes a fire protection program, including organization, training and qualification of personnel, administrative controls of combustibles and ignition sources, firefighting procedures, and quality assurance.*

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COL ITEM NO.	COL ITEM
COL 9.5(2)	*The COL Applicant addresses the design and fire protection aspects of the facilities, buildings and equipments, such as cooling towers and a fire protection water supply system, which are site specific and/or are not a standard feature of the US-APWR.*
COL 9.5(3)	*The COL Applicant describes the provided apparatus for plant personnel and fire brigades such as portable fire extinguishers and self contained breathing apparatus.*
COL 9.5(4)	*The COL Applicant addresses all communication system interfaces external to the plant (offsite locations). These include interfaces to utility private networks, commercial carriers and the federal telephone system. The configuration of these connections will include consideration of the concerns raised in IE Bulletin 80-15.*
COL 9.5(5)	*The COL Applicant addresses the emergency offsite communications including the crisis management radio system.*
COL 9.5(6)	*The COL Applicant addresses connections to the Technical Support Center from where communications networks are provided to transmit information pursuant to the requirements delineated in 10 CFR 50 Appendix E, Part IV.E.9.*
COL 9.5(7)	*~~The COL Applicant addresses a continuously manned alarm station required by 10 CFR 73.46(e)(5) and the communications requirements delineated in 10 CFR 73.45(g)(4)(i) and (ii). The COL Applicant addresses notification of an attempted unauthorized or unconfirmed removal of strategic special nuclear material in accordance with 10 CFR 73.45(e)(2)(iii).~~Deleted.*
COL 9.5(8)	*The COL Applicant addresses offsite communications for the onsite operations support center.*
COL 9.5(9)	*~~The COL Applicant addresses the emergency communication system requirements delineate in 10 CFR 73.55(f) such that a single act cannot remove onsite capability of calling for assistance and also as redundant system during onsite emergency crisis.~~Deleted.*
COL 9.5(10)	*Deleted*
COL 9.5(11)	*The COL Applicant is to specify that adequate and acceptable sources of fuel oil are available, including the means of transporting and recharging the fuel storage tank, following a design basis accident.*
COL 9.5(12)	*The COL Applicant is to address the need for installing unit heaters in the Power Source Fuel Storage Vault during the winter for site locations where extreme cold temperature conditions exist.*
COL 10.2(1)	*Inservice Inspection* *The Combined License Applicant is to establish a turbine maintenance, ~~and~~ inspection, and test procedure prior to fuel load.*

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COL ITEM NO.	COL ITEM
COL 10.3(1)	*FAC monitoring program* *The Combined License Applicant will provide a description of the FAC monitoring program for carbon steel portions of the steam and power conversion systems that contain water or wet steam and are susceptible to erosion-corrosion damage. The description will address consistency with Generic Letter 89-08 and NSAC-202L-R~~2~~3 and will provide a milestone schedule for implementation of the program.* MIC-03-01-0 0013
COL 10.3(2)	*Delete*
COL 10.3(3)	*Operating and maintenance procedures for water hammer prevention* *The Combined License Applicant is to provide operating and maintenance procedures including adequate precautions to prevent water (steam) hammer, relief valve discharge loads and water entrainment effects in accordance with NUREG-0927 and a milestone schedule for implementation of the procedure.*
COL 10.3(4)	*The COL applicant will provide secondary side water chemistry threshold values and recommended operator actions for chemistry excursions, or provide a commitment to the latest version of the EPRI "PWR Secondary Water Chemistry Guidelines" in effect at the time of COLA submittal.* DCD_10.04. 06-17
COL 10.4(1)	*Circulating Water System; The Combined License Applicant is to determine the site specific final system configuration and system design parameters for the CWS including makeup water and blowdown.*
COL 10.4(2)	*Steam Generator Blowdown System; The Combined License applicant is to address the discharge to Waste Water System including site specific requirements.*
COL 10.4(3)	*Deleted*
COL 10.4(4)	*Deleted*
COL 10.4(5)	*System Design for Steam Generator Drain; The Combined License applicant is to address the nitrogen or equivalent system design for Steam Generator Drain Mode. (This is dependent on Waste water system design)*
COL 10.4(6)	*Operating and maintenance procedures for water hammer prevention* *The combined License Applicant is to provide operating and maintenance procedures in accordance with NUREG-0927 and a milestone schedule for implementation of the procedure.*
COL 11.2(1)	*The COL Applicant is responsible for ensuring that mobile and temporary liquid radwaste processing equipment and its interconnection to plant systems conforms to regulatory requirements and guidance such as 10 CFR 50.34a (Ref. 11.2-5), 10 CFR 20.1406 (Ref.11.2-7) and RG 1.143 (Ref. 11.2-3), respectively.*
COL 11.2(2)	*Site-specific information of the LWMS, e.g., radioactive release points, effluent temperature, shape of flow orifices, etc., is provided in the COLA.*

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COL ITEM NO.	COL ITEM
COL 11.2(3)	*The COL Applicant is responsible for the site-specific hydrogeological data and for performing an analysis to demonstrate that the potential groundwater or surface water contamination concentration resulting from radioactive release due to liquid containing tank failure meets the 10 CFR 20, Appendix B, Table 2 ECLs.*
COL 11.2(4)	*The COL Applicant is to calculate doses to members of the public following the guidance of RG 1.109 (Ref 11.2-15) and RG 1.113 using site-specific parameters, and compares the doses due to the liquid effluents with the numerical design objectives of Appendix I to 10 CFR 50 (Ref 11.2-10) and compliance with requirements of 10 CFR 20.1302, 40 CFR 190.*
COL 11.2(5)	*The COL Applicant is to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.*
COL 11.2(6)	*The COL Applicant is to provide piping and instrumentation diagrams (P&IDs).*
COL 11.2(7)	*The COL Applicant is responsible for identifying the implementation milestones for the coatings program used in the LWMS. The coatings program addresses RG 1.54 Revision 1, recognizing that more recent standards may be used if referenced in DCD Section 11.2.*
COL 11.2(8)	*The COL Applicant is to describe mobile/portable LWMS connections that are considered non-radioactive but later may become radioactive through contact or contamination with radioactive systems (i.e., a non-radioactive system becomes contaminated due to leakage, valving errors, or other operating conditions in the radioactive systems), and operational procedures of the mobile/portable LWMS connections. The COL Applicant is to prepare a plan to develop and use operating procedures so that the guidance and information in Inspection and Enforcement (IE) Bulletin 80-10 (~~Ref. 11.4-25~~Ref. 11.2-25) is followed.*
COL 11.3(1)	*Deleted*
COL 11.3(2)	*Deleted*
COL 11.3(3)	*The COL Applicant is to provide a discussion of the onsite vent stack ~~design parameters and~~ released point height.*
COL 11.3(4)	*Deleted*
COL 11.3(5)	*Deleted*
COL 11.3(6)	*The COL Applicant is to calculate doses to members of the public following the guidance of RG 1.109(Ref. 11.3-19) and RG 1.111(Ref. 11.3-22), and compare the doses due to the gaseous effluents with the numerical design objectives of 10 CFR 50, Appendix I (Ref. 11.3-3) and compliance with requirements of 10 CFR 20.1302(Ref. 11.3-24), 40 CFR 190(Ref. 11.3-25).*
COL 11.3(7)	*Deleted*
COL 11.3(8)	*The COL Applicant is to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.*

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COL ITEM NO.	COL ITEM
COL 11.3(9)	*The COL Applicant is to provide piping and instrumentation diagrams (P&IDs).*
COL 11.4(1)	*The current design meets the waste storage requirements in accordance with ANSI/ANS-55.1. When the COL Applicant desires additional storage capability beyond that which is discussed in this Tier 2 document, the COL Applicant will identify plant-specific needs for on-site waste storage and provide a discussion of on-site storage of low-level waste.*
COL 11.4(2)	*Deleted*
COL 11.4(3)	*The COL Applicant is to prepare a plan for the process control program describing the process and effluent monitoring and sampling program. The plan should include the proposed implementation milestones.*
COL 11.4(4)	*The COL Applicant is to describe mobile/portable SWMS connections that are considered non-radioactive but later may become radioactive through contact or contamination with radioactive systems (i.e., a non-radioactive system becomes contaminated due to leakage, valving errors, or other operating conditions in the radioactive systems). The COL Applicant is to prepare a plan to develop and use operating procedures so that the guidance and information in Inspection and Enforcement (IE) Bulletin 80-10 (Ref. 11.4-29) is followed.*
COL 11.4(5)	*The current design provides collection and packaging of potentially contaminated clothing for offsite shipment and/or disposal. Depending on site-specific requirements, the COL Applicant can send the wastes to an offsite laundry facility processing and/or bring in a mobile compaction unit for volume reduction. The laundry services, including contracted services and/or a temporary mobile compaction subsystem are COL items.*
COL 11.4(6)	*The COL Applicant is required to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.*
COL 11.4(7)	*The SWMS design does not include solid waste processing facility (e.g. de-watering system, compactor for reducing waste volume) but provides the flexibility for the site-specific utilities to add compaction equipment or to adopt contract services from specialized facilities. This is the responsibility of the COL Applicant.*
COL 11.4(8)	*The COL Applicant is to provide piping and instrumentation diagrams (P&IDs).*
COL 11.4(9)	*The COL Applicant is responsible for identifying the implementation milestones for the coatings program used in the SWMS. The coatings program addresses RG 1.54 Revision 1, recognizing that more recent standards may be used if referenced in DCD Section 11.4.*
COL 11.4(10)	*The COL Applicant is responsible for ensuring that mobile and temporary solid radwaste processing and its interconnection to plant systems conforms to regulatory requirements and guidance such as 10 CFR 50.34a (Ref. 11.4-11), 10 CFR 20.1406 (Ref.11.4-16) and RG 1.143 (Ref. 11.4-1).*

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COL ITEM NO.	COL ITEM
COL 11.5-(1)	*The COL Applicant is responsible for the additional site-specific aspects of the process and effluent monitoring and sampling system beyond the standard design, in accordance with RGs 1.21, 1.33 and 4.15 (Ref. 11.5-12, 11.5-17, 11.5-14). Furthermore, the COL Applicant is responsible for assuring the fulfillment of the guidelines issued in 10 CFR 50, Appendix I (Ref. 11.5-3) regarding the offsite doses released through gaseous and liquid effluent streams.*
COL 11.5(2)	*The COL Applicant is to prepare an offsite dose calculation manual to provide specific administrative controls and liquid and gaseous effluent source terms to limit the releases to site-specific requirements containing a description of the methods and parameters that drive to arrive radiation instrumentation alarm setpoint. The COL Applicant is to commit to follow the NEI generic template 07-09A (Ref. 11.5-30) as an alternative to providing the offsite dose calculation manual at the time of application.*
COL 11.5(3)	*The COL Applicant is to develop a radiological and environmental monitoring program taking into consideration local land use and census data in identifying all potential radiation exposure pathways. The program shall take into account associated radioactive materials present in liquid and gaseous effluents and direct external radiation from SSCs. The COL Applicant is to follow the guidance outlined in NUREG-1301(Ref. 11.5-21), and NUREG-0133 (Ref. 11.5-18) when developing the radiological effluent monitoring program. The COL Applicant is to commit to follow the NEI generic template 07-09A (Ref. 11.5-30) as an alternative to providing the radiological effluent monitoring program at the time of application.*
COL 11.5(4)	*The COL Applicant is to develop procedures which are of inspection, decontamination, and replacement related to radiation monitoring instruments.*
COL 11.5(5)	*The COL Applicant is to provide analytical procedures and sensitivity for selected radioanalytical methods and type of sampling media for site-specific matter.*
COL 11.5(6)	*The COL Applicant is to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.*
COL 12.1(1)	*The COL Applicant is to demonstrate that the policy considerations regarding plant operations are compliance with RG 1.8, 8.8 and 8.10 (Subsection 12.1.1.3).*
COL 12.1(2)	*Deleted*
COL 12.1(3)	*The COL Applicant is to describe how the plant follows the guidance of RG 8.2, 8.4, 8.6, 8.7, 8.9, 8.13, 8.15, 8.25, 8.27, 8.28, 8.29, 8.34, 8.35, 8.36 and 8.38.*
COL 12.1(4)	*Deleted*
COL 12.1(5)	*The COL Applicant is to describe the operational radiation protection program for ensuring that occupational radiation exposures are ALARA.*

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COL ITEM NO.	COL ITEM
COL 12.1(6)	*The COL Applicant is to describe the periodic review of operational practices to ensere configuration management, personnel training and qualification update, and procedure adherence.*
COL 12.1(7)	*The COL Applicant is to describe implementation of requirements for record retention are tracked according to 10 CFR 50.75(g) and 10 CFR 70.25(g) as applicable.* MIC-03-01-00013
COL 12.1(8)	*The COL Applicant is responsible for the development of the operational procedures, following the guidance of RG 4.21 (Reference 12.1-27), for the operation and handling of all structure, system, and components (SSC) which could be potential sources of contamination within the plant. These procedures will be developed according to the objective of limiting leakage and the spread of contamination within the plant.*
COL 12.2(1)	*The COL Applicant is to list any additional contained radiation sources that are not identified in Subsection 12.2.1, including radiation sources used for instrument calibration or radiography.*
COL 12.2(2)	*The COL Applicant is to address the radiation protection aspects associated with additional storage space for radwaste and/or additional radwaste facilities for dry active waste.*
COL 12.2(3)	*The COL Applicant is to include the conduct of regular surveillance activities and provisions to maintain the dose rate at 2 meters from the surface of both the RWSAT and PMWTs under 0.25 mrem/h in the Radiation Protection Program.*
COL 12.2(4)	*The COL Applicant is to implement a method of ensuring that the radioactivity concentration in both the RWSAT and the PMWTs remain under the specified concentration level described in the DCD.*
COL 12.3(1)	*The COL Applicant shall describe portable instruments, and the associated training and procedures, to accurately determine the airborne iodine concentration in areas within the facility where plant personnel may be present during an accident, in accordance with the requirements of 10 CFR 50.34(f)(2)(xxvii) and the criteria in Item III.D.3.3 of NUREG-0737.*
COL 12.3(2)	*Deleted*
COL 12.3(3)	*Deleted*
COL 12.3(4)	*The COL Applicant is to provide the site radiation zones that is shown on the site-specific plant arrangement plan.*
COL 12.3(5)	*The COL Applicant is to discuss the administrative control of the fuel transfer tube inspection and the access control of the area near the seismic gap below the fuel transfer tube.*
COL 12.3(6)	*If the COL Applicant adopts the Mobile Liquid Waste Processing System, the COL Applicant is to provide information about the radiation protection aspects of the system and to indicate how the system is consistent with the guidance in SRP Section 12.3-12.4, RG 1.206 C.I.12.3.2 and RG 1.69.*

Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 31 of 36)

COL ITEM NO.	COL ITEM
COL 13.6(2)	*The COL Applicant is to develop and provide as part of its physical security plan site specific physical security features and capabilities, such as (i) the physical barrier surrounding the protected area boundary; (ii) the isolation zone in areas adjacent to the protected area boundary, (iii) security lighting, or use of low-light technology, for the isolation zone and protected area; (iv) the vehicle barrier system, (v) controlled access points to control entry of personnel, vehicles and materials into the protected area, (vi) the intrusion detection system, and (vii) the closed circuit television camera and video assessment systems to provide monitoring and assessment of the protected area perimeter.*
COL 13.6(3)	*The COL Applicant is to revise the non-standard plant vital area and vital equipment information contained in the US-APWR Design Certification, Physical Element Review to be consistent with its site-specific design.*
COL 13.6(4)	*The COL Applicant is to make provision for the secondary alarm station in accordance with the requirements of 10 CFR 73.55(i)(4).*
COL 13.6(5)	*The COL Applicant physical security plan is to make provision for radio or microwave transmitted two-way voice communication~~)~~ to communicate with the local law enforcement agencies.*
COL 13.7(1)	*The COL Applicant is to develop the description of the operating and construction plant fitness-for-duty programs.*
COL 14.2(1)	*Deleted*
COL 14.2(2)	*The COL Applicant reconciles the site-specific organization, organizational titles, organizational responsibilities, and reporting relationships to be consistent with US-APWR Test Program Description Technical Report, MUAP-08009 (Reference 14.2-29) [14.2.2].*
COL 14.2(3)	*Deleted*
COL 14.2(4)	*Deleted*
COL 14.2(5)	*Deleted*
COL 14.2(6)	*Deleted*
COL 14.2(7)	*The COL Applicant provides an event-based schedule, relative to fuel loading, for conducting each major phase of the test program, and a schedule for the development of plant procedures that assures required procedures are available for use during the preparation, review and performance of preoperational and startup testing. For multiunit sites, the COL Applicant discusses the effects of overlapping initial test program schedules on organizations and personnel participating in each ITP. The COL Applicant identifies and cross-references each test or portion of a test required to be completed prior to fuel load which satisfies ITAAC requirements. [14.2.9] [14.2.11]*
COL 14.2(8)	*Deleted*
COL 14.2(9)	*Deleted*
COL 14.2(10)	*The COL Applicant is responsible for the testing outside scope of the certified design in accordance with the test criteria described in subsection 14.2.1. [14.2.12]*

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Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 32 of 36)

COL ITEM NO.	COL ITEM	
COL 14.2(11)	*The COL holder for the first plant is to perform the first plant only tests and prototype test. For subsequent plants, either these tests are performed, or the COL Applicant provides a justification that the results of the first-plant only tests are applicable to the subsequent plant and are not required to be repeated. [14.2.8]*	
COL 14.2(12)	*The COL holder makes available approved test procedures for satisfying testing requirements described in Section 14.2 to the NRC approximately 60 days prior to their intended use. [14.2.3, 14.2.11, 14.2.12.1]*	
COL 14.3(1)	*The COL Applicant provides the ITAAC for the site specific portion of the plant systems specified in Subsection 14.3.5, Interface Requirements. [14.3.4.6,14.3.4.7]*	
COL 14.3(2)	*The COL Applicant provides ~~proposed~~the ITAAC for the facility's emergency planning not addressed in the DCD in accordance with RG 1.206 (Reference 14.3-1) as appropriate. [14.3.4.10]*	MIC-03-01-0 0013
COL 14.3(3)	*The COL Applicant provides ITAAC for the facility's physical security hardware not addressed in the DCD, in accordance with RG 1.206 (Reference 14.3-1) as appropriate, and provides abstracts describing the specific inspections, tests and analysis for the facility's physical security hardware ITAAC not addressed in the DCD. [14.3.4.12]*	
COL 14.3(4)	*The COL Applicant provides a DAC closure schedule and declares whether the standard approach is used for closure of DAC ITAAC, as described by Appendix 14.B.1 [14.3.4.3]*	DCD_14.03. 03-27
COL 15.0(1)	*In the COLA, if the site-specific χ/Q values exceed DCD χ/Q values, then the COL Applicant is to demonstrate how the dose reference values in 10 CFR 50.34 and 10 CFR 52.79 and the control room dose limits in 10 CFR 50, Appendix A, General Design Criterion 19 are met for affected events using site-specific χ/Q values. Additionally, the Technical Support Center (TSC) dose should be evaluated against the habitability requirements in Paragraph IV.E. 8 to 10 CFR Part 50, Appendix E, and 10 CFR 50.47(b)(8) and (b)(11).*	
COL 16.1(1)	*Adoption of RMTS is to be confirmed and the relevant descriptions are to be fixed.*	
COL 16.1(2)	*Adoption of SFCP is to be confirmed and the relevant descriptions are to be fixed.*	
~~*COL 16.1(3)*~~	~~*Deleted*~~	MIC-03-01-0 0013
COL 16.1_3.3.1(1)	*Deleted*	
COL 16.1_3.3.2(1)	*Deleted*	
COL 16.1_3.3.2(2)	*LCO 3.3.2 and associated Bases for hazardous chemical are to be confirmed by the evaluation with site-specific condition.*	MIC-03-01-0 0013
COL 16.1_3.3.4(1)	*Component controls and instrumentation required for safe shutdown related to the Ultimate Heat Sink in Tables B 3.3.4-1 and B 3.3.4-2 to be specified.*	MIC-03-01-0 0013
COL 16.1_3.3.5(1)	*~~The time delay values in SR 3.3.5.3 are to be confirmed based on the plant specific transmission system performance.~~Deleted.*	MIC-03-01-0 0013

Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 35 of 36)

COL ITEM NO.	COL ITEM
COL 17.6(1)	*The COL Applicant must provide in its FSAR a description of the maintenance rule program, and its for implementation, for monitoring the effectiveness of maintenance necessary to meet the requirements of 10 CFR 50.65.*
COL 18.1(1)	*Deleted*
COL 18.1(2)	*Deleted*
COL 18.3(1)	*Deleted*
COL 18.3(2)	*Deleted*
COL 18.4(1)	*Deleted*
COL 18.4(2)	*Deleted*
COL 18.4(3)	*Deleted*
COL 18.5(1)	*Deleted*
COL 18.5(2)	*Deleted*
COL 18.6(1)	*Deleted*
COL 18.6(2)	*Deleted*
COL 18.7(1)	*Deleted*
COL 18.8(1)	*Deleted*
COL 18.9(1)	*Deleted*
COL 18.10(1)	*Deleted*
COL 18.10(2)	*Deleted*
COL 18.11(1)	*Deleted*
COL 18.11(2)	*Deleted*
COL 18.12(1)	*Deleted*
COL 19.3(1)	*The COL Applicant who intends to implement risk-managed technical specifications continues to update Probabilistic Risk Assessment and Severe Accident Evaluation to provide PRA input for risk-managed technical specifications. Peer reviews for the updated PRA will be performed prior to the use of PRA to risk-informed applications.*
COL 19.3(2)	*Deleted*
COL 19.3(3)	*Deleted*
COL 19.3(4)	*The Probabilistic Risk Assessment and Severe Accident Evaluation is updated as necessary to assess specific site information and ~~associated site-specific external events (high winds and tornadoes, external floods, transportation, and nearby facility accidents)~~all associated potential site-specific external hazards (both natural and man-made hazards) that may affect the facility are screened out or subjected to analysis..*

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Table 1.8-2 Compilation of All Combined License Applicant Items for Chapters 1-19 (Sheet 36 of 36)

COL ITEM NO.	COL ITEM	
COL 19.3(5)	~~*Deleted*~~*The COL Applicant will identify a milestone for completing a comparison of the as-built SSC HCLPFs to those assumed in DCD Subsection 19.1.5.1. Deviations from the HCLPF values or other assumptions in the seismic margins evaluation shall be analyzed to determine if any new vulnerability have been introduced.*	MIC-03-01-00011
COL 19.3(6)	~~*The COL Applicant develops an accident management program which includes severe accident management procedures that capture important operator actions. Training requirements are also included as part of the accident management program.*~~*The COL Applicant develops or describes an accident management program which includes emergency operating procedures, consideration of risk-significant operator actions listed in DCD Table 19.1-119, training, and human reliability related severe accident guidance programs. Insights gained from the design specific PRA, including insights created by the incorporation of site and plant-specific information available at the COL application phase (for aspects of the design which are not bounded by the Standard Plant PRA), are to be reflected appropriately.*	MIC-03-01-00012 DCD_19-508 DCD_19-564
COL 19.3(7)	*The COL Applicant will provide a milestone for completing the equipment survivability assessment of the as-built equipment required to mitigate severe accidents (electrical penetrations, hydrogen igniters and containment pressure (wide range)) to provide reasonable assurance that they will operate in the environmental conditions resulting from hydrogen burns associated with severe accidents for which they are intended and over the time span for which they are needed.*	DCD_06.02.05-45
COL 19.3(8)	*The COL applicant will describe the uses of PRA in support of licensee programs and identify and describe risk-informed applications being implemented during the operational phase.*	DCD_19-564
COL 19.3(9)	*The COL applicant will describe the PRA maintenance and upgrade programs.*	DCD_19-564

Tier 2

Chapter 2

Chapter 2 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_3.7.1-17	2.0	2.0-1	Response to RAI No. 790 MHI Letter No. UAP-HF-11111 Date 04/19/2011	Deleted the sentence “These parameters bound an estimated 75% to 80% of the United States (US) landmass, including all sites under current consideration.”	-
DCD_02-2	2.0	2.0-1	Response to RAI No. 819 MHI Letter No. UAP-HF-11351 Date 10/11/2011	Revised first paragraph to clarify that site characteristics are actual physical, environmental and demographic features of a site, while site parameters are postulated physical, environmental and demographic features of an assumed site. Replaced “specific site parameters” with “specific key site parameters” in last sentence of third paragraph.	-
MIC-03-02-00002	Table 2.0-1 (Sheet 1 of 6)	2.0-2	Correcting inappropriate naming for a parameter	Delete “annual” from the descriptions of Ambient design air temperature	1

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is “-“, the change was not made in a T/R.

Tier 2

Chapter 3

Chapter 3 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_03.08.01-24	3.8.5.4.3	3.8-77	Response to RAI No. 661 MHI Letter No. UAP-HF-10357 Date 12/28/2010	Deleted 2nd sentence: ”To increase computational efficiency, the subgrade part of the FE model is condensed into a super-element.” Added last sentence: “To increase computational efficiency, the subgrade part of the FE model is condensed into a super-element. A detailed description of the analysis method is presented in Technical Report REF-13-05-160-005 (Reference 3.7-49).”	-
DCD_03.09.05-30	3.9.5.1.1 3.9.10	3.9-70 3.9-94	Response to RAI No. 663 MHI Letter No. UAP-HF-11012 Date 01/21/2011	Added the 9th paragraph to identify the upper core plate hydraulic design in comparison with the current 4 loop design.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_03.09.05-32	3.9.5.3.2	3.9-76	Response to RAI No. 663 MHI Letter No. UAP-HF-11012 Date 01/21/2011	Added description about the design criteria of the mal-distribution of the core inlet flow.	-
DCD_03.09.05-33	3.9.5.2.2 Table 3.9-15(new table)	3.9-74 3.9-232	Response to RAI No. 663 MHI Letter No. UAP-HF-11012 Date 01/21/2011	Added Table 3.9-15 to identify the design loads and stress limits for the secondary core support structures.	-
DCD_03.05.03-9	3.5.1.4 3.5.3.1.1	3.5-11 3.5-13	Response to RAI No. 686 MHI Letter No. UAP-HF-11052 Date 02/28/2011	Regarding 2nd sentence in 1st item of 2nd paragraph in Subsection 3.5.1.4, replaced “This missile is considered to potentially impact at all plant elevations up to 30 ft above grade for all grades within 0.5 mile of the plant structures.” with “To accommodate site-specific conditions where grades within 0.5 mile of plant structures may have elevations	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				higher than grade at the structures, this missile is considered to potentially impact SSCs at any azimuthal direction and at any elevation above grade at the maximum tornado missile velocity stated above." Regarding 2nd sentence in Subsection 3.5.3.1.1, replaced "Selected wall thicknesses also satisfy minimum barrier thicknesses provided in Table 1 of NUREG-0800, SRP 3.5.3 (Reference 3.5-10) to prevent local damage against tornado generated missiles." with "Wall and roof thicknesses satisfy minimum barrier thicknesses	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				provided in Table 1 of NUREG-0800, SRP 3.5.3 (Reference 3.5-10) to prevent local damage against tornado generated missiles."	
DCD_03.02.02-20	Table 3.2-2 (Sheet 39 of 56)	3.2-55	Response to RAI No. 724 MHI Letter No. UAP-HF-11117 Date 04/21/2011	Changed classification of permanent cavity seal	-
DCD_03.09.04-11 This change is superseded by the amend RAI Response.	3.9.4.4	3.9-66	Response to RAI No. 679 MHI Letter No. UAP-HF-11120 Date 04/25/2011	Added description about preoperational tests.	-
DCD_10.02-4	3.5.1.3.1	3.5-10	Response to RAI No. 598 MHI Letter No. UAP-HF-11170 Date 06/07/2011	Added "safety-related and non-safety related" in the second paragraph.	-
DCD_09.01.05-18	Table 3.2-2 (Sheet 40 of 56)	3.2-56	Response to RAI No. 616 MHI Letter No. UAP-HF-11175 Date 06/07/2011	Deleted "and the equipment hatch Hoist".	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_03.07.02-35	3.7.1.1 3.7.1.2 3.7.2 3.7.2.1 3.7.2.2 3.7.2.3.1 3.7.2.3.2 3.7.2.3.3 3.7.2.3.4 3.7.2.3.5 2.7.2.3.6 2.7.2.3.6.1 2.7.2.3.6.2 3.7.2.3.7.1 3.7.2.3.7.2 3.7.2.3.8 3.7.2.3.8.1 3.7.2.3.9 3.7.2.3.9.1 3.7.2.3.9.2 3.7.2.3.10 3.7.2.3.10.1 3.7.2.3.10.2 3.7.2.3.10.3 3.7.2.3.10.4 3.7.2.3.10.5 3.7.2.3.11 3.7.2.4 3.7.2.4.1	3.7-6 3.7-7 3.7-8 3.7-9 3.7-10 3.7-12 3.7-13 3.7-14 3.7-15 3.7-16 3.7-17 3.7-18 3.7-19 3.7-20 3.7-21 3.7-22 3.7-23 3.7-24 3.7-25 3.7-26 3.7-27 3.7-28 3.7-29 3.7-30	Response to RAI No. 542 MHI Letter No. UAP-HF-11195 Date 06/30/2011	Incorporated changes resulting from RAI no. 542. These changes may originate from one or more of the following 6 Technical Reports: MUAP-10001 MUAP-11001 MUAP-11006 MUAP-11007 MUAP-10011 MUAP-11013	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.7.2.5 3.7.2.8 3.7.2.8.2 3.7.2.8.3 3.7.2.8.4 3.7.2.8.5 3.7.2.9 3.7.2.10 3.7.2.11 3.7.6 Table 3.7.1-4 Table 3.7.1-7(New Table) Table 3.7.2-1 Table 3.7.2-3 Figure 3.7.2-1 Figure 3.7.2-2 Figure 3.7.2-3 Figure 3.7.2-4 Figure 3.7.2-5 Figure 3.7.2-6 Figure 3.7.2-7 Figure 3.7.2-8 Figure 3.7.2-9 Figure 3.7.2-10 3.8.3.4 3.8.3.4.1 3.8.3.4.3 3.8.3.4.4 3.8.3.4.5 3.8.3.4.5.1 3.8.3.4.5.2	3.7-32 3.7-33 3.7-34 3.7-38 3.7-39 3.7-40 3.7-41 3.7-43 3.7-44 3.7-64 3.7-66 3.7-70 3.7-72 3.7-73 3.7-75 3.7-86 3.7-87 3.7-88 3.7-89 3.7-90 3.7-91 3.7-92 3.7-93 3.7-94 3.7-95 3.8-39 3.8-40 3.8-41			

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.8.3.4.5.3 3.8.3.4.5.5 3.8.5.1.1 3.8.5.4.1 3.8.5.5 3.8.7 Table 3.8.3-3 Table 3.8.3-4 Figure 3.8.3-12 through Figure 3.8.3-18 (New figure) Appendix 3H Acronyms and Abbreviations 3H.1 3H.2 3H.3 3H.4 3H.5(new section) Table 3H-1 through 3H-3(New tables) Figure 3H-1 through 3H-10 (new figures)	3.8-42 3.8-43 3.8-44 3.8-73 3.8-76 3.8-79 3.8-88 3.8-96 3.8-97 3.8-202 3H-ii 3H-1			
DCD_03.12-25	3.12.5.10	3.12-15	Response to RAI No. 742 MHI Letter No. UAP-HF-11212 Date 07/08/2011	Revised the last paragraph of Subsection 3.12.5.10 to modify description about the fatigue evaluation results.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Added description about the reference place of the outline of the heatup and cooldown operation in Subsection 3.12.5.10	
DCD_09.02.02-80	Table 3.2-2(Sheet 54 of 56) Table 3.9-14 (Sheet 75 of 112) Table 3D-2 (sheet 41 of 61)	3.2-70 3.9-195 3D-46	Response to RAI No. 697 MHI Letter No. UAP-HF-11133 Date 05/12/2011	Revised the Table 3.2-2, Table 3.9-14 and Table 3D-2 to reflect alternative cooling water line isolation valves.	-
DCD_09.02.02-49 This change is superseded by the amend RAI Response.	Table 3.2-2 (sheets 21, 22, 23, 24, 25 Table 3.9-14 (sheets 58, 59, 69, 70, 71)	3.2-37 3.2-38 3.2-39 3.2-40 3.2-41 3.9-178 3.9-179 3.9-189 3.9-190 3.9-191	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Update Table 3.2-2 to reflect revised valve isolation configuration for non-safety piping. Revised “Valve/ Actuator Type”, “Inservice Testing Type and Frequency” and “IST Notes” be updated to reflect valves used to isolate safety-related piping from other parts of the system in	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Table 3.9-14. Updated to Table 3.9-14 for the “300” series valves as well as NCS-MOV-241, NCS-MOV-242, has been provided via the response to RAI 697-5502 (Q9.2.2-80), submitted to the NRC 12 May 2011 via UAP-HF-11133. Modified IST requirements for header tie line isolation valves (NCS-MOV-007 A/B/C/D and 020A/B/C/D) in Table 3.9-14. Deleted to Table 3.9-14 for the “600” series valves.	
DCD_09.02.02-49	Table 3.2-2 (sheets 25,26,27,28 Table 3.9-14 (sheets 60,61,62,73,74, 75) Table 3D-2	3.2-41 3.2-42 3.2-43 3.2-44 3.9-191 3.9-192 3.9-193 3.9-204	2nd Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Update Table 3.2-2 to reflect revised valve isolation configuration for non-safety piping. Revised “Valve/	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	(sheets 40,41, 42)	3.9-205 3.9-206 3D-45 3D-46 3D-47		Actuator Type", "Inservice Testing Type and Frequency" and "IST Notes" be updated to reflect valves used to isolate safety-related piping from other parts of the system in Table 3.9-14. Updated to Table 3.9-14 for the "300" series valves as well as NCS-MOV-241, NCS-MOV-242, has been provided via the response to RAI 697-5502 (Q9.2.2-80), submitted to the NRC 12 May 2011 via UAP-HF-11133. Modified IST requirements for header tie line isolation valves (NCS-MOV-007 A/B/C/D and 020A/B/C/D) in Table 3.9-14. Deleted to Table 3.9-14 for the	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				"600" series valves. Deleted to Table 3D-2 for valve isolation of non-seismic piping. Added to Table 3D-2 for valve isolation of non-safety piping.	
DCD_09.02.02-56	Table 3.9-14 (sheet 65)	3.9-196	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Revised Table 3.9-14 to add check valves NCS-VLV-231A and B.	-
DCD_09.02.02-58	Table 3.2-2 (sheet 27) Table 3.9-14 (sheets 70, 71, 72) Table 3D-2 (sheet 40)	3.2-43 3.9-201 3.9-202 3.9-203 3D-45	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Delete reference to NCS-MOV-445A/B, 447A/B, 448A/B in Table 3.2-2, Table 3.9-14, and Table 3D-2.	-
DCD_09.02.02-70	Table 3.2-2 (sheet 53)	3.2-69	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date 07/15/2011	Deleted the notes of "Piping and valves (except portion of the containment penetration)". Added the new row for "Piping and valves within areas containing	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				safety-related equipment (except portion of the containment penetration)”	
DCD_09.02.02-80	Table 3.2-2 Table 3.9-14 Table 3D-2	3.2-70 3.9-195 3D-46	Amended Response to RAI No. 697 MHI Letter No. UAP-HF-11239 Date 07/29/2011	Revised Table 3.2-2 to add the rows which are used for alternate component cooling water supply/return headers. Revised Table 3.9-14 to add the valves which are used for alternate cooling of charging pumps and alternate cooling of containment fan cooler. Revised Table 3D-2 to add the NCS-MOV-241 and 242.	-
DCD_03.08.01-14	3.8.1.1.1 3.8.1.6	3.8-1 3.8-25 3.8-26	Response to RAI No. 768 MHI Letter No. UAP-HF-11231 Date 07/25/2011	Inserted a sentence as the 5th paragraph in Subsection 3.8.1.1.1 for RAI Response Replaced the last paragraph under the header “**Liner Plate**” in Subsection 3.8.1.6	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				for RAI Response	
DCD_03.09.04-11	3.9.4.4	3.9-66	Response to RAI No. 679 MHI Letter No. UAP-HF-11245 Date 07/29/2011	Added description about preoperational tests.	-
DCD_03.05.03-10	3.5.1.4	3.5-11	Response to RAI No. 758 MHI Letter No. UAP-HF-11424 Date 12/09/2011	In the last paragraph in DCD Subsection 3.5.1.4, the following sentence is added. "Additional tornado loading design requirements are addressed in Subsections 3.3.2 and 3.8.4."	-
DCD_09.02.02-68	Table 3.2-2 (Sheet 25, 26 of 56) Table 3D-2 (Sheet 8, 9, 38, 42 of 61) Table 3K-3 (Sheet 6, 24, 28 of 28)	3.2-45 3D-13 3D-14 3D-43 3D-47 3K-49 3K-67 3K-71	2nd Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Revised the table 3.2-2 to reflect change of the boundary valve of makeup line in CCWS. Revised the table 3D-2 to reflect change of the channel number of CCW surge tank level gauge. Revised the table 3D-2 to reflect addition of the channel of CCW	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				surge tank level gauge. Revised the table 3D-2 to reflect change of the level control valve number of CCW surge tank. Revised the table 3D-2 to reflect addition of the level control valve of CCW surge tank. Revised the table 3K-3 to reflect change of the channel number of CCW surge tank level gauge. Revised the table 3K-3 to reflect addition of the channel of CCW surge tank level gauge. Revised the table 3K-3 to reflect change of the level control valve number of CCW surge tank. Revised the table 3K-3 to reflect	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				addition of the level control valve of CCW surge tank.	
DCD_03.06.01-7	3.6.2.6	3.6-25	Response to RAI No. 795 MHI Letter No. UAP-HF-11362 Date 10/26/2011	It explicitly state that the pipe break hazards analysis will evaluate the consequences of a postulated 1.0 sq. ft. break for the main steam and feedwater lines within the break exclusion zone.	-
DCD_03.06.01-9	3.6.1.3 3.6.4	3.6-8 3.6-36	Response to RAI No. 795 MHI Letter No. UAP-HF-11362 Date 10/26/2011	It explicitly state to update the as-design pipe hazards analysis report to include the impact of all site specific high and moderate piping systems.	-
DCD_03.09.04-13	3.9.4.2.1	3.9-63	Response to RAI No. 835 MHI Letter No. UAP-HF-11373 Date 11/2/2011	Revised second paragraph of subsection 3.9.4.2.1.	-
DCD_03.09.06-51	3.9.6 3.9.6.1	3.9-80	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date	Subsection 3.9.6 and 3.9.6.1 of DCD is revised to add description of ASME OM.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11/02/2011		
DCD_03.09.06-52	3.9.6 3.9.6.1	3.9-81	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	Subsection 3.9.6.1of DCD is revised to specify the provisions for the functional design and qualification of pumps, valves, and dynamic restraints. The applicable GDC for functional design and qualification of pumps, valves, and dynamic restraints is included in Section 3.9.6.	-
DCD_03.09.06-49	3.9.6.1 3.9.10	3.9-80 3.9-98	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	Subsection 3.9.6.1of DCD is revised to state that the functional design and qualification of pumps, valves, and dynamic restraints is to be performed in accordance with ASME QME-1-2007, “Qualification of Active Mechanical Equipment Used in Nuclear Power Plants”.	-
DCD_03.09.06-50	3.9.6 3.9.10	3.9-80 3.9-93	Response to RAI No. 801 MHI Letter No. UAP-HF-	The overall provisions for the IST program is relocated to Section 3.9.6. The revised	- -

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11375 Date 11/02/2011	Section 3.9.6 is also specify the applicability of the 2004 Edition through the 2006 Addenda of the ASME OM Code.	
DCD_03.09.06-53	3.9.6 3.9.6.2 3.9.9	3.9-84 3.9-87 3.9-102	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	Subsection 3.9.6.2 of DCD is revised to fully describe the IST program for pumps used in the US-APWR.. Section 3.9.9, “Combined License Information,” Item COL 3.9(8), is revised to delete the requirement that the COL applicant is to provide a full description of their IST program plan for pumps, valves, and dynamic restraints.	-
DCD_03.09.06-55	3.9.6 3.9.6.3 3.9.6.3.3 3.9.6.3.7 3.9.9	3.9-84 3.9-88 3.9-89 3.9-93 3.9-94 3.9-95 3.9-96 3.9-97	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	Subsection 3.9.6.3 is revised to fully describe the IST program for valves used in the US-APWR. Section 3.9.9, “Combined License Information,” Item COL 3.9(8), is revised to delete the requirement that the COL applicant is to	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
		3.9-102		provide a full description of their IST program plan for pumps, valves, and dynamic restraints.	
DCD_03.09.06-58	3.9.6.3.1 3.9.10	3.9-83 3.9-84 3.9-98	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	The description of the IST program for MOVs specifies that the MOV program satisfies the IST testing requirements in the ASME OM Code and also satisfies the requirement for periodic verification of MOVs in accordance with 10 CFR 50.55a The MOV program description references the Joint Owners Group (JOG) Program on MOV Periodic Verification.	-
DCD_03.09.06-59	3.9.6.3.2	3.9-92 3.9-93 3.9-94	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	Subsection 3.9.6.3.2 of DCD is revised to fully describe the IST program for POVs used in the US-APWR. The POV program description also specifies testing for all safety-related POVs regardless of their safety	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				significance.	
DCD_03.09.06-66	3.9.6.4 3.9.6.4.1 3.9.6.4.2 3.9.6.4.3 3.9.9	3.9-97 3.9-98 3.9-99 3.9-99 3.9-102	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	Subsection 3.9.6.4 is revised to fully describe the IST program for dynamic restraints used in the US-APWR. Section 3.9.9, “Combined License Information,” Item COL 3.9(6), is revised to delete the requirement that the COL applicant is to provide the program plan for IST of dynamic restraints in accordance with Nonmandatory Appendix A of ASME OM Code.	-
DCD_03.09.06-68	3.9.6.4 3.9.6.5 3.9.9	3.9-97 3.9-101 3.9-102	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	Subsection 3.9.6.2 through 3.9.6.4 of DCD is revised to fully describe the IST program for pumps, valves and dynamic restraints used in the US-APWR. Section 3.9.9, “Combined License Information,” Item COL 3.9(6), is revised to delete the requirement that the COL applicant is to	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				provide the program plan for IST of dynamic restraints in accordance with Nonmandatory Appendix A of ASME OM Code	

DCD_03.09.06-57	Table 3.9-14 (Sheet 2, 3, 16, 17, 18, 20 , 21, 22, 23, 29, 30,31, 45,46, 49, 50, 55, 56, 65, 68, 98,99,100,102, 119)	3.9-132
		3.9-133
		3.9-146
		3.9-147
		3.9-148
		3.9-140
		3.9-151
		3.9-152
		3.9-153
		3.9-159
		3.9-160
		3.9-161
		3.9-175
		3.9-176
		3.9-179
		3.9-180
		3.9-185
		3.9-186
		3.9-195
		3.9-228
		3.9-229
		3.9-230
		3.9-232
		3.9-249
		3.9-250
			Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	For (c) ,(d),(j),and (l) of Question03.09.06-57: The leakage limit of valves as RCPB is clarified.
				
				For (g) of Question03.09.06-57: A remote position indication test every 2 years is added to the Table3.9-14 for SIS-MOV-009A through-009D.
				
				For (y) of Question03.09.06-57: main steam isolation valves MSS-SMV-515A through D and main feed isolation valves FWS-SMV-512A through D is revised to state that the full stroke testing is done at hot standby conditions instead of at cold shutdown,
					-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_03.09.06-64	Table 3.9-14 Sheet 66	3.9-196	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	The CCW system Train A and Train C supply or return lines of the component cooling water system can be connected by valves NCS-MOV-232A and B and NCS-MOV-233A and B, respectively. The clarification of the OM categorization of NCS-MOV-232A and B were acceped. The basis for the ASME Code categorization for NCS-MOV-233A and B is similar as the one of NCS-MOV-232A and B	-
DCD_03.09.03-27	Table 3.9-3 Table 3.9-4 Table 3.12-4	3.9-102 3.9-103 3.12-31	Response to RAI No. 847 MHI Letter No. UAP-HF-11411Date 11/25/2011	Editorial correction of symbols	-
DCD_03.12-27	3.9.10 3.12.2.1 3.12.2.2 3.12.6.1 3.12.8	3.9-92 3.12-1 3.12-2 3.12-17 3.12-25 3.12-26	Response to RAI No. 804 MHI Letter No. UAP-HF-11382 Date 11/10/2011	Added descriptions about codes and Standard.	-
DCD_03.12-28	3.9.10 3.12.3 3.12.3.6	3.9-95 3.12-2 3.12-6	Response to RAI No. 804 MHI Letter	Modified typo about SRP Section number	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.12.5.7 3.12.5.15	3.12-13 3.12-16	No. UAP-HF-11382 Date 11/10/2011	and Revision number of RG. Revised the subsection 3.12.5.12 and Added the description about standard industry practices.	
DCD_03.12-29	3.12.5.9 3.12.8	3.12-14 3.12-26	Response (60 day) to RAI No. 804 MHI Letter No. UAP-HF-11410 Date 11/25/2011	The statement about cavity flow is added.	-
DCD_03.12-30	3.12.4.2	3.12-9	Response to RAI No. 846 MHI Letter No. UAP-HF-11398 Date 11/18/2011	Revised the disruptions and formula about dynamic piping model.	-
DCD_03.09.01-6	3.9.1.2.1 3.9.10 3.12.4.1.1 3.12.8	3.9-15 3.9-98 3.12-8 3.12-26	Response to Amended RAI No. 770 MHI Letter No. UAP-HF-11420 Date 12/02/2011	Computer Code description are added.	-
DCD_03.06.02-47	3.6.2.1.2.2	3.6-13	Response to Amended RAI No. 636 MHI Letter No. UAP-HF-11407 Date	Change the first bullet of the first paragraph of DCD Subsection 3.6.2.1.2.2 to: “For ASME Code,	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11/22/2011	Section III, Class 1 piping, where the stress range calculated by Eq. (10) in NB-3653 is more than <u>or equal to</u> 1.2 S(m)”	
DCD_3.12-25	3.9.1.1 3.12.5.10 3.12.7	3.9-2 3.12-15 3.12-23	Response to RAI No. 742 MHI Letter UAP-HF-11363 Date 10/26/2011	Description is added about the pressurizer surge line monitoring.	-
DCD_03.09.01-7	3.9.1.1.1.10	3.9-7	Response to RAI No. 802 MHI Letter No. UAP-HF-11371 Date 11/1/2011	Description is added to explain the core lifetime extention.	-
DCD_03.09.03-27 S1	Table 3.9-3 Table 3.9-4 Table 3.9-5 Table 3.12-4	3.9-102 3.9-103 3.9-104 3.12-31	Response to RAI No. 847 MHI Letter No. UAP-HF-11411 Date 11/25/2011	Editorial correction of symbol and notes.	-
DCD_03.04.01-31	Table 3.2-2 Sheet 42 3.4.1.5.2.2	3.2-53 3.4-20	Response to RAI No. 842 MHI Letter No. UAP-HF-11436 Date 12/19/2011	Revised Table 3.2-2 to upgrade the Seismic Category of a part of Potable and Sanitary Water System. Revised a description about	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				potable and sanitary water system in the main control room.	
DCD_03.04.01-32	3.4.1.3	3.4-5	Response to RAI No. 842 MHI Letter No. UAP-HF-11436 Date 12/19/2011	Revised a description about a function, inspection, testing and maintenance of water-tight doors.	-
DCD_09.01.03-8	Table 3D-2 (Sheet 8, 9, 12)	3D-13 3D-14 3D-17	Response to RAI No. 756 MHI Letter No. UAP-HF-11255 Date 8/10/2011	Added the information of SFP level, SFP temperature and SFP pump discharge flow.	-
DCD_03.09.03-28	3.9.3.1.5	3.9-42	Response to RAI No. 851 MHI Letter No. UAP-HF-11446 Date 12/20/2011	Deleted the sentence of environmental impact on fatigue for Class 2 and 3 components.	-
DCD_03.07.01-14	3.7.1.1	3.7-4	Response to RAI No. 798 MHI Letter No. UAP-HF-11296 Date 09/07/2011	Revised the description regarding ‘’FIRS’’	-
DCD_03.07.01-15	3.7.1.1	3.7-8	Response to RAI No. 798 MHI Letter No. UAP-HF-	Revised the description regarding duration of	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11296 Date 09/07/2011	motion.	
DCD_03.07.02-88	3.7.5	3.7-60	Response to RAI No. 800 MHI Letter No. UAP-HF-11298 Date 09/07/2011	Changed ''site-specific seismic category I SSCs'' to ''site-specific safety-related SSCs'' in the COL 3.7 (9) item.	-
DCD_03.03.02-5	3.3.1.2 3.3.3	3.3-3 3.3-8	Response to RAI No. 817 MHI Letter No. UAP-HF-11326 Date 9/26/2011	COL applicant to verify that wake effects from site location features do not invalidate plant wind load design.	-
DCD_03.07.02-97	3.7.2.8	3.7-38	Response to RAI No. 810 MHI Letter No. UAP-HF-11324 Date 09/22/2011	Deleted the description regarding heavy concrete walls.	-
DCD_03.07.02-102	3.7.2.3.4 3.7.5	3.7-20 3.7-61	Response to RAI No. 810 MHI Letter No. UAP-HF-11324 Date 09/22/2011	Added the description regarding COL Action Item.	-
DCD_03.07.02-106	3.7.2.4.1	3.7-31	Response to RAI No. 810 MHI Letter No. UAP-HF-11324 Date 09/22/2011	Added the description regarding the input control motion derived from the site-	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				specific FIRS.	
DCD_03.07.02-107	3.7.2.4.1 3.7.5	3.7-30 3.7-61	Response to RAI No. 810 MHI Letter No. UAP-HF-11324 Date 09/22/2011	Deleted the description regarding the SASSI relief option for additional COL Applicant nuclear sites.	-
DCD_03.09.03-27 S1	Table 3.9-3 Table 3.9-4 Table 3.9-5 Table 3.12-4	3.9-102 3.9-103 3.9-104 3.12-31	Response to RAI No. 847 MHI Letter No. UAP-HF-12005 Date 01/24/2011	Editorial correction of symbol and notes.	-
DCD_03.07.02-96	3.7.2.6	3.7-35	Response(60 day) to RAI No. 810 MHI Letter No. UAP-HF-11402 Date 11/22/2011	Deleted the description regarding uncertainties introduced by phasing effects.	-
DCD_03.07.02-98	3.7.2.8 3.8.4.4.3	3.7-39 3.8-65	Response(60 day) to RAI No. 810 MHI Letter No. UAP-HF-11402 Date 11/22/2011	Revised the description to describe the methodologies addressed in Section 3.7 of Technical Report MUAP-10006.	-
DCD_03.07.02-101	3.7.2.7	3.7-35 3.7-36	Response(60 day) to RAI No. 810 MHI Letter No. 11402 Date	Revised the description regarding missing mass. Deleted the reference to 90%.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11/22/2011		
DCD_03.07.02-103	3.7.2.4	3.7-29	Response(60 day) to RAI No. 810 MHI Letter No. UAP-HF-11402 Date 11/22/2011	Added the description regarding Plots of transfer functions for various locations throughout the R/B Complex and PS/B.	-
DCD_03.07.03-6	3.7.3.1.2	3.7-47	Response to RAI No. 799 MHI Letter No. UAP-HF-11297 Date 09/07/2011	Added the description regarding the frequency of the supported component. Revised the description regarding peak acceleration.	-
DCD_03.07.03-7	3.7.3.1 3.7.3.1.7.1	3.7-50	Response to RAI No. 799 MHI Letter No. UAP-HF-11347 Date 10/072011	Revised subsection 3.12.3.2.6 for RAI response. Corrected clerical error.	-
DCD_03.07.03-10	3.7.3.1 3.12.3.2.6	3.7-46 3.12-4	Response to RAI No. 799 MHI Letter No. UAP-HF-11347 Date 10/072011	Revised section 3.7 for RAI response.	-
DCD_03.07.02-108 (3)	3.7.2.7.1	3.7-38	Response to RAI No. 810 MHI Letter	Added the description regarding	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			No. UAP-HF-11413 Date 11/30/2011	acceleration associate with a cutoff frequency. Changed the notation Am to A_m.	
DCD_03.07.02-108 (8)	Table 3.7.2-1	3.7-73	Response to RAI No. 810 MHI Letter No. UAP-HF-11413 Date 11/30/2011	Revised the description regarding ANSYS entries listed in Table 3.7.2-1.	-
DCD_03.07.02-108 (9)	3.7.2.1	3.7-15	Response to RAI No. 810 MHI Letter No. UAP-HF-11413 Date 11/30/2011	Deleted the second sentence of the third paragraph.	-
DCD_03.07.02-108 (11)	3.7.2.5	3.7-34	Response to RAI No. 810 MHI Letter No. UAP-HF-11413 Date 11/30/2011	Deleted the description regarding the broadened response spectra method. Revised subsection number regarding the peak shuiting method.	-
DCD_03.07.02-108 (15)	3.7.2.4.1	3.7-32	Response to RAI No. 810 MHI Letter No. UAP-HF-11413 Date	Revised the description regarding subgrade property	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11/30/2011	variations in the horizontal direction.	
DCD_03.09.03-29	3.2.2.4	3.2-10	Editorial Correction	Change the word “Class D” to “Equipment Class 4”	-
DCD_03.06.02-2	3.6.2.1.1.1 3.6.2.4.2.2 Figure 3.6-1	3.6-10 3.6-11 3.6-20 3.6-45	Response to RAI No. 71 Amend MHI Letter No. UAP-HF-11451 Date 12/27/2011	Revised and added descriptions about break exclusion zone of main steam pipe room	-
DCD_03.04.01-31	Table 3.2-2 Sheet 42 3.4.1.5.2.2	3.2-53[3.2-59] 3.4-20[3.4-21]	Response to RAI No. 842 MHI Letter No. UAP-HF-11436 Date 12/19/2011	[Table] Revised Table 3.2-2 to upgrade the Seismic Category of a part of Potable and Sanitary Water System. [Description] Revised a description about potable and sanitary water system in the main control room.	-
DCD_03.04.01-32	3.4.1.3	3.4-5	Response to RAI No. 842 MHI Letter No. UAP-HF-11436 Date	[Description] Revised a description about a function, inspection, testing	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			12/19/2011	and maintenance of water-tight doors.	
MIC-03-03-00066	3.7 3.7.1.2 3.7.1.3 3.7.2.1 3.7.2.3.6 3.7.2.3.6.1 3.7.2.3.11 3.7.2.4.1 3.7.2.8	3.7-1 3.7-2 3.7-3 3.7-4 3.7-6 3.7-7 [3.7-8] 3.7-8 [3.7-9 3.7-10] 3.7-10 3.7-11 [3.7-12 3.7-13] 3.7-15 [3.7-19] 3.7-21 [3.7-28] 3.7-21 [3.7-29] 3.7-29 [3.7-43] 3.7-30 [3.7-49] 3.7-39 [3.7-58]	DCD Markups Associated with SC Technical Reports and ACI 349 MHI Letter no. UAP-HF-12047 Date 2/29/2012	Updates derived from SC structures as outlined in the Technical Report (UAP-HF-11265, "Clarification to Previously Submitted Information Regarding the US-APWR Containment Internal Structure (CIS)"), ACI 349 and other corrections	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.7.2.8.2 3.8-2.8.3 3.7.2.8.4 3.7.2.8.6 3.7.2.11 3.7.3.1.7.1 3.7.5 3.7.6 Table 3.7.2-2 Table 3.7.2-3	3.7-40 [3.7-59] 3.7-40 3.7-41 [3.7-59 3.7-60] 3.7-41 [3.7-60] 3.7-42 [3.7-61] 3.7-43 [3.7-62] 3.7-50 [3.7-70] 3.7-60 3.7-61 [3.7-80 3.7-81 3.7-82] 3.7-65 3.7-74 [3.7-96] 3.7-75 [3.7-97 3.7-98]			

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.8.1.1.1 3.8.1.3.1 3.8.3.1.2 3.8.3.1.5 3.8.3.1.7 3.8.3.1.9 3.8.3.1.12 3.8.3.3 3.8.3.3.2 3.8.3.3.5 3.8.3.4 3.8.3.4.1 3.8.3.4.3 3.8.3.4.4	3.8-2 3.8-5 3.8-6 3.8-33 3.8-34 3.8-34 3.8-35 3.8-36 3.8-36 3.8-37 3.8-38 3.8-38 3.8-39 3.8-40 3.8-41 [3.8-42 through 3.8-46]] 3.8-41 [3.8-46] 3.8-42 [3.8-47] 3.8-42 [3.8-48]			

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.8.3.4.5 3.8.3.4.5.1 3.8.3.4.5.2 3.8.3.4.5.3 3.8.3.4.5.4 3.8.3.4.5.5 3.8.3.4.5.6 3.8.3.4.6 3.8.3.4.7 3.8.3.4.8 3.8.3.5 3.8.4.2 3.8.4.3.9 3.8.4.4.1 3.8.4.4.1.3 3.8.4.4.2 3.8.4.4.2.3 3.8.4.4.3	3.8-43 [3.8-49] 3.8-43 [3.8-49] 3.8-43 3.8-44 [3.8-49 3.8-50] 3.8-44 [3.8-50] 3.8-44 [3.8-51] 3.8-45 [3.8-51] 3.8-50 [3.8-56] 3.8-59 3.8-60 [3.8-65 3.8-66] 3.8-62 [3.8-68 3.8-69] 3.8-64 3.8-65 [3.8-71 3.8-72] 3.8-66			

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.8.4.5 3.8.4.6.1.1 3.8.4.6.1.2 3.8.4.6.1.3 3.8.4.6.1.4 3.8.5.2 3.8.5.3 3.8.5.4 3.8.5.4.2 3.8.5.4.3 3.8.5.4.4 3.8.5.5 3.8.6	[3.8-72] 3.8-66 3.8-67 [3.8-73] 3.8-67 [3.8-74] 3.8-68 [3.8-74] 3.8-74 [3.8-81] 3.8-75 [3.8-81] 3.8-75 [3.8-82] 3.8-76 [3.8-83] 3.8-77 [3.8-84] 3.8-78 [3.8-84] 3.8-79 [3.8-86] 3.8-83 3.8-84 3.8-88 [3.8-90 3.8-91 3.8-95			

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
		3.8-96]			
	Table 3.8.3-3	3.8-96 [3.8-104]			
	Table 3.8.3-4 (replaced)	3.8-97 [3.8-106]			
	Table 3.8.4-3	3.8-102 [3.8-111]			
	Table 3.8.4-5	3.8-104 [3.8-113]			
	Table 3.8.5-2	3.8-113 [3.8-122]			
DCD_03.09.06-53	3.9.6 3.9.6.2, 3.9.9	3.9-80 3.9-81 3.9-92	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2011	Corrected the wording regarding COL item	-
DCD_03.09.06-55	3.9.6, 3.9.6.3, 3.9.6.3.2 3.9.6.3.3 3.9.9	3.9-80, 3.9-81, 3.9-82, 3.9-84, 3.9-85, 3.9-86, 3.9-92	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2011	Corrected the wording regarding COL item	-
DCD_03.09.06-57	Table 3.9-14	3.9-122 3.9-123	Amended Response to RAI No. 801	Amended description	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
		3.9-136 3.9-137 3.9-140 3.9-141 3.9-142 3.9-147 3.9-148 3.9-149 3.9-150 3.9-163 3.9-164 3.9-167 3.9-168 3.9-174 3.9-211 3.9-212 3.9-213 3.9-215 3.9-232	MHI Letter No. UAP-HF-12062 Date 03/08/2011	regarding "ASME IST Category", "IST type and frequency", and "IST Notes". Added RCS valves.	
DCD_03.09.06-58	3.9.6.3.1 3.9.10	3.9-83, 3.9-84 3.9-97, 3.9-98	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2011	Amended description regarding IST program for MOV	-
DCD_03.09.06-59	3.9.6.3.2	3.9-84, 3.9-85	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2011	Amended description regarding IST program for POV	-
DCD_03.09.06-66	3.9.6.4, 3.9.6.4.1, 3.9.6.4.2, 3.9.6.4.3 3.9.9	3.9-87, 3.9-88, 3.9-89, 3.9-90, 3.9-92,	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date	Amended description regarding IST program for Dynamic Restraint	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			03/08/2011		
DCD_03.09.06-68	3.9.6.4, 3.9.6.5, 3.9.9	3.9-88, 3.9-91, 3.9-92,	Amended Response to RAI No. 801 MHI Letter No. UAP-HF-12062 Date 03/08/2011	Corrected the wording regarding COL item	-
DCD_03.06.01-10	3.6	3.6-1	Response to RAI No. 884 MHI Letter No. UAP-HF-12063 Date 03/09/2012	Added the statement that the essential SSCs addressed by this section and BTP 3-4 are the safety-related SSCs defined in DCD Section 3.2.	-
MIC-03-03-00041	3.7.5	3.7-59 through 3.7-63 [3.7-79 through 3.7-83]	Result of COL ITEMS Consistency Review at making DCD R3 UTR Rev2	Formatting for COL 3.7(1) through COL 3.7(29) does not match rest of DCD. There is a space missing between "COL" and "3.7(#)".	2
MIC-03-03-00040	3.9.10	3.9-93 [3.9-104]	Change due to NRC comment on reference 3.9-9 described in DCD Ch.3.9.10.	Document number for reference 3.9-9, topical report on MULTIFLEX code (proprietary version) was corrected as follows. WCAP-8709 →WCAP-8708	2

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is “-“, the change was not made in a T/R.

- Implement guidelines for actions to be performed immediately after an earthquake, including a check of the neutron flux monitoring sensors as part of the specific MCR board checks.
- Assure proper evaluation of ground motion records.
- Assure that after an earthquake at the plant site, an operability check is performed on the seismic instrumentation.
- If a shutdown is required, assure that the pre-shutdown inspections, including a check of the containment isolation system, are performed.

3.7.4.5 Instrument Surveillance (Including calibration and testing)

The seismic instrumentation is in accordance with the type and location requirements discussed in Subsection 3.7.4.2 and RG 1.12 (Reference 3.7-40). The instrumentation requires minimal maintenance and in-service inspection, as well as minimal time and numbers of personnel to conduct installation and maintenance. The seismic monitoring instrumentation is configured such that testing or maintenance can be performed on a single channel without affecting the functioning of other channels.

A seismic monitoring system preoperational test is outlined in Chapter 14.

As required by RG 1.12 (Reference 3.7-40), instrumentation systems are to be given channel checks every 2 weeks for the first 3 months of service after startup. Failures of devices normally occur during initial operation. After the initial 3-month period and 3 consecutive successful checks, monthly channel checks are sufficient. The monthly channel check is to include checking the batteries. The channel functional test should be performed every 6 months. Channel calibration should be performed during each refueling outage at a minimum.

3.7.4.6 Program Implementation

The COL Applicant is to identify the implementation milestone for the seismic instrumentation implementation program based on the discussion in Subsections 3.7.4.1 through 3.7.4.5.

3.7.5 Combined License Information

COL 3.7(1) *The COL Applicant is to confirm that the site-specific PGA at the basemat level control point of the CSDRS is less than or equal to 0.3 g.* MIC-03-03-00041

COL 3.7(2) *The COL Applicant is to perform an analysis of the US-APWR standard plant seismic category I design to verify that the site-specific FIRS at the basemat level control point of the CSDRS are enveloped by the site-independent CSDRS.* MIC-03-03-00041

COL 3.7(3) *It is the responsibility of the COL Applicant to develop analytical models appropriate for the seismic analysis of buildings and structures that are designed on a site-specific basis including, but not limited to, the following:* MIC-03-03-00041

- *PSFSVs (seismic category I)*
- *ESWPT (seismic category I)*
- *UHSRS (seismic category I)*

COL 3.7(4) *To prevent non-conservative results, the COL Applicant is to review the resulting level of seismic response and determine appropriate damping values for the site-specific calculations of ISRS that serve as input for the seismic analysis of seismic category I and seismic category II subsystems.* MIC-03-03-00041

COL 3.7(5) *The COL Applicant is to assure that the horizontal FIRS defining the site-specific SSE ground motion at the bottom of seismic category I or II basemats envelope the minimum response spectra required by 10 CFR 50, Appendix S, and the site-specific response spectra obtained from the response analysis.* MIC-03-03-00041

COL 3.7(6) *The COL Applicant is to develop site-specific GMRS and FIRS ~~by an analysis methodology, which accounts for the upward propagation of the GMRS~~. The FIRS are compared to the CSDRS to assure that the US-APWR standard plant seismic design is valid for a particular site. If the FIRS are not enveloped by the CSDRS, the US-APWR standard plant seismic design is modified as part of the COLA in order to validate the US-APWR for installation at that site.* MIC-03-03-00041 MIC-03-03-00066

COL 3.7(7) *The COL Applicant is to determine the allowable static and dynamic bearing capacities based on site conditions, including the properties of fill concrete placed to provide a level surface for the bottom of foundation elevations, and to evaluate the bearing loads to these capacities.* MIC-03-03-00041

COL 3.7(8) *The COL Applicant is to evaluate the strain-dependent variation of the material dynamic properties for site materials.* MIC-03-03-00041

COL 3.7(9) *The COL Applicant is to assure that the design or location of any site-specific ~~seismic category I~~safety-related SSCs, for example pipe tunnels or duct banks, will not expose those SSCs to possible impact due to the failure or collapse of non-seismic category I structures, or with any other SSCs that could potentially impact, such as heavy haul route loads, transmission towers, non safety-related storage tanks, etc.* MIC-03-03-00041 DCD_03.07.02-88

COL 3.7(10) *It is the responsibility of the COL Applicant to further address structure-to-structure interaction if the specific site conditions can be important for the seismic response of particular US-APWR seismic category I structures, or may result in exceedance of assumed pressure distributions used for the US-APWR standard plant design.* MIC-03-03-00041

COL 3.7(11) ~~Deleted~~It is the responsibility of the COL Applicant to confirm the masses and frequencies of the PCCV polar crane and fuel handling crane and to determine if coupled site-specific analyses are required. DCD_03.07.02-102 MIC-03-03-00041

COL 3.7(12) It is the responsibility of the COL Applicant to design seismic category I below- or above-ground liquid-retaining metal tanks such that they are enclosed by a tornado missile protecting concrete vault or wall, in order to confine the emergency gas turbine fuel supply. MIC-03-03-00041

COL 3.7(13) The COL Applicant is to set the value of the OBE that serves as the basis for defining the criteria for shutdown of the plant, according to the site specific conditions. MIC-03-03-00041

COL 3.7(14) The COL Applicant is to determine from the site-specific geological and seismological conditions if multiple US-APWR units at a site will have essentially the same seismic response, and based on that determination, choose if more than one unit is provided with seismic instrumentation at a multiple-unit site. MIC-03-03-00041

COL 3.7(15) Deleted MIC-03-03-00041

COL 3.7(16) The COL Applicant shall provide free-field seismic instrumentation in the vicinity of the power block area at surface grade which shall be used for shutdown determination, unless otherwise justified. Any such justification shall be based on conditions and requirements specific to the site, and shall include justification for evaluation of OBE exceedance using only measurements from instrumentation installed on the buildings and the structures of the US-APWR standard plant. MIC-03-03-00041

COL 3.7(17) Deleted MIC-03-03-00041

COL 3.7(18) Deleted MIC-03-03-00041

COL 3.7(19) The COL Applicant is to identify the implementation milestone for the seismic instrumentation implementation program based on the discussion in Subsections 3.7.4.1 through 3.7.4.5. MIC-03-03-00041

COL 3.7(20) The COL Applicant is to validate the site-independent seismic design of the standard plant for site-specific conditions, including geological, seismological, and geophysical characteristics, and to develop the site-specific GMRS. MIC-03-03-00041

COL 3.7(21) The COL Applicant is responsible for the seismic design of those seismic category I and seismic category II SSCs that are not part of the US-APWR standard plant using site-specific SSE design ground motion. MIC-03-03-00041 MIC-03-03-00066

COL 3.7(22) The COL Applicant is required to perform site-specific seismic analyses, including SSI analysis which may consider seismic wave transmission incoherence ~~and analysis of the CAV~~ of the seismic input motion, in order to determine if high-frequency exceedances of the CSDRS could be transmitted to SSCs in the plant superstructure with potentially damaging effects. MIC-03-03-00041 MIC-03-03-00066

COL 3.7(23) The COL Applicant is to verify that the results of the site-specific SSI analysis for the broadened ISRS and basement walls lateral soil pressures are enveloped by the US-APWR standard design. MIC-03-03-00041

COL 3.7(24) The COL Applicant is to verify that the site-specific ratios V/A and AD/V^2 *(A, V, D, are PGA, ground velocity, and ground displacement, respectively) are consistent with characteristic values for the magnitude and distance of the appropriate controlling events defining the site-specific uniform hazard response spectra.* MIC-03-03-00041

COL 3.7(25) The COL Applicant referencing the US-APWR standard design is required to perform a site-specific SSI analysis for the R/B-PCCV-containment internal structure, and PS/B model, utilizing the program ACS SASSI (Reference 3.7-17) which contains time history input incoherence function capability. The SSI analysis using SASSI is required in order to confirm that site-specific effects are enveloped by the standard design. ~~After the SASSI analysis is first performed for a specific unit, subsequent COLAs for other units may be able to forego SASSI analyses if the FIRS and GMRS derived for those subsequent units are much smaller than the US-APWR standard plant CSDRS, and if the subsequent unit can also provide justification through comparison of site-specific geological and seismological characteristics.~~ MIC-03-03-00041 DCD_03.07.02-107

COL 3.7(26) SSI effects are also considered by the COL Applicant in site-specific seismic design of any seismic category I and II structures that are not included in the US-APWR standard plant. Consideration of structure-to-structure interaction is discussed in Subsection 3.7.2.8. The site-specific SSI analysis is performed for buildings and structures including, but not limited to, to the following: MIC-03-03-00041

- *Seismic category I ESWPT*
- *Seismic category I PSFSV*
- *Seismic category I UHSRS*

COL 3.7(27) It is the responsibility of the COL Applicant to perform any site-specific seismic analysis for dams that may be required. MIC-03-03-00041

COL 3.7(28) The overall basemat dimensions, basemat embedment depths, and maximum height of the US-APWR R/B, PCCV, and containment internal structure on their common basemat are given in Table 3.7.1-3 and as updated by the COL Applicant to include site-specific seismic category I structures. MIC-03-03-00041

COL 3.7(29) Table 3.7.2-1, as updated by the COL Applicant to include site-specific seismic category I structures, presents a summary of dynamic analysis and combination techniques including types of models and computer programs used, seismic analysis methods, and method of combination for the three directional components for the seismic analysis of the US-APWR standard plant seismic category I buildings and structures. MIC-03-03-00041

COL 3.7(30) The COL Applicant is to provide site-specific design ground motion time histories and durations of motion.

3.7.6 References

3.7-1 General Design Criteria for Nuclear Power Plants, Domestic Licensing of Production and Utilization Facilities, Energy. Title 10 Code of Federal Regulations, Part 50, Appendix A, U.S. Nuclear Regulatory Commission, Washington, DC.

3.7-2 Deleted

3.7-3 A Performance-Based Approach to Define the Site-Specific Earthquake Ground Motion, Regulatory Guide 1.208, Rev. 0, U.S. Nuclear Regulatory Commission, Washington, DC, March 2007.

3.7-4 Reactor Site Criteria, Energy. Title 10 Code of Federal Regulations Part 100, U.S. Nuclear Regulatory Commission, Washington, DC.

3.7-5 Standard Design Certifications, Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants, Energy. Title 10 Code of Federal Regulations Part 52, Subpart B, U.S. Nuclear Regulatory Commission, Washington, DC.

3.7-6 Design Response Spectra for Seismic Design of Nuclear Power Plants. United States Nuclear Regulatory Commission, Regulatory Guide 1.60, Rev. 1, U.S. Nuclear Regulatory Commission, Washington, DC, December 1973.

3.7-7 Earthquake Engineering Criteria for Nuclear Power Plants, Domestic Licensing of Production and Utilization Facilities, Energy. Title 10 Code of Federal Regulations Part 50, Appendix S, Part IV(a)(1)(i), U.S. Nuclear Regulatory Commission, Washington, DC.

3.7-8 Vibratory Ground Motion, Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants. NUREG 0800, SRP 2.5.2, Rev. 4, U.S. Nuclear Regulatory Commission, Washington, DC, March 2007.

3.9-2 Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants, ANS N5.1.1-1983, American Nuclear Society.

3.9-3 Thermal Stresses in Piping Connected to Reactor Coolant Systems, Generic Communications. Bulletin No. 88-08, U.S. Nuclear Regulatory Commission, Washington, DC, June 22, 1988, including Supplements 1, 2, and 3, dated: June 24, 1988; August 4, 1988; and April 11, 1989.

3.9-4 Pressurizer Surge Line Thermal Stratification. Generic Communications, Bulletin No. 88-11, U.S. Nuclear Regulatory Commission, Washington, DC, December 20, 1988.

3.9-5 Fracture Toughness Requirements, Domestic Licensing of Production and Utilization Facilities, Energy. Title 10, Code of Federal Regulations, Part 50, Appendix G, U.S. Nuclear Regulatory Commission, Washington, DC.

3.9-6 Abaqus, Finite Element Structural Analysis Program, Version 6.7, SIMULIA, Providence, RI.

3.9-7 ANSYS, Finite Element Structural Analysis Program, Release 11.0, ANSYS, Inc, Canonsburg, PA, 2007.

3.9-8 RELAP-5, Transient Hydraulic Analysis Program, MOD 3.2, Idaho National Engineering and Environmental Laboratory, Idaho Falls, ID.

3.9-9 MULTIFLEX, A FORTRAN-IV Computer Program for Analyzing Thermal-Hydraulic-Structure System Dynamics. WCAP-87098 (proprietary), and WCAP-8709 (nonproprietary), September 1977. MIC-03-03-00040

3.9-10 NASTRAN, Femap with NX NASTRAN, Version 9.3.

3.9-11 Deleted

3.9-12 Initial Test Programs for Water-Cooled Nuclear Power Plant. Regulatory Guide 1.68, Rev. 3, U.S. Nuclear Regulatory Commission, Washington, DC, March 2007.

3.9-13 Code for Operation and Maintenance of Nuclear Power Plants. American Society of Mechanical Engineers (ASME OM Code), ~~1995 Edition through 2003 Addenda~~2004 Edition through 2006 Addenda. DCD_03.09.06-50

3.9-14 Code for Pressure Piping, Power Piping. ANSI B31.1, 2004 Edition, American Society of Mechanical Engineers.

4. As for the RCL piping the 1992 Edition including 1992 Addenda will be used for ASME Code Section III NB-3200,NB-3600 analyses in accordance with the requirements of 10 CFR 50.55a(b)(1)(iii) except for analyzing equation factor for fillet welds. Stress indices for ASME Class 1 piping analyses will use the 1989 Edition of ASME Code Section III, Division 1, Subsection NB. DCD_03.12-27

Tier 2

Chapter 4

Chapter 4 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_03.09.04-10	4.6.3	4.6-2	Response to RAI No. 679 MHI Letter No. UAP-HF-11120 Date 04/25/2011	Added "Preoperational tests of electrical system" as the third bullet.	-
DCD_04.02-18	4.2.4.5	4.2-33	Response to RAI No. 129 MHI Letter No. UAP-HF-11427 Date 12/14/2011	Added the description about fuel inspection related to cladding corrosion for the first US-APWR operator.	-
DCD_04.05.01-15	4.5.1.2	4.5-3	Response to RAI No. 654 MHI Letter No. UAP-HF-11221 Date 7/15/2011	Added the first and second sentence.	--
DCD_04.05.01-11	4.5.1.2	4.5-3	Response to RAI No. 654 MHI Letter No. UAP-HF-11221 Date 7/15/2011	Deleted “for the CRDM pressure housing” from the second sentence.	-
DCD_04.05.01-8	4.5.1.1.1	4.5-2	Response to RAI No. 457 MHI Letter No. UAP-HF-11223 Date 7/15/2011	Deleted the second sentence of “Detailed description of the austenitic stainless steel for pressure housing material is given in Subsection 5.2.3”.	-
DCD_04.04-41	New Subsection	4.4-25	Response to RAI No. 845-	Added subsection	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	4.4.5.4		6116 Revision 3 MHI Letter No. UAP-HF-11379 Date 11/17/2011	4.4.5.4.	
DCD_04.02-19	4.2.4.5	4.2-33	Response to RAI No. 129 MHI Letter No. UAP-HF-11427 Date 12/14/2011	Added the description about fuel inspection related to cladding corrosion for the first US-APWR operator.	-
DCD_04.03-68	4.3.2.8	4.3-24	Response to RAI No. 874 MHI Letter No. UAP-HF-12004 Date 1/11/2012	Added descriptions about the contents of neutron fluence verification program.	-
DCD_04.03-69	4.3.2.2.3	4.3-12 [to 4.3-13]	Response to RAI No. 874 MHI Letter No. UAP-HF-12004 Date 1/11/2012	Added descriptions about thimble failure limitations.	-
DCD_04.02-51	4.2.4.5	4.2-33	Response to RAI No. 893 MHI Letter No. UAP-HF-12046 Date 2/22/2012	Add the description about fuel inspection related to cladding corrosion for the first US-APWR operator.	-

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Tier 2

Chapter 5

Chapter 5 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_19-495	5.4.7.2.3.6	5.4-45 5.4-46	Response to RAI No. 681 MHI Letter No. UAP-HF-11037 Date 02/17/2011	Replaced “mid loop level” with “RCS Low water level (0.47 feet higher than loop center)” Deleted “During mid-loop operation, the air/water interface is at close proximity to the RHR suction nozzles located on the hot legs, but the higher RCS water level applied for the US-APWR design reduces the possibility of air entrainment into the RHR pump suction. Air ingestion by an RHR pump can cause loss of pump function, creating the potential for loss of RHR.”	-
DCD_05.02.03-27	5.2.3.3.2	5.2-20	Response to RAI No. 644 MHI Letter No. UAP-HF-11044 Date 02/22/2011	Added the first sentence in the 8th paragraph, and deleted the word ‘either’ and sentence ‘or by maintaining preheat until post weld heat treatment is performed’ on same paragraph.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_05.02.01.02-7	Table 5.2.1-2 (Sheet 2 of 2)	5.2-4 5.2-5	Response to RAI No. 575 MHI Letter No. UAP-HF-11122 Date 04/26/2011	Added mark (1) and foot-note.	-
DCD_05.04.01.01-3	5.4.1.1.2	5.4-2	Response to RAI No. 274 MHI Letter No. UAP-HF-11105 Date 04/14/2011	Deleted the sentence 'With respect this test procedure, it should be decided qualified test procedure and acceptance criteria.'	-
DCD_05.04.11-1	5.4.11.3 Table 5.4.11-1	5.4-82 5.4-83	Response to RAI No. 741 MHI Letter No. UAP-HF-11197 Date 06/29/2011	Added descriptions about "The PRT is designed to withstand an internal pressure of 200 psig and an external pressure of 15 psig, which conservatively represents atmospheric pressure with an assumed internal absolute vacuum. PRT design pressures values, internal and external, are shown respectively in Table 5.4.11-1 as 200/15 (psig)." Added the Note about Design pressure in Table 5.4.11-1. Added the row about	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Total rupture disk relief flow capacity (lb/hr) in Table 5.4.11-1. Added the row about Rupture disk burst pressure (psig) in Table 5.4.11-1.	
DCD_05.04-2	5.4.1.3.3	5.4-4	Response to RAI No. 745 MHI Letter No. UAP-HF-11205 Date 07/04/2011	Revised the description about temperature of the reactor coolant flow into the RCP seals in Subsection 5.4.1.3.3.	-
DCD_05.04.12-2	5.4.12.2 5.4.12.3	5.4-86 5.4-87 5.4-89	Response to RAI No. 762 MHI Letter No. UAP-HF-11210 Date 07/07/2011	Added the description about the reactor vessel head vent for the air vent path after the first paragraph of Section 5.4.12.2. Added the description about the noncondensable gases accumulating in the SG U-tubes after the first paragraph of Section 5.4.12.2. Added the description about the transfer of the noncondensable gases accumulating in the SG U-tubes after the first	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				paragraph of Section 5.4.12.3.	
DCD_16-298	5.4.10.1	5.4-69	Response to RAI No. 399 MHI Letter No. UAP-HF-11160 Date 05/30/2011	Added the sentence “initiated from an initial pressurizer water level that is less than or equal to the nominal level plus instrument uncertainty”	-
DCD_19-493	5.4.7.2.3.6	5.4-46	Response to RAI No. 669 MHI Letter No. UAP-HF-11229 Date 7/20/2011	Inserted description regarding procedures to remove pressurizer safety valves, SG manways and SG nozzle dams.	-
DCD_19.01-10	5.4.7.2.3.6	5.4-45	Response to MHI Letter No. UAP-HF-10344 Date 12/27/2010	Incorporated description regarding hydrogen peroxide.	-
DCD_19-492	5.4.7.2.3.6	5.4-46	Response to MHI Letter No. UAP-HF-10345 Date 12/27/2010	Incorporated description regarding key activities during LPSD operation.	-
DCD_19-493	5.4.7.2.3.6	5.4-46	Response to MHI Letter No. UAP-HF-10345 Date 12/27/2010	Incorporated description regarding key activities during LPSD operation.	-
MIC-03-05-00002	5.2.7	5.2-48	GSI 191 Tracking Report MHI Letter No. UAP-HF-11287 Dated	Referred latest revision of the document, MUAP-08001-R5.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			08/31/2011		
MIC-03-05-00001	Table 5.4.7-2 (Sheet 1 of 2)	5.4-57	GSI 191 Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated NPSH calculation of CS/RHR pump	1
DCD_09.02.02-82	5.4.1.3.1 5.4.1.4.1 5.4.1.4.9 5.4.1.5 Table 5.4.1-2	5.4-3 5.4-5 5.4-8 5.4-9 [5.4-8] 5.4-10	Response to RAI No. 760 MHI Letter No. UAP-HF-12043 Date 02/15/2012	Added descriptions on RCP seal design and function.	-
DCD_19.01-10 S01	5.4.2.3.67	5.4-45 [5.4-46]	Response to Amended RAI No. 668 MHI Letter No. UAP-HF-12036 Date 02/07/2012	Deleted description regarding chemical addition (hydrogen peroxide) Revised description of “High RCS Water Level”	-

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Tier 2

Chapter 6

Chapter 6 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_09.04.01-26	Table 6.4-1 Table 6.4-2	6.4-11 6.4-14	Response to RAI No. 689 MHI Letter No. UAP-HF-11065 Date 03/15/2011	Specified the limit on impregnant in the activated charcoal adsorbers in Table 6.4-1. Removed the reference to the COL applicant requirement from Table 6.4-2.	-
DCD_06.03-91	6.3.2.2.1	6.3-5 6.3-6	Response to RAI No. 695 MHI Letter No. UAP-HF-11069 Date 03/18/2011	Added "which are supplied with cooling water from the Component Cooling Water System (CCWS) and installed in the Safeguard Component Area in the reactor building"	-
DCD_06.03-95	Table 6.3-4 (Sheet 9 of 11)	6.3-42	Response to RAI No. 695 MHI Letter No. UAP-HF-11069 Date 03/18/2011	Added "ISI for the reactor vessel head is discussed in Subsection 5.2.4"	-
DCD_06.03-88	Figure 6.3-11	6.3-73	Response to RAI No. 695 MHI Letter No. UAP-HF-11069 Date	Revised Figure 6.3-11 to correct dimensions related to NaTB container and Basket.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			03/18/2011		
DCD_06.02.05-43	6.2.5 6.2.5.1 6.2.5.3	6.2-58 6.2-61	Response to RAI No. 751 MHI Letter No. UAP-HF-11169 Date 06/03/2011	Added description about hydrogen igniter in the second from the last paragraph of section 6.2.5 Replaced the last paragraph of section 6.2.5 with new description containing additional technical information Replace "the systems" in the first paragraph of section 6.2.5.1 with "the containment hydrogen monitoring and control system and the containment spray system" Added "uniformly distributed" in the final paragraph of section 6.2.5.3	-
DCD_06.02.02-64	Table 6.2.1-3 Table 6.2.1-5 (Sheet 1 of 2)	6.2-73 6.2-75	Response to RAI No. 740 MHI Letter No. UAP-HF-11181	Revised Table 6.2.1-3 and 6.2.1-5 (Sheet 1 of 2) to reasons as	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			Date 06/14/2011	discussed in RAI 740-5719.	
DCD_06.02.04-55	Table 6.2.4-3(Sheet 14 of 15) Figure 6.2.4-1 (Sheet 11, 18 of 52)	6.2-207 6.2-317 6.2-324	Response to RAI No. 729 MHI Letter No. UAP-HF-11183 Date 06/16/2011	Added “The lines from the RWSP are always submerged (during normal operation and postulated accidents) such that no contianment atmosphere can impinge upon the valves. The systems which the RWSP lines connect to outside containment are closed systems meeting the appropriate requirments of closed systems in the standard (N271-1976), including 3.6.4 and 3.6.7.” in Note 7 Deleted “not” in Note 7. Added “Should a leak develop outside containment, the	-

This change is superseded by the amend RAI Response.

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				fluid will be contained by the controlled leakage safeguard component area." in Note 7. Added "which is described in DCD Subsection 3.6.2" in Note 7 Added "Note: Valve and piping are located in the Safeguard Component Area to control and terminate leakage." in sheet 11 and 18.	
DCD_06.02.02-63 This change is superseded by the amend RAI Response.	6.1.1.2.1 6.2.2.3	6.1-3 6.2-48	Response to RAI No. 736 MHI Letter No. UAP-HF-11185 Date 06/21/2011	Added "Programmatic controls to limit aluminum in the containment are described in Subsection 6.2.2.3." in Section 6.1.1.2.1. Added ", aluminum" in Section 6.2.2.3.	-
DCD_09.02.02-	6.2.4.2 6.2.4.3.2	6.2-63 6.2-64 6.2-66	Amended Response to	Clarified isolation function and	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
58	Table 6.2.4-3 (sheet 6)	6.2-214	RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	actuation of CCW supply and return line to the RCPs valves in subsection 6.2.4.2. Deleted reference to NCS-MOV-445A/B, 447A/B, 448A/B in table 6.2.4-3. Changed “Valve Position, Post-Accident” from “C” to “O” for NCS-MOV-402A/B, 436A/B, 438A/B in table 6.2.4-3. Changed “Actuation Mode, Primary” from “Auto” to “RM” for NCS-MOV-402A/B, 436A/B, 438A/B in table 6.2.4-3. Changed “Actuation Mode, Secondary” from “RM” to “Manual” for NCS-MOV-402A/B, 438A/B in table 6.2.4-3. Changed	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				"Actuation Mode, Secondary" from "RM" to "None" for NCS-MOV-436A/B in table 6.2.4-3. Changed "Actuation Signal" from "P" to "NA" for NCS-MOV-402A/B, 436A/B, 438A/B in table 6.2.4-3.	
DCD_06.02.02-64	Table 6.2.1-3 Table 6.2.1-5 (Sheet 1 of 2)	6.2-73 6.2-75	Response to Amended RAI No. 740 MHI Letter No. UAP-HF-11280 Date 8/31/2011	Revised water volume in 3rd to 6th line of Table 6.2.1-3 for RAI response. Revised full capacity water volume of No. IV. A. in Table 6.2.1-5 for RAI response.	-
DCD_06.02.05-44	6.2.2.2 6.2.5.3	6.2-42 6.2-61	Response to RAI No. 803 MHI Letter No. UAP-HF-11304 Date 9/9/2011	Clarified the CSS function of containment atmosphere mixing (6.2.2.2), and provide additional information of confirming mixing	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				ability (6.2.5.3)	
DCD_09.04.05-21	6.5.7	6.5-12	Response to RAI No. 825 MHI Letter No. UAP-HF-11345 Date 10/06/2011	Added "6.5-8 "Safety-Related Air Conditioning, Heating, Cooling and Ventilation Systems Calculations," MUAP-10020-P Rev. 1 (Proprietary) and MUAP-10020-NP Rev.1 (Non-Proprietary), March 2011."	-
DCD_03.09.06-61	Table 6.2.4-3 (Sheet 1of 15 ～Sheet 12 of 15)	6.2-194 through 6.2-208	Response to RAI No. 801 MHI Letter No. UAP-HF-11375 Date 11/02/2011	The stroke time units in Table 6.2.4-3 are seconds. The Table 6.2.4-3 column for "Valve Closure" is revised to "Valve Closure (seconds)".	-
DCD_06.02.02-66	6.2.8	6.2-67	Response to RAI No. 836 MHI Letter No. UAP-HF-11383 Date 11/11/2011	Added "blowdown water" because that will contact with aluminum in post-LOCA condition.	-
DCD_06.02.02-67	6.2.2.3.10	6.2-50	Response to RAI No. 836 MHI Letter No. UAP-HF-11383 Date	Changed chemical effect test summary in appropriate expression.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11/11/2011		
DCD_06.02.02-84	6.2.2.1.4 6.3.2.5	6.2-42 6.3-15	Response to RAI No. 840 MHI Letter No. UAP-HF-11406 11/22/2011	The statement is added to section6.3.2.5 and 6.2.2.1.4.	-
DCD_06.02.02-63	6.1.1.2.3 6.2.2.3	6.1-5 6.2-48	GSI-191, esponse to RAI No. 736 MHI Letter No. UAP-HF-11215 Date 07/13/2011	Added “Programmatic controls to limit aluminum in the containment are described in Subsection 6.2.2.3.” in Section 6.1.1.2.3. Added “, aluminum” in Section 6.2.2.3.2	1
DCD_06.02.02-55	6.2.2.3.1	6.2-50	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Break Selection	Added section to describe break selection criteria for RAI response.	1
DCD_06.02.02-44	6.2.2.3.2	6.2-50,51,52,53	GSI-191, Response to RAI No. 354-2585 MHI Letter No. UAP-HF-	Added section to describe design-basis debris source term, insulation types,	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			09382 Date 7/17/2009 regarding Debris Source Term	and attachment methods for RAI response.	
DCD_06.02.02-55	6.2.2.3.3	6.2-54	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Debris Generation	Added new section and updated methodology to describe debris generation and ZOIs for RAI response.	1
DCD_06.02.02-55	6.2.2.3.4	6.2-54,55	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Debris Characteristics	Added section to describe debris transportability characteristics for RAI response.	1
DCD_06.02.02-55	6.2.2.3.5	6.2-55	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Debris Transport	Added section to describe debris transport to strainer for RAI response.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_06.02.02-55	6.2.2.3.6	6.2-55	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Debris Head Loss	Added section to provide design-basis strainer head loss and refer to head loss tests for RAI response.	1
DCD_06.02.02-55	6.2.2.3.7	6.2-56	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding NPSH	Added section to describe NPSH calculation for RAI response.	1
DCD_06.02.02-55	6.2.2.3.8	6.2-56	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Thermo-hydraulic performance	Added section to describe air ingestion on strainer performance (e.g., vortex, flashing, deaeration) for RAI response.	1
DCD_06.02.02-55	6.2.2.3.9	6.2-57	GSI-191, Response to RAI No. 466-3715 MHI Letter	Added section to describe coating qualification and standards for RAI	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			No. UAP-HF-09534 Date 11/24/2009 regarding Coatings	response.	
DCD_06.02.02-55	6.2.2.3.10	6.2-57	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Chemical debris	Added section to describe chemical precipitates and tests for RAI response.	1
DCD_06.02.02-55	6.2.2.3.11	6.2-57	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Upstream effects	Added section to describe return water and flow path blockage to RWSP for RAI response.	1
DCD_06.02.02-55	6.2.2.3.12	6.2-58	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Downstream effects	Added section to describe ex-vessel (component and equipment) performance downstream of strainer for RAI response.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_06.02.02-55	6.2.2.3.13	6.2-58	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Downstream effects	Added section to describe in-vessel (core blockage) performance downstream of strainer for RAI response.	1
DCD_06.02.02-55	6.2.2.3.14	6.2-59	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Sump Structural Analysis	Added section to describe sump strainer structural analysis for RAI response.	1
DCD_06.02.02-55	6.2.9	6.2-81	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009	Added additional references for revisions and new content to address GSI-191 for RAI response.	1
DCD_06.02.02-64	Table 6.2.1-3 Table 6.2.1-5 (Sheet 1 of 2)	6.2-84 6.2-86	GSI-191, Amended Response to RAI No. 740 MHI Letter No. UAP-HF-11280.	Revised Table 6.2.1-3 and 6.2.1-5 (Sheet 1 of 2) to reasons as discussed in RAI 740-5719.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_06.02.02-55	Table 6.2.2-4	6.2-206	GSI-191, Response to RAI No. 466-3715 MHI Letter No. UAP-HF-09534 Date 11/24/2009 regarding Design Basis Debris	Added new table to describe design-basis debris for strainer performance evaluation for RAI response.	1
MIC-03-06-00001	6.2.2.2.5	6.2-45	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced RWSP operating temperature with the design temperature of 270°F for consistency with Section 6.2.1.1.2 and to bound the peak LOCA fluid temperature.	1
MIC-03-06-00002	6.2.2.2.5	6.2-45	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Re-worded and corrected typos in description of debris size and transportability. Added reference to Figure 6.2.1-12.	1
MIC-03-06-00003	6.2.2.2.5	6.4-45	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Re-worded to state that strainers satisfy the Safety Evaluation (SE) of NEI 04-07.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-06-00004	6.2.2.2.6	6.2-46	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Revised in entirety to describe additional strainer design details and design consistency with RG 1.82.	1
MIC-03-06-00005	6.2.2.3	6.2-47	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Deleted existing GSI-191 program descriptions, which are replaced by content in newly created sections.	1
MIC-03-06-00006	6.2.2.3.2	6.2-51 6.2-52 6.2-53	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Re-worded for clarity, elaborated, and corrected typos in description of programmatic controls for debris sources.	1
MIC-03-06-00007	6.2.8	6.2-77	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	COL6.2(5) was revised to provide quantitative limits of latent debris.	1
MIC-03-06-00008	6.2.8	6.2-78	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	COL6.2(6) was added to state that the procedure will be required to ensure the insulations used in the containment is	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				consistent with debris basis.	
MIC-03-06-00009	6.2.9	6.2-80	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Revised Ref. 6.2-24 to include Safety Evaluation of NEI 04-07.	1
MIC-03-06-00010	Table 6.2.2-1	6.2-181	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated NPSH calculation based on the design basis strainer head loss.	1
MIC-03-06-00011	Table 6.2.2-2 (Sheet 2 of 17) Regulatory position 1.1.1.3	6.2-183	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated the US-APWR design information consistent with the regulatory position.	1
MIC-03-06-00012	Table 6.2.2-2 (Sheet 2 of 17) Regulatory position 1.1.1.4	6.2-183	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated the US-APWR design information consistent with the regulatory position.	1
MIC-03-06-00013	Table 6.2.2-2 (Sheet 4 of 17) Regulatory position 1.1.1.7	6.2-185	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated the US-APWR design information consistent with the regulatory position.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-06-00014	Table 6.2.2-2 (Sheet 4 of 17) Regulatory position 1.1.1.11	6.2-185	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced the wording “RWSP suction strainer” with “ECC/CS strainer”.	1
				Updated the US-APWR design information consistent with the regulatory position.	1
MIC-03-06-00015	Table 6.2.2-2 (Sheet 5 of 17) Regulatory position 1.1.1.12	6.2-186	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced the wording “RWSP suction strainer” with “ECC/CS strainer”.	1
				Add information to address the consistency of the design with the Regulatory Position.	1
MIC-03-06-00016	Table 6.2.2-2 (Sheet 5 of 17) Regulatory position 1.1.1.13	6.2-186	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Remove previous strainer design information. Add statements for consistency with the regulatory position.	1
MIC-03-06-00017	Table 6.2.2-2 (Sheet 5 of 17)	6.2-186	GSI-191, Tracking Report MHI Letter No.	Replaced the wording “RWSP suction strainer”	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	Regulatory position 1.1.1.14		UAP-HF-11287 Dated 08/31/2011	with “ECC/CS strainer”.	
MIC-03-06-00018	Table 6.2.2-2 (Sheet 6 of 17) Regulatory position 1.1.1.15	6.2-187	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced the wording “planned” with “applied’.	1
				Add information to address the consistency of the strainer design with regulatory position.	1
MIC-03-06-00019	Table 6.2.2-2 (Sheet 6 of 17) Regulatory position 1.1.2.2	6.2-187	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced with the latest debris source term information. Add programmatic control during maintenance.	1
MIC-03-06-00020	Table 6.2.2-2 (Sheet 6 of 17) Regulatory position 1.1.2.3	6.2-188	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add programmatic control information to minimize the use of aluminum in containment.	1
MIC-03-06-00021	Table 6.2.2-2 (Sheet 6 of 17) Regulatory position 1.1.3	6.2-188	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add statement that the US-APWR does not reply on operator action against debris accumulation on the strainer.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-06-00022	Table 6.2.2-2 (Sheet 7 of 17) Regulatory position 1.1.4	6.2-188	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“Appendix-5” was correctly read as “Appendix-B” per RG 1.82 statement.	1
MIC-03-06-00023	Table 6.2.2-2 (Sheet 7 of 17) Regulatory position 1.1.5	6.2-188	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced the wording “RWSP suction strainer” with “ECC/CS strainer”.	1
MIC-03-06-00024	Table 6.2.2-2 (Sheet 8 of 17) Regulatory position 1.2	6.2-189	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“Regulatory Position 3.1” was correctly read as “Regulatory Position 1.3”	1
				Replaced the wording “RWSP suction strainer” with “ECC/CS strainer”. (Typical two places)	1
MIC-03-06-00025	Table 6.2.2-2 (Sheet 8 of 17) Regulatory position 1.3	6.2-189	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“NEI 04-07” was correctly referred as “the SE of NEI 04-07”	1
				Replaced with the statement to refer precise subsections and technical reports for compliance with the regulatory	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				position.	
MIC-03-06-00026	Table 6.2.2-2 (Sheet 9 of 17) Regulatory position 1.3.1.1.	6.2-190	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“Regulatory Position 3.1.2” was correctly read as “Regulatory Position 1.3.1.2”	1
MIC-03-06-00027	Table 6.2.2-2 (Sheet 9 of 17) Regulatory position 1.3.1.2.	6.2-190	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“Regulatory Position 3.1.1” was correctly read as “Regulatory Position 1.3.1.1”	1
MIC-03-06-00028	Table 6.2.2-2 (Sheet 9 of 17) (Sheet 10 of 17) (Sheet 11 of 17)	6.2-190 6.2-191 6.2-192 6.2-193	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	The table rows, 1.3.1.3 to 1.3.1.6, were moved from page 6.2-180 and 6.2-181, and inserted between 1.3.1.2 and 1.3.1.7	1
MIC-03-06-00029	Table 6.2.2-2 (Sheet 9 of 17) Regulatory position 1.3.1.8.	6.2-191	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“Regulatory Position 3.4” was correctly read as “Regulatory Position 1.3.4”. (Typical two places.)	1
MIC-03-06-00030	Table 6.2.2-2 (Sheet 10 of 17) Regulatory	6.2-192	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287	“NEI 04-07” was correctly referred as “the SE of NEI 04-07”	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	position 1.3.1.9		Dated 08/31/2011	Replaced with the statement to refer precise subsections and technical reports for compliance with the regulatory position 1.3.	1
MIC-03-06-00031	Table 6.2.2-2 (Sheet 12 of 17) Regulatory position 1.3.2.2	6.2-194	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add to state that ZOI(s) based of SE of NEI-04-07 were utilized. Add to refer NRC letter for the use of reduced ZOI for protective coating. Replaced with the statement to refer precise subsections and technical reports for compliance with the regulatory position.	1
MIC-03-06-00032	Table 6.2.2-2 (Sheet 12 of 17) (Sheer 13 of 17) (Sheet 14 of 17)	6.2-195	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	The table rows, 1.3.2.3 to 1.3.2.4, were moved from page 6.2-183 and 6.2-184, and inserted between 1.3.2.2 and 1.3.2.5.	1
MIC-03-06-00033	Table 6.2.2-2 (Sheet 13 of	6.2-196	GSI-191, Tracking Report	Address contrastively with	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	17) Regulatory position 1.3.2.6		MHI Letter No. UAP-HF-11287 Dated 08/31/2011	regulatory position how chemical debris was considered in the US-APWR design.	
MIC-03-06-00034	Table 6.2.2-2 (Sheet 13 of 17) Regulatory position 1.3.2.7	6.2-196	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Address contrastively with regulatory position regarding debris degradation in the analysis.	1
MIC-03-06-00035	Table 6.2.2-2 (Sheet 13 of 17) Regulatory position 1.3.2.3	6.2-195 6.2-196	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add to state that ZOI(s) based of SE of NEI-04-07 were utilized, and state to refer precise subsection for compliance with the regulatory position.	1
MIC-03-06-00036	Table 6.2.2-2 (Sheet 14 of 17) Regulatory position 1.3.2.4	6.2-195	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add statement to refer precise subsection for compliance with the regulatory position.	1
MIC-03-06-00037	Table 6.2.2-2 (Sheet 14 of 17) Regulatory position 1.3.3.1.	6.2-197	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replace with updated clarification for debris transport analysis.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-06-00038	Table 6.2.2-2 (Sheet 14 of 17) Regulatory position 1.3.3.2.	6.2-197	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Summarize debris type and erosion used in transport analysis.	1
MIC-03-06-00039	Table 6.2.2-2 (Sheet 14 of 17) Regulatory position 1.3.3.3.	6.2-197	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Address that CFD was not utilized for the US-APWR debris transport analysis.	1
MIC-03-06-00040	Table 6.2.2-2 (Sheet 15 of 17) Regulatory position 1.3.3.4.	6.2-198	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Address that CFD was not utilized for the US-APWR debris transport analysis.	1
MIC-03-06-00041	Table 6.2.2-2 (Sheet 15 of 17) Regulatory position 1.3.3.5.	6.2-198	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Address that curbs on the RWSP floor was not credited to reduce the transportable debris to the strainer.	1
MIC-03-06-00042	Table 6.2.2-2 (Sheet 15 of 17) Regulatory position 1.3.3.6.	6.2-198	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Summarize that all debris in the pool was assumed transportable.	1
MIC-03-06-	Table 6.2.2-2	6.2-199	GSI-191,	"Regulatory	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
00043	(Sheet 15 of 17) Regulatory position 1.3.3.8.		Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Position 3.3.4" was correctly read as "Regulatory Position 1.3.3.4"	
				Replaced with the summary of debris transport and addressed that potential choke points has been surveyed and assessed in the evaluation.	1
MIC-03-06-00044	Table 6.2.2-2 (Sheet 16 of 17) Regulatory position 1.3.3.9.	6.2-199	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced the wording "RWSP suction strainer" with "ECC/CS strainer".	1
				Address contrastively with regulatory position that floating debris doe not adverse strainer design.	1
MIC-03-06-00045	Table 6.2.2-2 (Sheet 16 of 17) Regulatory position 1.3.4.1.	6.2-199	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced with the statement regarding assumptions utilized for strainer performance evaluation.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-06-00046	Table 6.2.2-2 (Sheet 16 of 17) Regulatory position 1.3.4.2.	6.2-200	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Address contrastively with regulatory position regarding uniform debris accumulation on the strainer which has been demonstrated by testing.	1
MIC-03-06-00047	Table 6.2.2-2 (Sheet 16 of 17) Regulatory position 1.3.4.3.	6.2-200	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced with the statement regarding assumptions utilized for strainer performance evaluation.	1
MIC-03-06-00048	Table 6.2.2-2 (Sheet 16 of 17) Regulatory position 1.3.4.4.	6.2-200	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Inserted “the” before “US-APWR”. Replaced the wording “RWSP suction strainer” with “ECC/CS strainer”. Delete submergence value (i.e. 4ft) from the statement.	1
MIC-03-06-00049	Table 6.2.2-2 (Sheet 17 of	6.2-201	GSI-191, Tracking Report	Replaced with statement how	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	17) Regulatory position 1.3.4.5.		MHI Letter No. UAP-HF-11287 Dated 08/31/2011	design basis head loss was determined with a sufficient margin to empirical data obtained from strainer testing which was performed debris accumulation without unobstructed portion.	
MIC-03-06-00050	Table 6.2.2-2 (Sheet 17 of 17) Regulatory position 1.3.4.6.	6.2-201	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Replaced with statement how design basis head loss was determined with a sufficient margin to empirical data obtained from strainer testing which was implemented under different debris combinations.	1
MIC-03-06-00051	6.3.2.2.3 “Refueling water storage pit” 2^{nd} paragraph, last sentence	6.3-7	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	The RWSP peak temperature was corrected as 270F, which is consistent with the correction in subsection 6.2.2.2.5.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-06-00052	6.3.2.2.4 “ECC/CS strainer” 3rd paragraph, last sentence	6.3-8	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“Subsection 6.2.2.26” was correctly read as “Subsection 6.2.2.2.6”	1
MIC-03-06-00053	6.3.2.2.4 “ECC/CS strainer” 4th paragraph, 1st sentence	6.3-8	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	“NEI 04-07” was correctly referred as “the SE of NEI 04-07”	1
MIC-03-06-00054	Table 6.3-2 USI A-43	6.3-31	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add statement to refer new subsection for addressing Unresolved Safety Issue A-43.	1
MIC-03-06-00055	Table 6.3-3 GSI-191	6.3-33	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add statement to refer new subsection for addressing GSI-191.	1
MIC-03-06-00056	Table 6.3-4 GL 98-04	6.3-39	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add statement to refer new subsections for addressing GL 98-04.	1
MIC-03-06-00057	Table 6.3-4 BL 93-02	6.3-41	GSI-191, Tracking Report MHI Letter No.	Add statement to refer new subsection for	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			UAP-HF-11287 Dated 08/31/2011	addressing BL 93-02.	
MIC-03-06-00058	Table 6.3-4 BL 95-02	6.3-41	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add statement to refer new subsection for addressing BL 95-02.	1
MIC-03-06-00059	Table 6.3-4 BL 96-03	6.3-42	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add statement to refer new subsection for addressing BL 96-03.	1
MIC-03-06-00060	Table 6.3-4 GL 2004-02	6.3-43	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Delete referred technical reports from the Table 6.3-4.	1
MIC-03-06-00061	Table 6.3-4 BL 2003-01	6.3-44	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Delete referred technical reports from the Table 6.3-4.	1
MIC-03-06-00062	Table 6.3-5 ECC/CS strainer (Sheet 1 of 3)	6.3-45	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated strainer surface area per train (i.e., 2,754ft^2) Updated design basis debris head loss. (4.0 ft at	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				120F)	
MIC-03-06-00063	Table 6.3-5 ECC/CS strainer (Sheet 1 of 3)	6.3-45	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated NPSH available and Design basis NPSH required.	1
MIC-03-06-00064	Table 6.3-5 ECC/CS strainer (Sheet 2 of 3)	6.3-46	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Add Note 3.	1
MIC-03-06-00065	Table 6.3-5 RWSP (Sheet 3 of 3)	6.3-47	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Updated the design temperature of TWSP and calculated peak temperature.	1
DCD_06.02.06-34	6.2.3 6.2.6.5 6.2.9 Table 6.2.4-3 (Sheets 1, 6-9, 15) 6.5.1 6.5.3.2	6.2-52 6.2-67 6.2-70 6.2-194 6.2-199 through 6.2-202 6.2-208 6.5-1 6.5-10 6.5-11	Response to RAI No. 866 MHI Letter No. UAP-HF-12002 Date 01/06/2012	Added descriptions regarding bypass leak path. Added reference 6.2-51. Revised Table 6.2.4-3 to add note 9	-
DCD_06.03-103	6.3.2.5	6.3-15	Response to RAI No. 867 MHI Letter No. UAP-HF-12003	Added description regarding confirmation for SI pump minimum	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			Date 01/06/2012	flow condition.	
MIC-03-06-00067	6.2.8	6.2-67 [6.2-78]	Result of COL ITEMS Consistency Review at making DCD R3 UTR Rev2	The "2" in "ft2" should be a superscript.	2

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

COL 6.2(5) *Preparation of a cleanliness, housekeeping and foreign materials exclusion program is the responsibility of the COL Applicant. This program ~~addresses other debris sources such as latent debris inside containment. This program minimizes foreign materials in the containment.~~will be established to limit 200lbs of latent debris, and to limit the allocated 200ft^2 of miscellaneous debris per sump.* MIC-03-06-00007 MIC-03-06-00067

COL 6.2(6) *Preparation of administrative procedures is the responsibility of the COL Applicant. The procedures will ensure that RMI and fiber insulation debris within ZOIs will be consistent with the design basis debris specified in the Table 6.2.2-4, and will ensure that the aluminum in containment exposed to water in containment in post-LOCA condition (i.e., spray and blowdown water) is limited to equal or less than 810ft^2.* MIC-03-06-00008 DCD_06.02.02-66

COL 6.2(7) *Deleted*

COL 6.2(8) *The COL Applicant is responsible for identifying the implementation milestone for the containment leakage rate testing program described under 10 CFR 50, Appendix J.*

COL 6.2(9) *Deleted*

COL 6.2(10) *Deleted*

6.2.9 References

6.2-1 GOTHIC Containment Analysis Package User Manual, Version 7.2a(QA), NAI 8907-02, Rev. 17, Numerical Applications Inc., Richland, WA, January 2006.

6.2-2 GOTHIC Containment Analysis Package Technical Manual, Version 7.2a(QA), NAI 8907-06, Rev. 16, Numerical Applications Inc., Richland, WA, January 2006.

6.2-3 GOTHIC Containment Analysis Package Qualification Report, Version 7.2a(QA), NAI 8907 09, Rev. 9, Numerical Applications Inc., Richland, WA, January 2006.

6.2-4 LOCA Mass and Energy Release Analysis Code Applicability Report for US-APWR, MUAP-07012-P-A Rev. 2 (Proprietary) and MUAP-07012-NP Rev. 2 (Non-Proprietary), June 2009.

6.2-5 Letter from Gerald T. Bischof (Virginia Electric and Power Company) to United States Nuclear Regulatory Commission dated November 6, 2006, Transmittal of Approved Topical Report DOM-NAF-3 NP-A, "GOTHIC Methodology for Analyzing the Response to Postulated Pipe Ruptures inside Containment." ADAMS Accession No. ML063190467.

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Chapter 7

Chapter 7 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_07-07-30	Table 7.1-2	7.1-21 through 7.1-28	Response to RAI No. 688 MHI Letter No. UAP-HF-11055 Date 02/03/2011	Revised Table 7.1-21 for RAI response.	-
DCD_07.01-25	7.1.4 7.1.4.1, 7.1.4.1.1, 7.1.4.1.2, 7.1.4.1.2.1, 7.1.4.1.2.2, 7.1.4.1.2.3, 7.1.4.1.2.4, 7.1.4.1.3, 7.1.4.1.4, 7.1.4.1.5, 7.1.4.2, 7.1.4.2.2, 7.1.4.2.2.1, 7.1.4.2.2.2, 7.1.4.2.2.3, 7.1.4.2.2.4, 7.1.4.2.3 , 7.1.4.2.4, 7.1.4.2.5(New section)	7.1-17	Response to RAI No. 692 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Added new Subsection 7.1.4.	-
DCD_07.01-26	7.1.3.10	7.1-12	Response to RAI No. 698 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Added the last paragraph for RAI response.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_07.01-28	7.1.3.8	7.1-11	Response to RAI No. 720 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Added the last paragraph for RAI response.	-
DCD_07.08-16	7.8.1.1.2 7.8.1.2.1 7.8.1.2.2	7.8-3 7.8-5	Response to RAI No. 700 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Revised the Subsections for RAI response.	-
DCD_07.05-18	7.5.1.1	7.5-2	Response to RAI No. 568 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Revised the Subsections for RAI response.	-
DCD_07.05-20	7.5.1.3	7.5-9	Response to RAI No. 656 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Revised the Subsection for RAI response.	-
DCD_07.06-16	7.6.1.4	7.6-4	Response to RAI No. 239 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Added the third paragraph for RAI response.	-
DCD_07.06-21	7.6.3	7.6-8	Response to RAI No. 638 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Revised the third paragraph for RAI response.	-
DCD_07.07-31	7.1.3.7 Table	7.1-10	Response to RAI No. 688 MHI	Added the fourth paragraph of	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	7.1-2 (Sheet 6 of 8)	7.1-26	Letter No. UAP-HF-11127 Date 04/28/2011	Subsection 7.1.3.7 for RAI response. Revised Table 7.1-2 for RAI response.	
DCD_07-21 BTP-4	Table 7.2-3	7.2-22	Response to RAI No. 593 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Revised Table 7.2-3 for RAI response.	-
DCD_07.09-19 DCD_07.09-20 DCD_07.09-21 DCD_07.09-22	7.9.2.7	7.9-8-7.9-9 [7.9-8 7.9-9 7.9-10]	Response to RAI No. 701 MHI Letter No. UAP-HF-11127 Date 04/28/2011	Revised Subsection 7.9.2.7 for RAI response.	-
DCD_07.06-25	7.1.1.11 (new section) 7.6.1	7.1-7 7.6-1	Response to RAI No. 702 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the new Subsection 7.1.1.11. Revised Subsection 7.6.1 for RAI response.	-
DCD_07.06-26	7.1.1.11 (new section) Table 7.1-4(new table) 7.3.1.1 7.6.1 7.6.1.2 Figure 7.6-2 7.6.2.5 7.6.3	7.1-7 7.1-29 7.3-3 7.6-1 7.6-2 7.6-11 7.6-7	Response to RAI No. 702 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the new Subsection 7.1.1.11. Added the new Table 7.1-4. Revised Subsections 7.3.1.1, 7.6.1, 7.6.1.2, 7.6.2.5, 7.6.3 for RAI response. Deleted Figure 7.6-2.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_07.02-05	7.2.3.1	7.2-16	Response to RAI No. 727 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection for RAI response.	-
DCD_07.02-07	Table 7.2-8 7.2.3.1 Table 7.3-7 Figure 7.2-8 Figure 7.3-6 7.3.3.1 7.3.1.2 7.9.2.4	7.2-29 7.2-31 7.2-16 7.2-17 7.3-32 through 7.3-35 7.2-59 7.3-41 7.3-18 7.3-1 7.9-8	Response to RAI No. 727 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Deleted Tables 7.2-8 and 7.3-7 and Figures 7.2-8 and 7.3-6. Revised Subsections 7.2.3.1, 7.3.3.1, 7.3.1.2 and 7.9.2.4.	-
DCD_07.01-11	7.7.2.9 Table7.7-5	7.7-21 7.7-26	Response to RAI No. 229 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection 7.7.2.9 for RAI response. Added the new Table 7.7.5 for RAI response.	-
DCD_07.01-26	7.1.3.10	7.1-12	Response to RAI No. 698 MHI Letter No. UAP-HF-11159 Date	Added the last paragraph to Subsection 7.1.3.10 for RAI response.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			05/31/2011		
DCD_07.02-3	7.2.1 7.2.1.4.3.1 7.2.1.4.3.2 7.2.5	7.2-2 7.2-9 7.2-18	Response to RAI No. 672 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsections 7.2.1, 7.2.1.4.3, 7.2.1.4.3.1, 7.2.1.4.3.2 and 7.2.5 for RAI response.	-
DCD_07.07-32	7.1.3.20 Table 7.1-5	7.1-17-7.1.18 7.1-29	Response to RAI No. 688 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the new Subsection 7.1.3.20 and Table 7.1-5 for RAI response.	-
DCD_07.08-16	Figure 7.8-5(new figure) Figure 7.8-6(new figure)	7.8-23	Response to RAI No. 700 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the new Figures 7.8-5 and 7.8-6 for RAI response.	-
DCD_07.09-12	7.9.2.7	7.9-8	Response to RAI No. 231 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection 7.9.2.7 for RAI response.	-
DCD_07.09-21	7.9.2.7	7.9-8	Response to RAI No. 701 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection 7.9.2.7 for RAI response.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_14.03.05-12	7.3.1.4 7.2.1.3 Table7.2-3 Table7.3-4	7.3-5 7.2-3 7.2-21 thorugh 7.2-23 7.3-26 7.3-27 7.4-3	Response to RAI No. 255 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection 7.3.1.4 and 7.2.1.3 for RAI response. Revised Tables 7.2-3 and 7.3-4 for RAI respone.	-
DCD_14.03.05-31	7.4.1.1 7.4.1.5 7.4.1.6.2.1	7.4-1 7.4-3 7.4-6	Response to RAI No. 275MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection 7.4.1.1, 7.4.1.5 and 7.4.1.6.2.1 for RAI response.	-
DCD_07.05-19	7.5.1.1.4 7.5.5	7.5-6 7.5-18	Response to RAI No. 656 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection 7.5.1.1.4 for RAI response. Added the reference 7.5-22 for the RAI response.	-
DCD_07.01-30	Acronyms and Abbreviations	7-xvii 7-xviii	Response to RAI No. 722 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added items S-VDU and O-VDU.	-
DCD_07.01-27	7.1.3.16	7.1-16	Response to RAI No. 705 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsection 7.1.3.6 for RAI response.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_07.01-28	7.1.6	7.1-19	Response to RAI No. 705 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added a reference of 7.1-33 for RAI response.	-
DCD_07.01-29	7.1 7.1.2 7.1.3.17 7.1.6 Figure 7.1-2 Figure 7.1-3 7.2.1.4 7.2.1.4.1 7.2.1.4.8 7.2.2.3 7.2.3.2 Table 7.2-3 7.3.1.2 7.3.1.5.7 7.3.1.5.8.2 7.3.1.5.9 7.3.1.6 7.3.1.8 Table 7.3-4 7.4.1.5 Figure 7.4-1 7.5.1.1.4 7.5.1.3 7.5.1.5.1 7.5.1.6.1 7.5.5	7.1-1 7.1-7 7.1-16 7.1-19 7.1-31 7.1-32 7.2-4 7.2-10 7.2-11 7.2-14 7.2-17 7.2-21 through 7.2-23 7.3-3 7.3-10 7.3-11 7.3-13 7.3-15 7.3-26 7.3-27 7.4-4 7.4-18 7.5-5 7.5-7 7.5-9 7.5-12 7.5-13	Response to RAI No. 722 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised whole document to enhance its specificity for RAI response.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	Table 7.5-4 Figure 7.5-3 7.6.1.1 7.7.1.1.11.3 7.7.1.5.2 7.7.2.10 7.8.1.1.2 7.8.5 Table 7.8-6 Table 7.8-7 7.9 7.9.1 7.9.1.5 7.9.2.1 7.9.2.3.6 7.9.2.8 7.9.2.9 Table 7.9-1 Figure 7.9-1	7.5-18 7.5-24 7.5-33 7.6-1 7.7-11 7.7-16 7.7-21 7.8-3 7.8-9 7.8-14 7.8-15 7.8-16 7.8-19 7.9-1 7.9-2 7.9-3 7.9-4 7.9-5 7.9-7 7.9-9 7.9-12 7.9-13			
DCD_07.01-30	7.1 7.1.1 7.1.1.1 7.1.1.2 7.1.1.3.3 7.1.1.4.2 7.1.1.5.4 7.1.1.8 7.1.1.10 7.1.3.1	7.1-1 7.1-2 7.1-3 7.1-4 7.1-5 7.1-6	Response to RAI No. 722 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised whole document to keep consistency among related documents for RAI response.	-

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	7.1.3.3 7.1.3.4 7.1.3.5 7.1.3.6 7.1.3.7 7.1.3.10 7.1.3.11 7.1.3.14 7.1.3.16 7.1.3.17 7.1.3.19 7.1.5 7.2.1 7.2.1.2 7.2-1-3 7.2.1.3 7.2.1.4.1 7.2.1.4.1.2 7.2.1.4.1.3 7.2.1.4.2.2 7.2.1.4.2.3 7.2.1.4.3.1 7.2.1.4.3.3 7.2.1.4.3.4 7.2.1.4.3.5 7.2.1.4.4.1 7.2.1.4.4.2 7.2.1.4.5 7.2.1.4.6	7.1-8 7.1-9 7.1-10 7.1-12 7.1-13 7.1-14 7.1-15 7.1-16 7.1-17 7.1-19 7.2-1 7.2-2 7.2-2 7.2-3 7.2-3 7.2-4 7.2-5 7.2-6 7.2-7 7.2-9 7.2-10			

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	7.2.1.4.8 7.2.1.5 7.2.1.6 7.2.1.6.2 7.2.1.7 7.2.1.9 7.2.2.1 7.2.2.2 7.2.2.7 7.2.2.7.1 7.2.2.7.2 7.2.3 7.2.3.1 7.2.3.2 7.2.3.5 Table 7.2-1 Table 7.2-2 Table 7.2-3 7.3.1 7.3.1.1 7.3.1.2 7.3.1.2.1 7.3.1.2.3 7.3.1.4 7.3.1.5 7.3.1.5.1 7.3.1.5.7 7.3.1.5.8.2 7.3.1.6 7.3.1.6.1 7.3.1.6.2	7.2-11 7.2-12 7.2-13 7.2-14 7.2-15 7.2-16 7.2-17 7.2-18 7.2-19 7.2-20 7.2-21 through 7.2-23 7.3-1 7.3-2 7.3-3 7.3-4 7.3-5 7.3-6 7.3-8 7.3-10 7.3-11 7.3-13 7.3-13			

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	7.3.1.8 7.3.1.9 7.3.2.1 7.3.2.2 7.3.2.7 7.3.3.2 Table 7.3-1 Table 7.3-2 Table 7.3-4 7.4.1.1 7.4.1.3 7.4.1.4 7.4.1.5 7.4.2.1 7.4.2.2 7.4.2.3 7.4.2.4 7.4.2.5 7.4.2.6 7.4.3 7.4.3.1 7.5.1 7.5.1.1 7.5.1.1.1 7.5.1.1.3.3 7.5.1.1.4 7.5.1.2.1 7.5.1.3 7.5.1.4 7.5.1.5.1 7.5.3 7.5.5	7.3-15 7.3-17 7.3-18 7.3-21 7.3-22 7.3-26 7.3-27 7.4-1 7.4-2 7.4-3 7.4-4 7.4-8 7.4-9 7.5-1 7.5-2 7.5-3 7.5-5 7.5-6 7.5-7 7.5-9 7.5-10 7.5-11 7.5-12 7.5-16			

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	7.6.1 7.6.1.1 7.6.1.2 7.6.1.3 7.6.1.4 7.6.1.5 7.6.1.6 7.6.1.7 7.6.2.2 7.6.3 7.6-4 7.7.1.1.2 7.7.1.1.3 7.7.1.1.6 7.7.2.1 7.7.2.3 7.7.2.8 7.7.2.10 7.7.5 7.8 7.8.1 7.8.1.1 7.8.1.1.1 7.8.1.1.2 7.8.1.2 7.8.1.2.3(new section) 7.8.2.2 7.8.2.3 7.8.2.4 7.8.2.9 7.9 7.9.1.1 7.9.1.1.1 7.9.1.1.2	7.5-18 7.6-1 7.6-2 7.6-3 7.6-4 7.6-5 7.6-5 7.6-7 7.6-8 7.7-3 7.7-4 7.7-6 7.7-18 7.7-20 7.7-21 7.7-22 7.8-1 7.8-2 7.8-3 7.8-4 7.8-5 7.8-6 7.8-7 7.8-8 7.9-1 7.9-2			

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	7.9.1.2 7.9.1.3 7.9.1.4 7.9.1.5 7.9.2.2 7.9.2.3 7.9.2.3.1 7.9.2.3.3 7.9.2.3.4 7.9.2.3.6 7.9.2.4 7.9.2.5 7.9.2.7 7.9.2.8 7.9.2.9 7.9.2.11 7.9.2.12 7.9.2.13 7.9.3 7.9-5	7.9-3 7.9-4 7.9-6 7.9-7 7.9-8 7.9-9 7.9-10 7.9-11			
DCD_07.01-27	7.1.3.20(new section)	7.1-17	Response to RAI No. 705 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added the new Subsection 7.1.3.20 for RAI response.	-
DCD_SI64	7.1.3.5 7 7.1.3.12 7.1.6 7.2.1.4.8 7.4.3.2	7.1-9 7.1-13 7.1-19 7.2-11 7.2-10	Response to RAI No. SI36 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Revised Subsections 7.1.3.5, 7.1.3.7, 7.1.6, 7.2.1.4.8 and 7.4.3.2 for RAI response.	-
MIC-03-07-00001	7.1 7.1.2 7.1.3 7.1.3.7 7.1.3.10	7.1-1 7.1-7 7.1-9 7.1-10	Editorial Correction	Revised whole document for editorial correction.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	7.1.3.14 7.1.3.17 7.1.6 7.2.1.4.8 7.2.5 7.3.1.2.1 7.3.1.5 7.3.1.11 7.3.1.12 Figure 7.3-3 7.4.2.2 7.5.1.1.1 7.5.1.1.3.1 7.5.1.1.4 7.5.1.5.1 7.5.5 7.7 7.8.1.1.2 7.8.2.1 7.8.2.8 7.9.1.5	7.1-12 7.1-14 7.1-16 7.1-19 7.2-10 7.2-11 7.2-18 7.3-4 7.3-6 7.3-16 7.3-38 7.4-8 7.5-4 7.5-4 7.5-5 7.5-12 7.5-18 7.7-1 7.8-3 7.8- 6 7.8-7 7.9-5			

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-07-00002	7.1 7.1.1.4.2 7.1.1.5.1 7.1.1.5.2 7.1.2 7.1.3 7.1.4.2.2.3 7.1.4.2.2.4 7.1.4.2.3 7.2.1 7.5.1.1 Figure 7.5-5 7.5.1.1.2 7.5.1.5.1 7.9.1.2 7.9.1.3 figure 7.1-1 7.9.2.3.2	7.1-1 7.1-4 7.1-5 7.1-7 7.1-36 7.1-39 7.2-1 7.3-2 7.5-1 7.5-4 7.5-12 7.5-35 7.9-2 7.9-3 7.1-30 7.9-7	Commitment to NRC	Revised whole document to describe about multidivisional S-VDU.	-
MIC-03-07-00003	7.1.1.5.2 7.1.3.6 7.4.1.5 7.5.1.2	7.1-5 7.1-9, 7.1-10 7.4-4 7.5-7	Commitment to NRC	Revised Subsections 7.1.1.5.2, 7.1.3.6 and 7.5.1.2 for Staff requests.	-
MIC-03-07-00004	7.7.1.13 (new section) 7.7.1.13.1 (new section) 7.7.1.13.2(new section) 7.9.1.1.2 7.9.5 Figure 7.3-4	7.7-18 7.7-18 7.9-1 7.9-11 7.3-39	Commitment to NRC	Added the new Subsections 7.7.1.13, 7.7.1.13.1 and 7.7.1.13.2 for Staff requests. Revised Subsections 7.9.1.1.2 and 7.9.5 for Staff requests. Revised Figure 7.3-4	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				for Staff requests.	
MIC-03-07-00005	7.8.1.1.1 7.8.1.1.2 7.8.1.2.1 7.8.1.2.3 Table 7.8-1 Table 7.8-3 Table 7.8-4 Table 7.8-5 Table 7.8-6 Figure 7.8-4(new Figure) 7.9.2.2	7.8-2 7.8-3 7.8-5 7.8-10 7.8-11 7.8-12 7.8-13 7.8-14 7.8-23 7.9-6	Commitment to NRC MHI Letter No. UAP-HF-11145 Date 5/20/2011	Revised Section 7.8.	-
MIC-03-07-00006	7.1.3.13 7.1.3.17	7.1-14 7.1-16	Commitment to NRC. MHI Letter No. UAP-HF-11114 Date 4/20/2011	Added the last paragraph to Subsection 7.1.3.13. Revised Subsection 7.1.3.17.	-
DCD_07.04-21	7.4.2.5	7.4-9	Response to RAI No. 671 MHI Letter No. UAP-HF-10350 Date 12/28/2010	Added the last paragraph to Subsection 7.2.4.5 for RAI response.	-
DCD_07.04-20	7.4.1.5	7.4-4	Response to RAI No. 671 MHI Letter No. UAP-HF-10350 Date 12/28/2010	Revised Subsection 7.4.1.5 for RAI response.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_07.04-22	7.4.2.2	7.4-8	Response to RAI No. 671 MHI Letter No. UAP-HF-10350 Date 12/28/2010	Revised Subsection 7.4.2.2.	-
DCD_07.01-27	7.4.2.3 7.5.1.3 7.5.1.4 7.5.1.5 7.7.2.6 7.8.2.7	7.4-8 7.5-10 7.5-11 7.7-20 7.8-7	Response to RAI No. 705 MHI Letter No. UAP-HF-11159 Date 5/31/2011	Revised Subsections 7.4.2.3, 7.5.1.3, 7.5.1.4, 7.5.1.5, 7.7.2.6 and 7.8.2.7 for RAI response.	
DCD_07.02-3	7.2.1.4.3	7.2-6	Response to RAI No. 672 MHI Letter No. UAP-HF-11204 Date 07/1/2011	Added a paragraph to the Subsection 7.2.1.4.3 for RAI response.	-
DCD_09.02.02-48	7.6.1.5 Figure 7.6-6	7.6-4 7.6-5 7.6-15	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Replaced Subsection 7.6.1.5 “CCW Supply and Return Header Tie Line Isolation Interlock” with “Not Used” because automatic isolation of the header tie line does not occur and manual action is required to achieve independence between trains. Deleted Figure 7.6-6 consistent with deletion of automatic interlocks for header tie line valves.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_15.4.6-9	Table 7.5-5	7.5-25	Response to RAI No. 708 MHI Letter No. UAP-HF-11104 Date 04/15/2011	Revised the alarm for Inadvertent Decrease in Boron Dilution in RCS in Table 7.5-5	-
DCD_16-298	Table 7.5-5	7.5-25	Response to RAI No. 399 MHI Letter No. UAP-HF-11160 Date 05/30/2011	Deleted the second item for RAI response.	-
DCD_07.09-24	7.9.1.1.2	7.9-2	Response to RAI No. 778 MHI Letter No. UAP-HF-11244 Date 8/1/2011	Added a paragraph to the Subsection 7.9.1.1.2 for RAI response.	-
DCD_07.01-42	7.9.1.5	7.9-4 7.9-5	Response to RAI No. 771 MHI Letter No. UAP-HF-11244 Date 8/1/2011	Added a sentence to the Subsection 7.9.1.5 for RAI response.	-
DCD_09.02.02-48	7.6.1.5 Figure 7.6-6	7.6-4 7.6-5 7.6-15	2nd Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Revised the description of subsection 7.6.1.5 to reflect the interlock important to safety for non-safety portion isolation in CCWS. Revised the figure 7.6-6 to reflect the interlock of A2(C2) CCW supply line	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				isolation	
DCD_07.08-24	7.8 7.8.1.1 7.8.1.1.1 7.8.1.2 7.8.2.1 7.8.2.4 7.8.2.5 7.8.2.6	7.8-1 7.8-2 7.8-3 7.8-4 7.8-6 7.8-7	Response to RAI No. 775-5836 MHI Letter No. UAP-HF-11314 Date 09/13/2011	Revised Section 7.8 for RAI response.	-
DCD_07.08-23	7.8.1.1 7.8.1.2	7.8-2 7.8-4	Response to RAI No. 775-5836 MHI Letter No. UAP-HF-11314 Date 09/13/2011	Revised Subsections 7.8.1.1 and 7.8.1.2 for RAI response.	-
DCD_07.09-23	7.9.2.6 7.9.4	7.9-8 7.9-10	Response to RAI No. 710-5493 MHI Letter No. UAP-HF-11314 Date 09/13/2011	Deleted the last sentence of Section 7.9.2.6 for RAI response. Deleted the COL item 7.9(1) for RAI response.	-
DCD_07.08-17	Table 7.8-6	7.8-14	Response to RAI No. 753 MHI Letter No. UAP-HF-11329 Date 09/30/2011	Revised table 7.8-6 for RAI response	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_07.08-24	Table 7.8-7 (Sheet 5)	7.8-19	Response to RAI No. 775-5836 MHI Letter No. UAP-HF-11412 Date 11/29/2011	Revised Sheet 5 of Table 7.8-7 for RAI response	-
DCD_07.08-25	7.8.1.1.3	7.8-3	Response to RAI No. 829 MHI Letter No. UAP-HF-11142 Date 11/29/2011	Revised Section 7.8.1.1.3 for RAI response.	-
MIC-03-07-00008	7.8.1.2.2 7.8.1.2.3 Table 7.8-8 (new table) Table 7.8-9 (new table)	7.8-5 7.8-20	MHI Letter No. UAP-HF-11314 Date 09/13/2011	Revised Sections 7.8.1.2.2 and 7.8.1.2.3 for RAI response. Added new Tables 7.8-8 and 7.8-9 for RAI response.	-
MIC-03-07-00009	7.6.3	7.6-8	MHI Letter No. UAP-HF-11352 Date 10/12/2011	Revised the Section 7.6.3 for response to NRC staff's request.	-
MIC-03-07-00009	Table 7.2-3 (sheet 3) Table 7.3-4 (sheet 2) Table 7.8-6	7.2-23 7.3-27 7.8-14	MHI Letter No. UAP-HF-11338 Date 10/04/2011	Revised Tables 7.2-3, 7.3-4 and 7.8-6 for response to NRC's request.	-

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

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Chapter 8

Chapter 8 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_15.0.0-24	8.2.3 8.2.4	8.2-9 8.2-11	Response to RAI No. 687 MHI Letter No. UAP-HF-11049 Date 02/25/2011	Added “The interface requirement for offsite power is maintaining a transmission system operating voltage of ±10% and a frequency of ±5% at the interface point between the transmission and offsite power system as defined in DCD Section 8.1.2.2. The COL Applicant is to perform a grid stability analysis to confirm this interface requirement.” Deleted “the main generator (turbine generator coast down) or” Added “Meeting the interface requirement, as described above, will ensure the availability of the power supply to the RCPs as assumed in Chapter 15.” Replaced “The	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				transient and accident analysis in Chapter 15 ignores this design feature. Added "The grid stability study shows in part that, with no external electrical system failures, the grid will remain stable and the transmission system voltage and frequency will remain within the interface requirements (±10% for voltage and ±5% for frequency) to maintain the RCP flow assumed in the Chapter 15 analysis for a minimum of 3 seconds following reactor/turbine (generator) trip."	
DCD_08.03.01-21 S01	8.3.1.1.9	8.3-30	Response to RAI No. 10 S01 MHI Letter No. UAP-HF-11378 Date 11/7/2011	added the following to the last paragraph of section 8.3.3 "The COL Applicant is to provide a testing methodology and cable monitoring program for underground and inaccessible cables with the scope of the	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				maintenance rule (10CFR 50.65).	
DCD_08.03.02-22	Table 8.3.2-1	8.3-88 through 8.3-91	Response to RAI No.388 MHI Letter No. UAP-HF-11403 Date 11/22/2011	Revised Table 8.3.2-1 to change the Load Current.	-
DCD_08.03.01-38	8.3.1.1.1 8.4.1.3 8.4.2.1.2 8.4.2.2	8.3-2 8.3-3 8.3-39 8.4-3 8.4-7 8.4-9	Response to RAI No. 394 MHI Letter No. UAP-HF-11404 Date 11/22/2011	Revised the description for adopting different manufacturers for the AAC GTG and Class 1E GTG ensures diversity.	-
DCD_08.04-12	8.4.2.1.2	8.4-7	Response to RAI No. 419 MHI Letter No. UAP-HF-11405 Date 11/22/2011	Deleted the description about Core and reactor coolant system (RCS) condition	-
DCD_15.0.0-24 S01	8.2.3 8.2.4	8.2-9 8.2-10	Response to RAI No. 687 MHI Letter No. UAP-HF-11295 Date 09/09/2011	Revised the third paragraph of subsection 8.2.3 from the previous revision shown in UAP-HF-11049 following the agreement of tel-meeting with NRC.	-
DCD_09.02.02-82	8.4.2.1.2	8.4-8	Response to RAI No. 760 MHI Letter No. UAP-HF-12043 Date 02/15/2012	Added cross-reference to Section 5.4.1.4.9.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_08.04-15	8.4.2.1.2	8.4-8	Response to RAI No. 875 MHI Letter No. UAP-HF-12018 Date 1/27/2012	Added description for the integrity of T/D EFW pump.	-

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

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Chapter 9

Chapter 9 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
DCD_14.03.07-56	9.4.5.5	9.4-36	Response to RAI No. 675 MHI Letter No. UAP-HF-11021 Date 01/31/2011	Replaced “Table 3.D-2” with “Table 3D-2”. Replaced “Ref.9.4.8-12” with ” Ref.9.4.8-11” Replaced “Ref.9.4.8-13” with ” Ref.9.4.8-12” Replaced “Ref.9.4.8-14” with ” Ref.9.4.8-13”	-
DCD_06.04-14	9.2.7.2.1 9.2.7.2.2	9.2-45 9.2-46 9.2-48	Response to RAI No. 691 MHI Letter No. UAP-HF-11061 Date 03/09/2011	Revised the 6th paragraph of Subsection 9.2.7.2.1 for RAI response. Revised the 2nd paragraph of Subsection 9.2.7.2.2 for RAI response.	-
DCD_09.04.04-7	9.4.4.1.1	9.4-22	Response to RAI No. 713 MHI Letter No. UAP-HF-11098 Date	Added description about “important for safety as the second sentence of Subsection 9.4.4.1.1	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
			04/06/2011	Deleted “Therefore,” and added “for safety related nor SSCs important to safety,” in the third sentence.of Subsection 9.4.4.1.1	
RCOL2_12.03-12.04-11 S02	9.2.6.2.4 Figure 9.2.6-1	9.2-40 9.2-109	MHI Letter No. UAP-HF-11091 Date 04/6/2011	AAdded description about CST overflow in the last of the first paragraph of Subsection 9.2.6.2.4. Added CST overflow line in Figure 9.2.6-1	-
DCD_09.01.04-22	9.1.4.2.1.13 (new section) 9.1.4.2.2.2 Figure 9.1.4-3 (new figures)	9.1-28 9.1-28 9.1-61	Response to RAI No. 721 MHI Letter No. UAP-HF-11115 Date 04/20/2011	Added description about a permanent cavity seal. Added description about operation after leakage from the refueling cavity during refueling. Added a schematic figure of permanent cavity seal.	-
DCD_11.03-19	Table 9A-2(Sheet 236 of 292)	9A-521	Response to RAI No. 712 MHI Letter No. UAP-HF-11140 Date 5/17/2011	Revised Table 9A-2 reflected on DCD RAI #712 response.	-
DCD_09.01.05-18	9.1.5.2 9.1.5.3	9.1-37 9.1-40	Response to RAI No. 616	Replaced “Table 9.1.5-3” with”Table 9.1.5-4”.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
	Table 9.1.5-3	9.1-52	MHI Letter No. UAP-HF-11175 Date 06/07/2011	Deleted description “equipment Hatch hoist”. Deleted description “,3” Deleted Title and content of Table 9.1.5-3.	
DCD_09.01.03-7	9.1.3.2.1.2 9.1.3.2.1.7 9.1.3.2.1.8 9.1.3.3.1	9.1-17 9.1-20	Response to RAI No. 735 MHI Letter No. UAP-HF-11187 Date 06/22/2011	Added description about SFPCS pump trip on low-low SFP level. Added description about the effect of failure to close the manual valves (or potential leakage) Added description about the effect of potential internally generated missiles on the purification portion of the SFPCS Added description about minimum SFP boiling time	-
DCD_09.05.08-28	9.5.8.2.1 9.5.8.2.2.3 9.5.8.2.3 Figure 9.5.8-1	9.5-46 9.5-47 9.5-168	Response to RAI No. 704 MHI Letter No. UAP-HF-11207 Date 07/04/2011	Revised Subsection 9.5.8.2.1, 9.5.8.2.2.3, and 9.5.8.2.3 for RAI Response. Revised Figure 9.5.8-1 to reasons as discussed in RAI Response.	-
DCD_09.02.02-70	9.2.7.1.2.1	9.2-44 [9.2-59]	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date	Revised the first sentence of first paragraph as follows; “The non-essential chilled water system,	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
			07/15/2011	with the exception of piping and valves between and including the safety-related and seismic category I containment isolation valves, is classified as non-safety related	
DCD_09.02.02-71	9.2.7.1.1 9.2.7.3.1 9.2.7.5.1	9.2-43 [9.2-58] 9.2-48 [9.2-66] 9.2-50 [9.2-67]	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date 07/15/2011	Added the following description. "GDC 2, GDC 4, GDC 44," Revised the description of the fifth paragraph as follows; "The safety-related portions of the ECWS are protected against natural phenomena and internal missiles" Deleted the description about safety related instrumentation and control associated with essential chilled water system.	-
DCD_09.02.02-72	9.2.7.2.1 9.2.7.2.1.1 9.2.7.2.1.1 9.2.7.2.1.2 9.2.7.2.1.2.1 9.2.7.2.1.2.2 9.2.7.2.1.2.3 9.2.7.2.2	9.2-45 9.2-46 9.248 [9.2-59, 60, 61, 62, 63, 64, 65] 9.2-	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date 07/15/2011	Added the following sentence in the first paragraph. "The operating data in Table 9.2.7-1 are determined at the system operating point, which is based on the abnormal	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
	9.2.7.2.2.1 9.2.7.2.2.1.1 9.2.7.2.2.1.2 9.2.7.2.2.1.3 9.2.7.2.2.1.4 9.2.7.3.1 Table 9.2.7-3 9.4.7	91[9.2-119] 9.4-499		operation condition, and are considered bounding values." Added the following in the forth paragraph. "The essential chiller units stop for one hour after a SBO occurs until alternate ac gas turbine generator restores power (Chapter 8, Section 8.4)." Added the ninth paragraph. Revised the tenth paragraph as follows; "The ECWS is a closed-loop system and water chemistry control of ECWS is performed by adding chemicals to the chemical feed tanks to prevent long-term corrosion that may degrade system performance." Added the description about system operation of essential chilled water system. Added the description about alternate cooling in severe accident. Added the description	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				about system operation of non-essential chilled water system. Revised second sentence of first paragraph to clarify Table No. Added the description about the essential chilled water pump Added Table 9.2.7-3. Revised the description of COL item 9.4(4).	
DCD_09.02.02-73	9.2.7.2.1.1	9.2-46 [9.2-62]	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date 07/15/2011	Revised the description about the essential chilled water pump and the essential chilled water compression tank.	-
DCD_09.02.02-74	9.2.7.2.1.1 Figure 9.2.7-1 Figure 9.2.7-2 (sheet 1 and 2 of 3)	9.2-47 [9.2-62] 9.2-112 through 9.2-117[9.2-146 through 9.2-151]	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date 07/15/2011	Revised the description about the essential chilled water compression tank. Revised Figure 9.2.7-1 and sheet 1 and 2 of Figure 9.2.7-2.	-
DCD_09.02.02-78	9.2.7.5.1 9.2.7.5.2 Table 9.2.7-1 Table 9.2.7-2	9.2-50[9.2-67] 9.2-50[9.2-	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date	Corrected the editorial error in second paragraph. Revised the description	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
		68] 9.2-89[9.2-116] 9.2-90, 91[9.2-117, 118]	07/15/2011	about chiller units entering and leaving chilled water temperature, compression tank pressure, compression tank level, chilled water flowrate and chiller unit malfunction. Added “High and low level indication with an alarm of the compression tanks” as the instrumentation and controls serving the non-essential chilled system and provided in the MCR. Revised Table 9.2.7-1 and 9.2.7-2	
DCD_09.02.02-79	9.2.7.2.1.1	9.2-47 [9.2-62]	Response to RAI No. 584 MHI Letter No. UAP-HF-11217 Date 07/15/2011	Revised the description about the essential chilled water compression tank.	-
DCD_09.02.02-48 This change is superseded by the amend RAI Response.	9.2.2.2 9.2.2.2.1.5 9.2.2.5.4	9.2-17[9.2-25] 9.2-18[9.2-26] 9.2-19[9.2-30]	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Revised Subsection 9.2.2.2 to add additional description of isolation of non-safety piping. Revised Subsection 9.2.2.2.1.5 to remove automatic closure of header tie line isolation valves and the necessity	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
		9.2-20[9.2-31] 9.2-26[9.2-40]		to reopen the valves to provide RCP thermal barrier and spent fuel pool heat exchanger cooling. Added statement that the valves are operated from the MCR when an operator determines that train separation is required to Subsection 9.2.2.2.1.5. Add statement that closure time will not be so rapid as to cause a water hammer concern Subsection 9.2.2.2.1.5. Revised Subsection 9.2.2.5.4 to remove reference to automatic header tie line isolation on low-low surge tank water level.	
DCD_09.02.02-48	9.2.2.2 9.2.2.2.1.5 9.2.2.5.4	9.2-25 9.2-26 9.2-31 9.2-40 9.2-41	2nd Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Revised Subsection 9.2.2.2 to add additional description of isolation of non-safety piping. Revised Subsection 9.2.2.2.1.5 to remove automatic closure of header tie line isolation valves and the necessity to reopen the valves to provide RCP thermal barrier and spent fuel	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				pool heat exchanger cooling. Added statement that the valves are operated from the MCR when an operator determines that train separation is required to Subsection 9.2.2.2.1.5. Add statement that closure time will not be so rapid as to cause a water hammer concern Subsection 9.2.2.2.1.5. Revised Subsection 9.2.2.5.4 to remove reference to automatic header tie line isolation on low-low surge tank water level.	
DCD_09.02.02-49 This change is superseded by the amend RAI Response.	9.2.2.2.1.3 9.2.2.3.2	9.2-18[9.2-29] 9.2-24[9.2-37, 38]	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Subsection 9.2.2.3.2 to reflect elimination of header tie line isolation valve on low-low surge tank level. Revised Subsection 9.2.2.3.2 to reflect that makeup capacity exceeds potential leak rate from all valves used to isolate nonsafety piping. Revised Subsection 9.2.2.3.2 to reflect that makeup capacity	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				exceeds potential leak rate from CCWS seal failure. Revised Subsection 9.2.2.3.2 to reflect that surge tank makeup is not required for at least 7-days. Revised Subsection 9.2.2.3.2 to add statement regarding potential pump seal leakage. Revised Subsection 9.2.2.3.2 to add statement that the CCWS surge tanks have adequate capacity to accommodate potential leakage after a seismic event without degradation of system function. Revised Subsection 9.2.2.3.2 to delete reference to RWSP as potential source for surge tank makeup. Revised Subsection 9.2.2.3.2 to add reference to FSS as potential source for surge tank makeup. Revised Subsection 9.2.2.3.2 to add	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				discussion supporting Technical Specification leak rate. Revised Subsection 9.2.2.2.1.3•to address CCWS tank capacity with respect to 7-day leakage. Revised Subsection 9.2.2.2.1.3•to modify description for consistency with surge tank design change.	
DCD_09.02.02-49	9.2.2.2.1.3 9.2.2.3.2 Table 9.2.2-3 (sheet 2) Table 9.2.2-5 Table 9.3.1-1 (sheet 3)	9.2-29 9.2-37 9.2-38 9.2-49 9.2-99 9.3-51 9.3-52	2nd Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Revised Subsection 9.2.2.3.2 to reflect elimination of header tie line isolation valve on low-low surge tank level. Revised Subsection 9.2.2.3.2 to reflect that makeup capacity exceeds potential leak rate from all valves used to isolate nonsafety piping. Revised Subsection 9.2.2.3.2 to reflect that makeup capacity exceeds potential leak rate from CCWS seal failure. Revised Subsection 9.2.2.3.2 to reflect that surge tank makeup is not required for at least 7-	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				days. Revised Subsection 9.2.2.3.2 to add statement regarding potential pump seal leakage. Revised Subsection 9.2.2.3.2 to add statement that the CCWS surge tanks have adequate capacity to accommodate potential leakage after a seismic event without degradation of system function. Revised Subsection 9.2.2.3.2 to delete reference to RWSP as potential source for surge tank makeup. Revised Subsection 9.2.2.3.2 to add reference to FSS as potential source for surge tank makeup. Revised Subsection 9.2.2.3.2 to add discussion supporting Technical Specification leak rate. Revised Subsection 9.2.2.2.1.3 to address CCWS tank capacity with	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				respect to 7-day leakage. Revised Subsection 9.2.2.2.1.3 to modify description for consistency with surge tank design change. Revised Table 9.2.2-3, 9.2.2-5 and 9.3.1-1 to reflect the non-safety portion isolation.	
DCD_09.02.02 -50	9.2.2.2.2.6	9.2-36	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Subsection 9.2.2.2.2.6 to add explanation that voiding in piping will not occur even in the event.	-
DCD_09.02.02 -51	9.2.2.1.1 9.2.2.2.1.5 9.2.2.2.2 9.2.2-7 (New Table) Figure 9.2.2-2	9.2-23 9.2-31 9.2-34 9.2-105 9.2-106 9.2-134 9.2-135 9.2-136 9.2-137 9.2-138 9.2-139]	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Subsection 9.2.2.1.1 to•correct maximum CCWS heat exchanger outlet temperature during design basis accident from 110 °F to 125 °F. Revised Subsection 9.2.2.2.1.5 to add reference to new Table 9.2.2-7 which provides the electrical power division for CCWS motor and air operated valves. Revised Subsection 9.2.2.2.2•to add the following to the end of	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				the paragraph: “Figure 9.2.2-2 provides system operating parameters for various locations and operating modes.” Revised Subsection 9.2.2.2.2•to add Figure 9.2.2-2 which provides pressure, temperature and flow rates for various CCWS configurations. Revised Subsection 9.2.2-1 to delete the RWSP as source for surge tank makeup and replace with FSS.	
DCD_09.02.02-52	9.2.2.1.2.1 9.2.2.1.2.2 9.2.2.1.2.3 9.2.2.1.2.4(New Subsection) 9.2.2.1.2.5(New Subsection) 9.2.2.1.2.6(New Subsection) 9.2.2.2.1.1 Table 9.2.2-2 Table 9.2.2-4 Table 9.2.2-5	9.2-24 9.2-25 9.2-27 9.2-28 9.2-91 9.2-96 9.2-97 9.2-98 9.2-99	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Changed title of Subsection 9.2.2.1.2.1 from “Normal Operation” to “Power Operation” Changed title of Subsection 9.2.2.1.2.2 from “Normal Plant Cooldown” to “Cooldown by CS/RHRS” Added Subsection 9.2.2.1.2.4, “Startup” Added Subsection	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				9.2.2.1.2.5, “Accident” Added Subsection 9.2.2.1.2.6, “Safe Shutdown” Editorial changes in subsection 9.2.2.1.2. Added description of CCWS heat exchanger “design” condition in subsection 9.2.2.2.1.1. , Added allowable CCWS heat exchanger supply temperatures to loads for all operating modes in subsection 9.2.2.2.1.1. Add margin and the bases for margin determination in subsection 9.2.2.2.1.1. Added “UA” value for design condition in table 9.2.2-2. Editorial changes in table 9.2.2-2. Added heat loads for	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Startup and refueling operating conditions in table 9.2.2-4 Added note addressing effect of opening RCP cross-tie valves in table 9.2.2-4 Editorial changes in table 9.2.2-4 Added flow rates for Startup and Refueling operating conditions in table 9.2.2-5. Added note addressing effect of opening RCP cross-tie valves in table 9.2.2-5. Editorial changes in table 9.2.2-5.	
DCD_09.02.02-53	9.2.2.2.1.2	9.2-28	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Added summary description of CCWS head, flow margin in subsection 9.2.2.2.1.2.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_09.02.02-54	9.2.2.2.2 9.2.2-6 (New Table)	9.2-34 9.2-100 9.2-101 9.2-102 9.2-103 9.2-104	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Added description in subsection 9.2.2.2.2 that Tables 9.2.2-4 and 9.2.2-5 provide header information. Added reference in subsection 9.2.2.2.2 to new Table 9.2.2-6 for specific CCWS loads. Added new Table 9.2.2-6	-
DCD_09.02.02-56	9.2.2.2.1.5 9.2.2.2.2.1	9.2-33 9.2-34	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Subsection 9.2.2.2.1.5 to add RCP CCW tie line isolation valve numbers to heading. Revised Subsection 9.2.2.2.1.5 to add additional description regarding supply and return path. Revised Subsection 9.2.2.2.1.5 to add RCP CCW supply and return line isolation valve numbers to heading. Revised Subsection 9.2.2.2.1.5 to modify description regarding effect of opening RCP	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				CCW tie line isolation valves. Revised Subsection 9.2.2.2.1.5 to modify description of “RCP CCW supply line isolation valve” to delete “P” signal isolation. Revised Subsection 9.2.2.2.1.5 to modify description of “RCP CCW return line isolation valve” to clarify use in conjunction with RCP CCW tie line isolation valves for RCP cooling from alternate subsystem. Revised Subsection 9.2.2.2.1.5 to add RCP motor CCW supply line isolation valve numbers to heading. Revised Subsection 9.2.2.2.1.5 to modify description of “RCP motor CCW supply line isolation valve” to clarify valve usage. Revised Subsection 9.2.2.2.2.1 to add discussion of the use of the cross-tie valves. Revised Subsection	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				9.2.2.2.2.1 to add reference to DCD Subsection 13.5.2 for development of Operating and Maintenance procedures applicable to use of cross-tie valves.	
DCD_09.02.02-57	9.2.2.2.1.2 9.2.2.2.1.3 9.2.2.5.4 Table 9.2.2-2	9.2-28 9.2-29 9.2-30 9.2-40 9.2-41 9.2-91	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Subsection 9.2.2.2.1.2 to add description of design approach used to assure adequate NPSH and avoidance of potential vortexing. Revised Subsection 9.2.2.2.1.3 to add statement regarding physical location of the CCWS surge tanks Revised Subsection 9.2.2.2.1.3 to add statement regarding surge tank elevation and piping arrangement for avoidance of gas accumulation. Revised Subsection 9.2.2.2.1.3 to address inspection accessibility. Revised Subsection 9.2.2.2.1.3 to clarify free volume capacity Revised Subsection	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				9.2.2.2.1.3 to add surge tank capability to accommodate inleakage Revised Subsection 9.2.2.2.1.3 to add effect of surge tank water volume change due to system temperature change Revised Subsection 9.2.2.5.4 to add description of level indication and level control function Revised Subsection 9.2.2.5.4 to add basis for normal level setpoint and variation of level with temperature. Revised Subsection 9.2.2.5.4 to add discussion regarding surge tank leakage monitoring. Revised surge tank volume consistent with design change in Subsection 9.2.2.5.4 and Table 9.2.2-2.	
DCD_09.02.02-58	9.2.2.2.2.4 9.2.2.3.2 9.2.2.3.5 Table 9.2.2-3 (Sheets 1,3,4)	9.2-35 9.2.2-37, 38	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date	Deleted automatic closure discussion for header tie line isolation valves in Subsection 9.2.2.2.2.4.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
		9.2-38 9.2-92 9.2-94 9.2-95	7/29/2011	Added header tie line isolation valve closure time discussion in Subsection 9.2.2.2.2.4. Reference COL item for closure header tie line isolation valve closure in Subsection 9.2.2.2.2.4. Revised discussion of closure of header tie line isolation valves to eliminate reference to automatic closure in Subsection 9.2.2.3.2. Added discussion provided in the response to RAI Question 09.02.02-34, Item 2 in Subsection 9.2.2.3.2. Revised discussion to reflect that thermal barrier cooling will not be automatically isolated and that 4-inch bypass valves have been removed from the design in Subsection 9.2.2.3.5. Deleted reference to NCS-MOV-445A/B, 447A/B, 448A/B and update the FMEA in Table 9.2.2-3. Updated to reflect that automatic closure of	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				NCS-MOV-020A/B and 007A/B has been deleted in Table 9.2.2-3. Reflect RCP cross tie operation in Item 1 in Table 9.2.2-3. Added a note to provide additional information for “Effect on System Safety Function” with regard to header tie line isolation valves in Table 9.2.2-3.	
DCD_09.02.02-59	9.2.2.2.1.4	9.2-30	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Added the description about regulatory compliance of the CCW supply line.	-
DCD_09.02.02-60	9.2.2.2.1.4 9.2.2.2.1.5 9.2.2.2.2.4 9.2.2.5.1	9.2-30 9.2-31 9.2-32 9.2-33 9.2-35 9.2-40	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Add statement in subsection 9.2.2.2.1.4 that piping related to RCP thermal barrier between check valves and motor-operated valves is designed for RCS rated conditions. Revise the description of Containment Spray/Residual Heat Removal Heat Exchanger (CS/RHRS HX) CCW Outlet Valve in subsection 9.2.2.2.1.5.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				Revise the description of RCP Thermal Barrier HX CCW Return Line Isolation valve in subsection 9.2.2.2.1.5. Revise the description of Containment Isolation Valve in subsection 9.2.2.2.1.5. Revise the description of Isolation valve between seismic category I portion and non-seismic category I portion in subsection 9.2.2.2.1.5. Add the description of the 10-second CCW pump start time delay in Subsection 9.2.2.2.2.4. Add basis for starting standby CCWS pump on low-pressure indication in Subsection 9.2.2.5.1.	
DCD_09.02.02-67	9.2.2.2.1.2 9.2.2.2.1.5 9.2.2.2.2.4 9.2.2.2.2.5 9.2.2.4.2	9.2-29 9.2-31 9.2-34 9.2-35 9.2-36 9.2-39	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Subsection 9.2.2.2.1.2 to add description of CCWS flow rate control. Revised Subsection 9.2.2.2.1.5 to add description of CCWS flow rate control to “Containment Spray/Residual Heat Removal Heat	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Exchanger (CS/RHRS HX) CCW Outlet Valve". Revised Subsection 9.2.2.2.1.5 to add additional bullet and control function description for "Letdown Heat Exchanger Outlet Valve" Revised Subsection 9.2.2.2.2.4 and 9.2.2.2.2.5 to add statement that operator must manually open the CV atmosphere gas sample cooler outlet valve during accident conditions. Revised Subsection 9.2.2.4.2 to correct spelling of "individual".	
DCD_09.02.02-68	9.2.2.2.1.2	9.2-29	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 07/29/2011	Added the reference in subsection 9.2.2.2.1.2 interlock with ESWS discussed in Subsection 9.2.1.2.3.1.	-
DCD_09.02.02-69	9.2.2.2.1.3 Figure 9.2.2-1 9.5.1.2.2	9.2-29 9.2-30 9.2-125 9.2-126 9.2-127 9.2-128 9.2-129 9.2-130	Response to RAI No. 576 MHI Letter No. UAP-HF-11238 Date 07/29/2011	Revised Subsection 9.2.2.2.1.3 to delete the PMWS (primary water) and RWSP as sources of CCWS makeup. Revised Subsection 9.2.2.2.1.3 and 9.5.1.2.2	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
		9.2-131 9.2-132 9.2-133 9.5-9 9.5-10		to add FSS as a CCWS makeup source. Revised Figure 9.2.2-1•to change valve position of NCS-VLV-063A/B from “normally closed” to “locked closed” (LC). Revised Figure 9.2.2-1•to delete PWMS (primary water makeup) line and associated valving to the CCWS. (PWMS deareated water supply path remains.) Revised Figure 9.2.2-1•to delete RWSP (makeup) line and associated valving to the CCWS. Revised Figure 9.2.2-1•to Add FSS line and associated isolation connection. Revised Figure 9.2.2-1•to delete locked closed “LC” designation from RCP cross-tie valves. Revised Figure 9.2.2-1•to add “LC” designation to boundary valves with FSS and VWS (NCS-VLV-321A/B, -322A/B, -323A/B, -	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				324A/B, -325A/B, -326A/B)	
DCD_09.02.05-2	9.2.5.2.1	9.2-34 [9.2-49]	Response to RAI No. 286 MHI Letter No. UAP-HF-11232 Date 7/25/2011	Added that makeup source is non-safety and ensures keeping the 30-day capacity volume during normal operation to Subsection 9.2.5.2.1.	-
DCD_09.02.05-8	9.2.5.2.1	9.2-34 [9.2-49]	Response to RAI No. 286 MHI Letter No. UAP-HF-11232 Date 07/25/2011	Added the description to Subsection 9.2.5.2.1 to identify that any leak from the CCWS heat exchanger which is interface between CCWS and ESWS does not allow mixing of the potentially radioactive CCW and the nonradioactive ESW because of the CCW heat exchangers structure.	-
DCD_09.02.01-32	9.2.1 9.2.1.1.1 9.2.1.1.3 9.2.1.2.2.1 9.2.1.2.3.1 9.2.10	9.2-1 9.2-3 9.2-7 9.2-16, 9.2-76	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 7/27/2011	Added a short summary which describes that ESWS functional requirements are standard plant design regardless of location although some structures (e.g. ESWPT and UHSRS) where some of ESWS components are located are site specific to the beginning of Subsection 9.2.1. Clarified the safety-	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				related heat loads in Subsection 9.2.1.1.1. Added description regarding backwashing of the CCW heat exchanger to clarify the heat exchanger backwashing is nonsafety-related design bases to Subsection 9.2.1.1.3. Clarified that the non-safety design basis is only for conceptual design in Subsection 9.2.1.1.3. Added the description regarding non-safety loads to Subsection 9.2.1.1.3. Revised Subsection 9.2.1.2.2.1 to refer to Subsection 9.4.5 which describes the design detail of the ESW pump house ventilation. Added the description regarding backwash operating of the CCW heat exchanger including the case with out of service train to Subsection 9.2.1.2.3.1. Revised Subsection	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				9.2.10, COL 9.2(6) to delete the requirement for selecting the mode of cooling of the ESWP motor.	
DCD_09.02.01-33	9.2.1.1.3 9.2.1.2.2.3 9.2.1.3 9.2.10	9.2-2[9.2-3] 9.2-7[9.2-11, 12] 9.2-12[9.2-20] 9.2-58[9.2-76]	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Revised Subsection 9.2.1.1.3 to add the description regarding the CCW heat exchanger backwashing operation. Added the description regarding the potential CCW heat exchanger fouling prevention, periodic inspection, monitoring, maintenance, performance and functional testing. Revised Subsection 9.2.1.3 and DCD Subsection 9.2.10 COL 9.2(7) to clarify what the COL 9.2(7) refers to and to what extent it applies to that part of the ESWS that is within scope for standard plant design.	-
DCD_09.02.01-35	9.2.1.3 9.2.10	9.2-35 9.2-76	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Revised Subsection 9.2.1 to identify which parts within SPDI that may be arranged in the outside of standard design scope building could be stagnant. Revised Subsection	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				9.2.10 COL 9.2(2) to describe that the COL applicant will handle heat tracing measures as safety related.	
DCD_09.02.01-38	9.2.1.2.2.1 9.2.10	9.2-6 9.2-76	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Revised Subsection 9.2.1.2.2.1 and Subsection 9.2.10 COL 9.2(6) will be revised to clarify testing requirement of the potential for vortex formation based on the most limiting assumptions for COL applicant.	-
DCD_09.02.01-40	9.2.1.2.3.1 9.2.1.5.7 Table 9.2.1-3 Table 9.2.1-4 Figure 9.2.1-1 (Sheet 1)	9.2-13 through 14 9.2-20 9.2-86 9.2-87 9.2-122	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Revised Subsection 9.2.1.2.3.1, Table 9.2.1-3 and 4 to add the supplemental explanation for the detail of each operating modes. Revised Subsection 9.2.1.2.3.1 to add the detail description of the interlocks between the ESWS and CCWS. Revised Subsection 9.2.1.2.3.1 to clarify that not only the standby pump will be started but also the discharge MOV will be opened when the operating pump discharge header	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				pressure becomes low. Revised Subsection 9.2.1.5.7 to add the supplemental information regarding the ESWS backup actuation interlock. Revised Figure 9.2.1-1 (Sheet 1 of 3) to make consistency with the description regarding the interlock between ESWS and CCWS in 9.2.1.2.3.1.	
DCD_09.02.01 -41	9.2.1.5	9.2-20	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Revised Subsection 9.2.1.5 to clarify that all instrumentation available in MCR also has local read out.	-
DCD_09.02.01 -43	9.2.1.1.3 9.2.1.2.3.1 9.2.1.4 9.2.1.5.2 9.2.10 Table 9.2.1-2	9.2-2[9.2-3] 9.2-8[9.2-13] 9.2-10[9.2-16] 9.2-13[9.2-20] 9.2-14[9.2-	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Corrected typographical error.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
		21] 9.2-60[9.2-78] 9.2-63 through 67[9.2-81 through 85]			
DCD_09.02.01-44	9.2.1.3	9.2-12[9.2-18, 19]	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Revised Subsection 9.2.1.3 to refer to Subsection 3.4.1.5.2.2 which describes detail of the flood protection.	-
DCD_09.02.01-49	9.2.1.2.3.1	9.2-10[9.2-16]	Response to RAI No. 585 MHI Letter No. UAP-HF-11235Date 07/27/2011	Revised Subsection 9.2.1.2.3.1 to add the CDI information which describes regarding the detail of the void detection system.	-
DCD_09.02.01-52	9.2.1.2.2.2 9.2.1.2.2.3 9.2.1.5.3 Table 9.2.1-1 Table 9.2.1-2 (Sheets 3,4)	9.2-6, 7[9.2-7 through 10] 9.2-7[9.2-12] 9.2-14[9.2-21] 9.2-	Response to RAI No. 585 MHI Letter No. UAP-HF-11235 Date 07/27/2011	Revised Subsection 9.2.1.2.2.2 to state that Figure 9.2.1-1 has the valve ID markings to match the DCD description to make it clear which valves are being referred. Clarified the definition and details of each operating mode of the strainer in Subsection	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
		62[9.2-80] 9.2-65[9.2-83] 9.2-66[9.2-84]		9.2.1.2.2.2. Clarified that the actual fouling factor will not exceed the design fouling factor for at least the duration required for UHS capacity of 30 days or minimum of 36 days for a cooling pond in 9.2.1.2.2.3. Revised Subsection 9.2.1.5.3 to clearly delineate that the differential pressure instrumentation of the strainer and/or alarm is credited post accident. Revised Table 9.2.1-1 to clarify that the power supply to the strainers including their associated components are Class 1E. Revised Table 9.2.1-2 item 3 and 4 to add the plant operating mode of “startup, normal shutdown, normal operation, refueling, cooldown” to safety function of “starts and opens to provide flow path to backwash flow before strainer clogging to maintain ESW supply	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				to CCW HX.”	
DCD_09.02.02-80	9.2.2.2 9.2.7.2.1 9.3.4.2.6.1	9.2-26 9.2-27 9.2-61 9.3-30	Amended Response to RAI No. 697 MHI Letter No. UAP-HF-11239 Date 07/29/2011	Revised Subsection 9.2.2.2, 9.2.7.2.1 and 9.3.4.2.6.1 to add the description regarding operation during severe accident such as charging pump cooling by non-essential chilled water system or the fire water supply system and the cooling of containment fan coolers by the CCWS.	-
DCD_09.02.02-81	9.1.3.2.1.3 9.1.3.2.1.4 9.2.1.2.2.3 9.2.2.2.1.3	9.1-17 9.2-12 9.2-30	Amended Response to RAI No. 699 MHI Letter No. UAP-HF-11240 Date 7/29/2011	Added description about reference to EPRI TR 1013470 for industry lessons learned on potential blockage. in Subsection 9.1.3.2.1.3 Added description about filter capability with respect to heat exchanger flow passages in subsection 9.1.3.2.1.4. Added description about reference to EPRI TR 1013470 for industry lessons learned on potential blockage and leakage in Subsection 9.2.1.2.2.3.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				Add discussion regarding strainers in piping from surge tank makeup sources in Subsection 9.2.2.2.1.3.	
DCD_14.03.06-28	Figure 9.5.4-1 Figure 9.5.6-1	9.5-165 9.5-166	Response to RAI No. 754 MHI Letter No. UAP-HF-11222 Date 7/15/2011	Revised Figure 9.5.6.1 and Figure 9.5.4.1.	-
DCD_09.05.02-6	9.5.2 9.5.2.2.2.2 9.5.9 9.5.10	9.5-16 9.5-22 9.5-49 9.5-52 9.5-53	Supplemental Response to RAI No. 139 MHI Letter No. UAP-HF-11234 Date 07/26/2011	Deleted the description about security and detection systems in second paragraph of Subsection 9.5.2. Revised the description about security in the third paragraph of Subsection 9.5.2. Deleted the last sentence of Subsection 9.5.2.2.2.2. Deleted COL information items COL 9.5(7) and COL 9.5(9) in Subsection 9.5.9. Deleted references 9.5.2-23, 9.5.2-28 and 9.5.2-29 in Subsection 9.5.10.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
RCOL2_12.03-12.04-11 S03	9.2.6.2.4	9.2-40	MHI Letter No. UAP-HF-11253 Date 8/3/2011	Revised description about CST overflow in the last of the first paragraph of Subsection 9.2.6.2.4 to a new paragraph.	-
RCOL2_12.03-12.04-11 S03	9A.3.104 9A.3.105 9A.3.106 9A.3.107 9A.3.108 9A.3.109 9A.3-110 9A-3.111 9A-3.112 9A-3.113 9A.3-114 9A.3-115 9A.3-116 9A-3.117 9A-3.118 9A.3-119 9A.3-120 9A.3-121 9A.3-122 9A.3-123 9A.3-124 9A.3-125 9A.3-126 9A.3-127 9A.3-128	9A-203 9A-204 9A-207 9A-209 9A-211 9A-213 9A-214 9A-217 9A-219 9A-221 9A-223 9A-225 9A-226 9A-228 9A-230 9A-231 9A-233 9A-235 9A-236 9A-238 9A-240 9A-241 9A-243 9A-244 9A-245 9A-246	MHI Letter No. UAP-HF-11253 Date 8/3/2011	Deleted description about radiological material from the paragraph of “Radioactive Release to Environment Evaluation” in each subsection.	-
DCD_09.04.03-16	9.4.3.2.1 Figure 9.4.3-1	9.4-13 9.4-79	Response to RAI No. 779 MHI Letter	In fifth paragraph of subsection 9.4.3.2.1, replaced “208,000	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			No. UAP-HF-11259 Date 08/11/2011	ft^3/min" as the total exhaust airflow of two auxiliary building exhaust fans with "216,000 ft^3/min" to be consistent with Table 9.4.3-1. Revised Figure 9.4.3-1.	
DCD_09.04.03-15	9.4.3.2.1	9.4-13	Response to RAI No. 779 MHI Letter No. UAP-HF-11259 Date 08/11/2011	Added the following as the last sentence of fifth paragraph of subsection 9.4.3.2.1. "Backdraft dampers are provided in the ventilation duct supplying and exhausting uncontrolled areas to prevent backflow from the auxiliary building HVAC system."	-
DCD_09.04.03-14	9.4.6.2.4.1	9.4-43	Response to RAI No. 779 MHI Letter No. UAP-HF-11259 Date 08/11/2011	In eighth paragraph of subsection 9.4.3.2.1, replaced "When exhaust from the auxiliary building HVAC system is filtered by the containment low volume purge exhaust filtration unit, …" with "Before exhaust from the auxiliary building HVAC system is aligned to the containment low volume purge exhaust filtration unit, …"	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_09.02.02-84	9.2.2.1.1	9.2-15	Response to RAI No. 774 MHI Letter No. UAP-HF-11263 Date 08/12/2011	Added reference to CCWS capability to support all operating modes, including accident conditions.	-
DCD_19-535	9.5.1.2.1 9A Legend	9.5-6 9A-610	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 9.5.1.2.1and page 9A-610 are revised to include the pressure resistance capability of penetration seals and dampers.	-
DCD_09.01.02-25	9.1.3.3.2	9.1-20	Response to RAI No. 806 MHI Letter No. UAP-HF-11293 Date 9/2/2011	Reference number has been corrected.	-
DCD_09.03.04-25	9.3.4.2.6.10	9.3-32	Response to RAI No. 828 MHI Letter No. UAP-HF-11321 Date 9/22/2011	Description of vacuum condition prevention has been added.	-
DCD_09.04.05-21	9.4.8	9.4-51	Response to RAI No. 825 MHI Letter No. UAP-HF-11345 Date 10/06/2011	Revised the last part of the title for Ref.9.4.8-30 from “November, 2010” to “March 2011”.	-
DCD_09.04.01-28	9.4.1.2.2.1	9.4-5	Response to RAI No. 827 MHI Letter No. UAP-HF-	Revised the last bullet from “In the emergency pressurization mode of operation, the MCR	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
			11348 Date 10/07/2011	HVAC system design airflow rate is 20,000 cfm and the make-up design airflow rate is less than 600 cfm." to "In the emergency pressurization mode of operation, the MCR HVAC system design airflow rate is 20,000 cfm with two MCR air handling units operating and the make-up design airflow rate is less than 600 cfm with one MCR emergency filtration unit operating."	
DCD_09.02.02-64	9.2.2.2	9.2-26	Response to RAI No. 571 MHI Letter No. UAP-HF-10160 Date 06/8/2010	Added the description about periodic inspections of CCWS piping.	-
DCD_09.02.02-62	9.2.2.2	9.2-26	Response to RAI No. 571 MHI Letter No. UAP-HF-10160 Date 06/8/2010	Added the description about the butterfly valves in CCWS.	-
DCD_09.02.02-65	9.2.2.4.2	9.2-39	Response to RAI No. 571 MHI Letter No. UAP-HF-10160 Date	Added the description about periodic pressure and functional testing of components.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			06/8/2010		
DCD_09.02.02-66	9.2.2.5.2	9.2-40	Response to RAI No. 571 MHI Letter No. UAP-HF-10160 Date 06/8/2010	Added the description about the radiation monitoring.	-
DCD_09.02.06-3	9.2.6.2.4	9.2-55 9.2-56	RAI No. 863 MHI Letter No. UAP-HF-11432 Date 12/15/2011	Added description about a diaphragm in the first paragraph. Added the third sentence about impact on safety-related SSCs.	-
DCD_09.01.03-8	9.1.3.3.1 9.1.3.5 9.1.3.5.1 9.1.3.5.3 9.1.3.5.4 Figure 9.1.3-1	9.1-20 9.1-22 9.1-23 9.1-58	Response to RAI No. 756 MHI Letter No. UAP-HF-11255 Date 8/10/2011	Added the description regarding SFP cooling recovery during LOOP condition. Added the information of SFP level, SFP temperature and SFP pump discharge flow.	-
DCD_11.03-19	9A.3.129 Table 9A-1(sheet 14 of 16) Table 9A-2 (Sheet 236 of 292) Table 9A-2 (Sheet 259 of 292) (new sheet) Table 9A-3 (sheet 26,	9A-247 9A-248 9A-283 9A-521 9A-543	Response to RAI No. 712 amended MHI Letter No. UAP-HF-11397 Date 11/21/2011	9A.3.129: Added "FA4-101-25", "Auxiliary Building Equipment Room" and "6.5E+05" at the last of list of 9A.3.129. 9A.3.129: Added "FA4-101-25 is provided with air aspirating VESDA and manual fire alarm pull station as secondary detection. Primary fire suppression is provided from wet pipe sprinkler. Secondary suppression is provided from fire hose station." at the paragraph	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
	27 ,29 of 32) Figure 9A-13 Figure 9A_16	9A-603 9A-604 9A-606 9A-623 9A-626		of Fire Detection and Suppression Features. 9A.3.129: Added “The air aspirating fire alarm system is designed for industrial environments and not subject to inadvertent actuation.” at the paragraph of Fire Protection System Integrity. Table 9A-1(sheet 14 of 16): Added “A/B”, “N”, “FA4-101”, “FA4-101-25” and “Auxiliary Building Equipment Room”. Table 9A-2 (Sheet 236 of 292): Deleted “Filters” and “8.9E+06”at the Potential Combustibles. Replaced “19,650” with “19,400” at the Floor Area. Table 9A-2 (Sheet 259 of 292): Added new sheet. Table 9A-3 (sheet 26 of 32): Added “, FA4-101-25” at the wall of FA4-101-01. Table 9A-3 (sheet 27 of 32): Added “, FA4-101-25” at the Floor of FA4-101-04. Table 9A-3 (sheet 29 of 32): Added the Fire Zone “FA4-101-25” at the Table 9A-3 (sheet 29 of 32). Figure 9A-13: Revised Figrue 9A-13 to reflect the layout drawing changes and the new	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				Fire Zone added. Figure 9A-16: Revised Figrue 9A-16 to reflect the layout drawing changes and the FIRE AREA BOUNDARY changes.	
MIC-03-09-00001	Table 9.5.1-2 (sheet 19) 9A.3.79 9A.3.136 9A.3.137 9A.3.138 9A.3.139 9A.3.140 9A.3.141 Table 9A-2 (Sheets 192, 283 through 286)	9.5-117 9A-161 9A-257 9A-259 9A-261 9A-263 9A-265 9A-266 [9A-267] 9A-477 9A-568 through 9A-571	Result of the meeting with NRC (09/14/2011)	Table 9.5.1-2 (sheet 19), First column: Replaced “Conform” with “Conformance with Exceptions”. and added the following description to the Remarks. “The fire areas, which separate from the other trains with 3-hour fire rating barriers and have minimal fire load to support propagation through fire area, have no automatic fire detection.”. 9A.3.79: Deleted the following description. “9. AUXILIARY SYSTEMS US-APWR Design Control Document Tier 2 9A-157 Revision 23”. Subsection 9A.3.136, 137, 139 and 140: Fire Detection and Suppression Features: Replaced “…and a manual fire alarm pull station is installed as primary manual fire detection.” with “…and vapor and liquid detection system is	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				installed as primary automatic fire detection" Added the following description to the third sentence "Secondary detection is provided by a manual fire alarm pull station." 9A.3.138, 9A.3.141: Fire Detection and Suppression Features: Replaced "…and a manual fire alarm pull station is installed as primary manual detection" with "…and vapor and liquid detection system is installed as primary automatic fire detection.". Added the following description to the third sentence. "Secondary detection is provided by a manual fire alarm pull station.". Table 9A-2 (Sheet 192), Suppression System Operates: Replaced "A quickly detected and suppressed fire in this room will minimize fire damage to the safety-related equipment consistent with GDC-3." with "Manual fire hose stations and portable fire extinguishers are available in the vicinity." Table 9A-2 (Sheets 283 through 286), Suppression System Operates: Replaced	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
				"A quickly identified and suppressed fire will minimize damage and after event cleanup." with "Portable fire extinguishers are available in the vicinity."	
MIC-03-09-00002	Table 9.5.1-2 (sheet 19)	9.5-117	Editorial	First column: Deleted "Chapter 7,". Second column: Deleted "Chapter 7,". Fifth column: Deleted "Chapter 5,", "Chapter 8," and two "Chapter 9,"	1
DCD_09.02.05-4	Table 9.2.5-1	9.2-81	MHI Letter No. UAP-HF-11355 Date 10/14/2011	Revised Table 9.2.5-1 to correct the number of trains.	-
DCD_09.02.06-3	9.2.6.2.4	9.2-40 9.2-41 [9.2-55 9.2-56]	Response to RAI No. 863 MHI Letter No. UAP-HF-11432 Date 12/15/2011	Added description about a diaphragm in the first paragraph. Added the third sentence about impact on safety-related SSCs.	-
DCD_09.04.03-18	9.1.2.2.2 9.4.3.1.2.1 9.4.3.2.1	9.1-8 9.4-11 9.4-14	Response to RAI No. 831 MHI Letter No. UAP-HF-12016 Date 1/27/2012	Revised the description for control function of radioactive airborne materials by AB HVAC System.	-
DCD_09.04.03-19	9.4.3.2.1 9.4.3.4.1 9.4.6.2.4.1 9.4.6.2.4.2 9.4.7	9.4-13 9.4-20 9.4-43 9.4-44 9.4-49	Response to RAI No. 831 MHI Letter No. UAP-HF-12016 Date 1/27/2012	Added the new COL Item 'COL 9.4(7)'. Added the design feature of AB HVAC System and Containment Purge System.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_09.04.03-20	9.3.3.1.2 Fig 9.3.3-1 (Sheet 1)	9.3-17 9.3-79	Response to RAI No. 831 MHI Letter No. UAP-HF-12016 Date 1/27/2012	Added the description for check valve in the sump line and revised the figure to show the check valve.	-
DCD_19-535 S01	9A.3.3 9A.3.4 9A.3.5 9A.3.8 9A.3.9 9A.3.10 9A.3.12 9A.3.13 9A.3.14 9A.3.17 9A.3.26 9A.3.27 9A.3.30 9A.3.31 9A.3.32 9A.3.33 9A.3.34 9A.3.35 9A.3.40 9A.3.43 9A.3.44 9A.3.45 9A.3.46 9A.3.48 9A.3.49 9A.3.50	9A-18 9A-20 9A-22 9A-28 9A-30 9A-32 9A-35 9A-36 9A-38 9A-45 9A-59 9A-61 9A-66 9A-69 9A-71 9A-73 9A-75 9A-76 9A-88 9A-94 9A-96 9A-98 9A-99 9A-103 9A-105 9A-107	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-12056 Date 3/2/2012	Reflected the revision of fire barriers.	-
DCD_19-535 S01	9A.3.51 9A.3.52 9A.3.53 9A.3.55 9A.3.56	9A-109 9A-112 9A-114 9A-118 9A-120	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-	Reflected the revision of fire barriers.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
	9A.3.57 9A.3.58 9A.3.59 9A.3.60 9A.3.61 9A.3.62 9A.3.63 9A.3.64 9A.3.65 9A.3.66 9A.3.67 9A.3.68 9A.3.69 9A.3.70 9A.3.71 9A.3.72 9A.3.73 9A.3.74 9A.3.75 9A.3.76 9A.3.77 9A.3.78 9A.3.79 9A.3.80 9A.3.81 9A.3.82 9A.3.83 9A.3.84 9A.3.85	9A-121 9A-123 9A-125 9A-126 9A-128 9A-129 9A-131 9A-132 9A-134 9A-136 9A-138 9A-140 9A-142 9A-143 9A-145 9A-147 9A-148 9A-150 9A-152 9A-154 9A-156 9A-158 9A-160 9A-162 9A-163 9A-165 9A-166 9A-168 9A-170	12056 Date 3/2/2012		

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R* *
DCD_19-535 S01	9A.3.86 9A.3.87 9A.3.88 9A.3.89 9A.3.90 9A.3.92 9A.3.93 9A.3.94 9A.3.95 9A.3.96 9A.3.97 9A.3.98 9A.3.99 9A.3.100 9A.3.101 9A.3.102 9A.3.103 9A Legend Figs 9A-1 through 9A-9	9A-172 9A-173 9A-175 9A-177 9A-178 9A-182 9A-184 9A-185 9A-187 9A-189 9A-191 9A-192 9A-193 9A-195 9A-197 9A-198 9A-200 9A-610 9A-611 through 9A-619	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-12056 Date 3/2/2012	Reflected the revision of fire barriers.	-
MIC-03-09-00003	9A.3.99	9A-193	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-12056 Date 3/2/2012	Reflected the revision of fire barriers.	-
DCD_09.02.02-85	9.2.2.3	9.2-24 [9.2-37]	Response to RAI No. 878 MHI Letter No. UAP-HF-12057 Date 03/01/2012	Detailed information regarding postulated leakage cracks in the safety-related CCWS piping.	-
MIC-03-09-	9.1.6	9.1-42	Result of COL ITEMS	The periods in the middle of the sentence should	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
00004		[9.1-46]	Consistency Review at making DCD R3 UTR Rev2	be commas.	
MIC-03-09-00005	Figure 9.4.3-1 Figure 9.5.4-1 Figure 9.5.6-1 Figure 9.5.8-1	9.4-79 [9.4-84] 9.5-165 9.5-166 9.5-168	Result of Site Specific Interface Review at making DCD R3 UTR Rev2	Deleting the “cloud shape borders”	2

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is “-“, the change was not made in a T/R.

COL 9.1(6) *To assure proper handling of heavy loads during the plant life, the COL Applicant is to establish a heavy load handling program, including associated procedural and administrative controls, that satisfies commitments made in Subsection 9.1.5 of the DCD, and that meets the guidance of ANSI/ASME B30.2, ANSI/ASME B30.9, ANSI N14.6, ASME NOG-1, CMAA Specification 70-2000, NUREG-0554, NUREG-0612, and NUREG-0800, Section 9.1.5 and RG 1.206 C.I.9.1.5. During the operating life of the plant, it is anticipated that temporarily installed hoists and mobile cranes will also be used for plant maintenance. The heavy load handling program will include all cranes and hoists on site capable of handling heavy loads, including temporary cranes and hoists. The heavy load handling program will adopt a defense-in-depth strategy to enhance safety when handling heavy loads. For instance, the program will restrict lift heights to practical minimums and limit lifting activities as much as practical to plant modes in which load drops have the smallest potential for adverse consequences, particularly when critical loads are being handled. Further, prior to the lifting of heavy loads after initial fuel loading, the program will institute any additional reviews as necessary to assure that potential drops of these loads due to inadvertent operations or equipment malfunctions, separately or in combination, will not jeopardize safe shutdown functions, cause a significant release of radioactivity, a criticality accident, or inability to cool fuel within the reactor vessel or spent fuel pool.*

"The COL Applicant will prepare a non-critical heavy load procedure that includes sections, on the Design Bases, System Descriptions~~.~~, Safety Evaluation~~.~~, Inspection and Testing Requirements, and Instrumentation Requirements for the program. The heavy load program will include requirements for sufficient operator training, system design, load handling instructions~~.~~, and equipment inspections. Safe load paths will be defined so that heavy loads avoid being moved over or near irradiated fuel or critical equipment. Mechanical stops or electrical interlocks to prevent movement of heavy loads near irradiated fuel or safe shutdown equipment may also be employed." MIC-03-09-00004 MIC-03-09-00004

COL 9.1(7) *Deleted*

COL 9.1(8) *Deleted*

COL 9.1(9) *The COL Applicant is to create a procedure that will instruct the operator to perform formal inspection of the integrity of the spent fuel racks.*

9.1.7 References

9.1.7-1 Prevention of Criticality in Fuel Storage and Handling, 'General Design Criteria for Nuclear Power Plants,' "Domestic Licensing of Production and Utilization Facilities," . NRC Regulations Title 10, Code of Federal Regulations, 10 CFR Part 50, Appendix A, Criterion 62.

DCD_09.04.03-16
MIC-03-09-00005

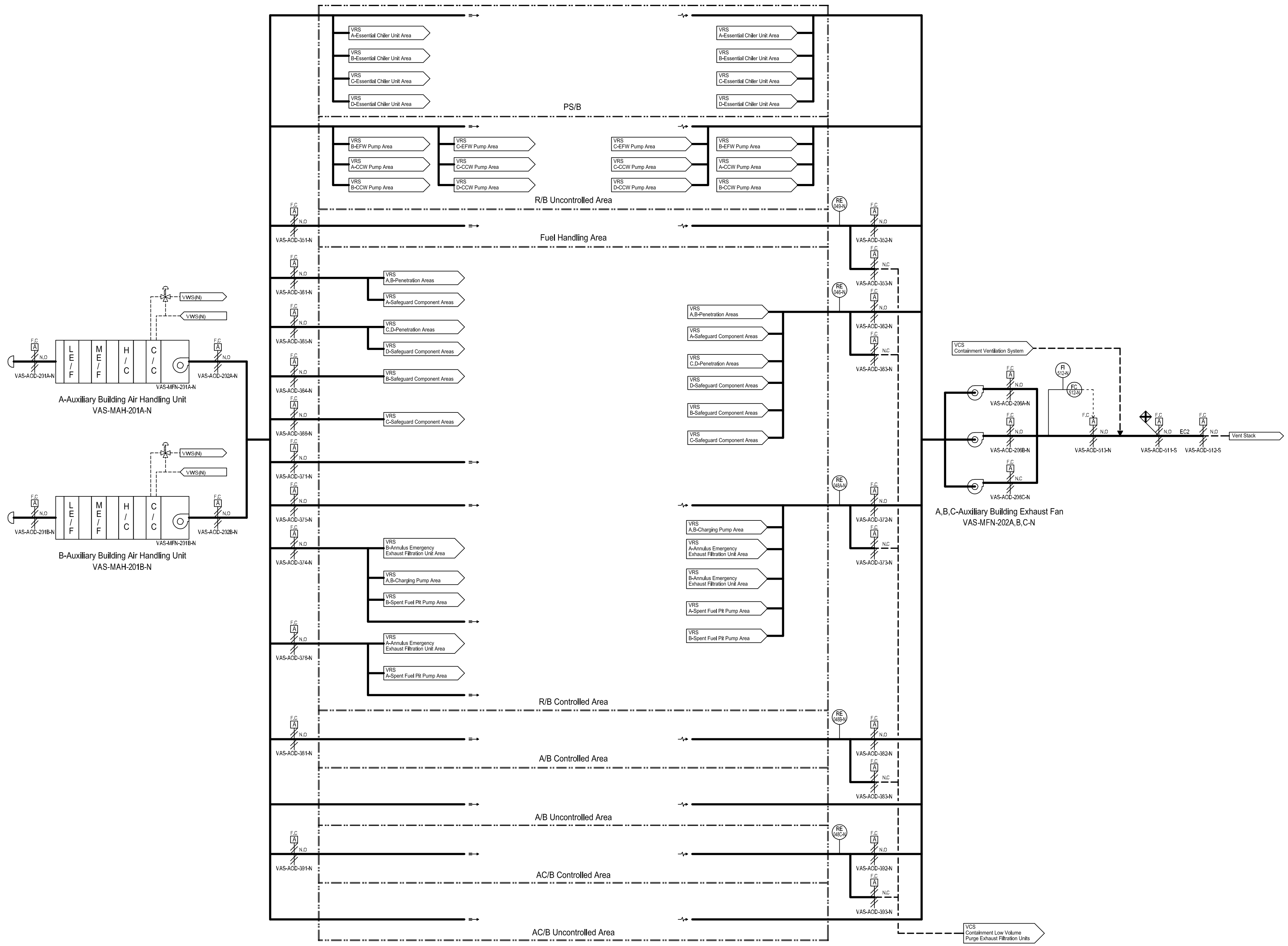


Figure 9.4.3-1 Auxiliary Building HVAC System Flow Diagram

DCD_14.03.06-28
MIC-03-09-00005

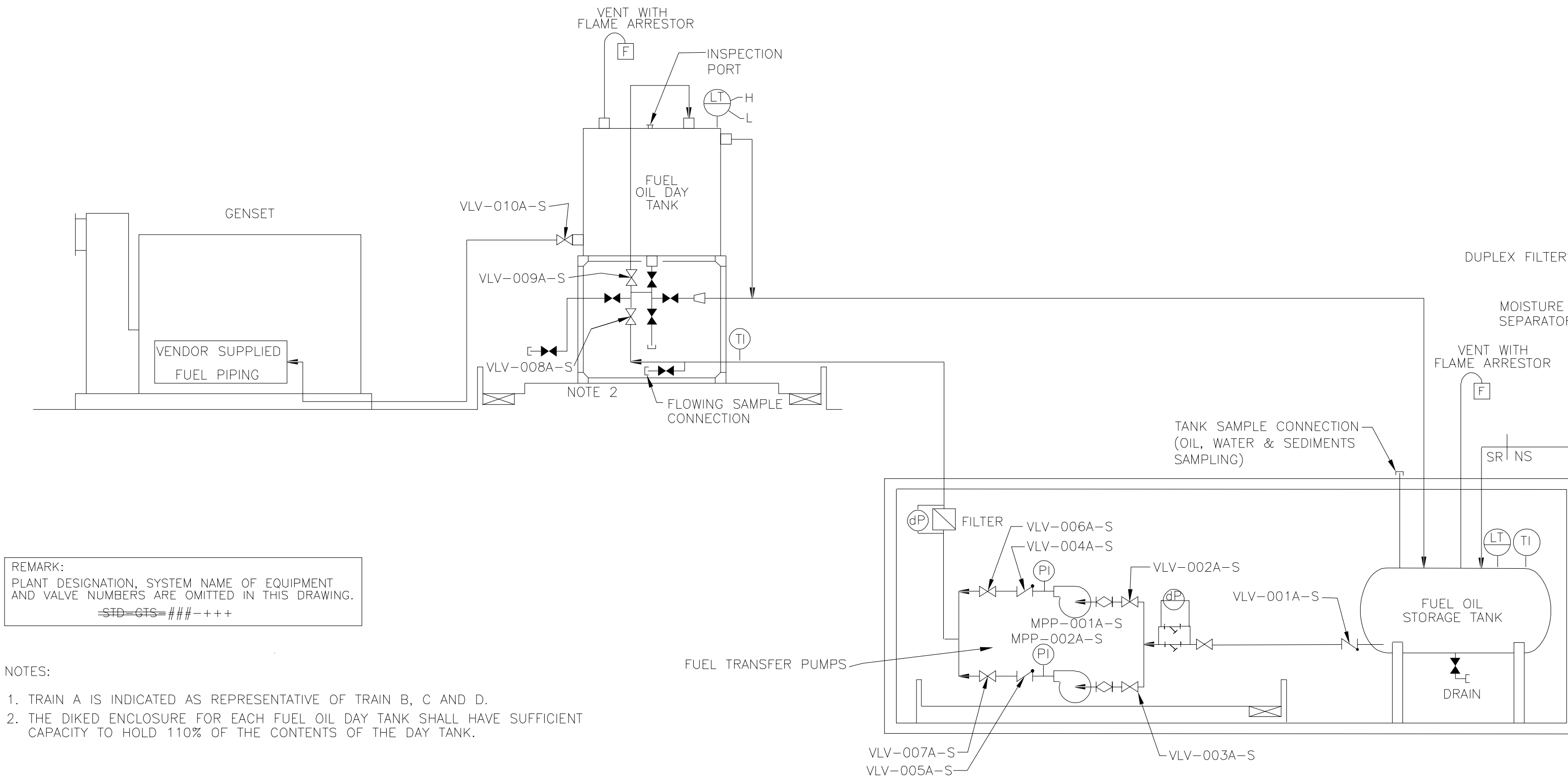
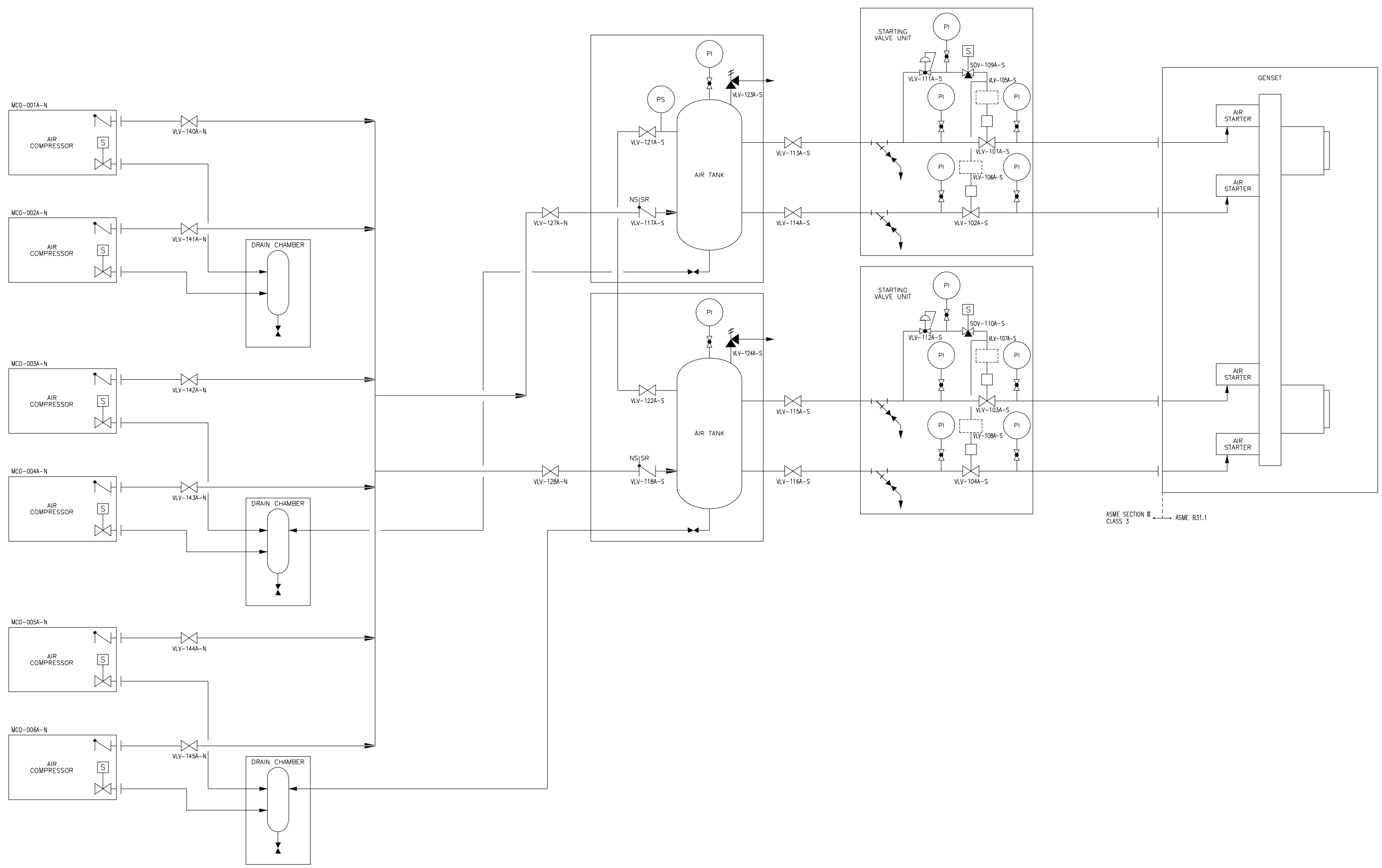


Figure 9.5.4-1 Gas Turbine Generator Fuel Oil Storage and Transfer System Schematic Diagram

DCD_14.03.06-28
MIC-03-09-00005



NOTE
1. TRAIN A IS INDICATED AS REPRESENTATIVE OF TRAIN B , C AND D.
2. BOUNDARY BETWEEN SAFETY RELATED AND NON-SAFETY RELATED PORTION IS SHOWN BY FOLLOWING SYMBOL. THIS BOUNDARY ALSO INDICATES BOUNDARY BETWEEN ASME SECTION III FOR SAFETY RELATED PORTION AND ASME B31.1 FOR NON-SAFETY RELATED PORTION.
NS|SR: NON-SAFETY RELATED|SAFETY RELATED.

REMARK:
PLANT DESIGNATION, SYSTEM NAME OF EQUIPMENT AND VALVE NUMBERS ARE OMITTED IN THIS DRAWING.
~~STD-GTS-~~###-+++

Figure 9.5.6-1 Gas Turbine Generator Starting System Schematic Diagram

DCD_09.05.08-28
MIC-03-09-00005

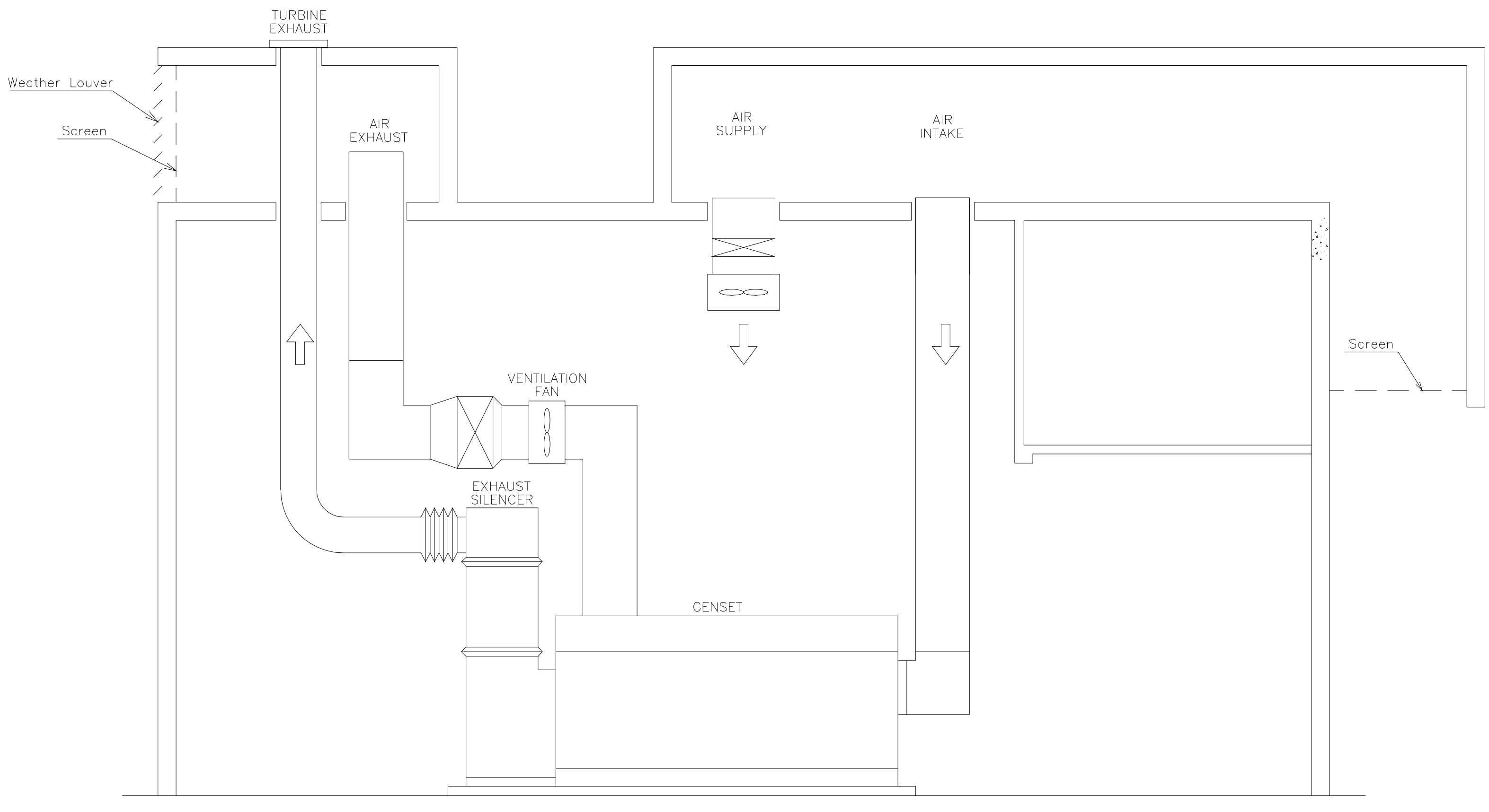


Figure 9.5.8-1 Gas Turbine Generator Air Intake And Exhaust Component Schematic Diagram

Tier 2

Chapter 10

Chapter 10 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
RCOL2_12.03-12.04-11 S02	10.4.8.2.1 10.4.11.2.1	10.4-66 10.4-124	MHI Letter No. UAP-HF-11091 Date 04/6/2011	Added description about SGBD piping and Auxiliary Boiler blow down,	-
DCD_10.03.06-12	10.3.6.3 10.3.7	10.3-18 through 10.3-21	Response to RAI No. 500 MHI Letter No. UAP-HF-11096 Date 04/04/2011	Revised Subsection 10.3.6.3 for RAI Response.	-
DCD_10.02-3	10.2.2.3 (new Subsection) 10.2.2.3.1.3 10.2.2.3.1.5 10.2.2.3.2 10.2.2.3.2.1 10.2.2.3.2.2 10.2.2.3.2.3 10.2.2.3.2.4 10.2.2.3.2.5 10.2.3.2 10.2-5(New figure) 10.2-3 (New figure)	10.2-6 10.2-7 10.2-8 10.2-10 10.2-11 10.2-12 10.2-13 10.2-15 10.2-16 10.2-26 10.2-27	Response to RAI No. 598 MHI Letter No. UAP-HF-11170 Date 06/07/2011	Added description about the composition of the turbine control system In Subsection 10.2.2.3. Added description about the OPC operation in the last paragraph of Subsection 10.2.2.3.1.3. Added “(denoted as 20-OPC1 and 20-OPC2 in Figure10.2-3)” in the 1st paragraph of Subsection 10.2.2.3.1.5. Revised description about the turbine	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				protection system of Section 10.2.2.3.2, and incorporated description about the emergency trip system of Subsection 10.2.2.3.2.1 in Subsection 10.2.2.3.2. Replaced the section number into 10.2.2.3.2.1 from 10.2.2.3.2.2, and revised description about the trip block based on RAI Response. Replaced the section number into 10.2.2.3.2.2 from 10.2.2.3.2.3, and revised description about the overspeed trip functions and mechanisms based on RAI Response. Replaced the section number of the description about the test blocks into 10.2.2.3.2.3 from	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				10.2.2.3.2.4 and replaced "setpoint" with "set point". Replaced the section number of the description about the thrust bearing trip device into 10.2.2.3.2.4 from 10.2.2.3.2.5. Replaced the section number of the description about the remote trip into 10.2.2.3.2.5 from 10.2.2.3.2.6, and revised the description based on RAI Response. Replaced "a fracture toughness" in the 2nd paragraph of subsection 10.2.3.2 with "fracture toughness". Added Table 10.2-5, Figure 10.2-2 and Figure 10.2-3.	
DCD_10.02-4	Acronyms and Abbreviation 10.1.2 10.2.1.1 10.2.1.2	10-xi 10-xii 10-xiii 10.1-2 10.1-3	Response to RAI No. 598 MHI Letter No. UAP-HF-11170 Date	Added "CCF", "DAS", "EOST", "MOST", "SLS" and "TPS" to the acronyms and	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	10.2.2.2 10.2.2.2.1 10.2.2.2.2 10.2.2.2.4 10.2.2.2.8(New Subsection) 10.2.2.3(New Subsection) 10.2.2.3.1 10.2.2.3.2 10.2.2.3.1.1 10.2.2.3.1.2 10.2.2.3.1.3 10.2.2.3.1.5 10.2.2.3.1.6 10.2.2.3.2 10.2.2.3.2.1 10.2.2.3.2.2 10.2.2.3.2.6 10.2.2.3.3 10.2.2.3.5 10.2.3.5 10.2.5 Table 10.2-2 New Table 10.2-5 10.2-2(New figure) 10.2-3 (New figure)	10.2-1 10.2-2 10.2-3 10.2-4 10.2-6 10.2-7 10.2-8 10.2-9 10.2-10 10.2-11 10.2-13 10.2-14 10.2-15 10.2-21 10.2-22 10.2-24 10.2-26 10.2-27	06/07/2011	abbreviation. Revised the description of section 10.1.2 about “Turbine Overspeed Protection” and “Radioactivity Protection”. Revised the description in the 2nd paragraph of Subsection 10.2.1.1. Revised the description in the 5th paragraph of subsection 10.2.1.2 about the trip automatically under abnormal conditions. Replaced “emergency trip” in the 6th paragraph of Subsection 10.2.1.2 with “overspeed trip”. Replaced “exceeding design overspeed” in the 7th paragraph of Subsection 10.2.1.2 with “to exceed the	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				design overspeed". Added description about fail-safe design of turbine control and TPS in the 8th paragraph of Subsection 10.2.1.2. Deleted description about non-return valves in Subsection 10.2.1.2. Replaced "digital electro hydraulic (DEH) control system" or "DEH system" in Section 10.2 with "turbine control system". Replaced "the emergency trip system" in subsection 10.2.2.2.1 and 10.2.2.2.4 with "TPS". Added new subsection 10.2.2.2.8. Added description about the composition of the	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				turbine control system In Subsection 10.2.2.3. Revised the description in the 3rd paragraph of Subsection 10.2.2.3.1.1. Revised in Subsection 10.2.2.3.1.3 and 10.2.2.3.1.5, in order to clarify more. Revised description about the turbine protection system of Section 10.2.2.3.2, and incorporated description about the emergency trip system of Subsection 10.2.2.3.2.1 in Subsection 10.2.2.3.2. Deleted “when closed” in the 1st paragraph of 10.2.2.3.2.1, and replaced “emergency trip	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				system" with "TPS". Replaced "mechanical overspeed emergency trip" or "mechanical overspeed trip" in Section 10.2 with "MOST", and replaced "electrical emergency trip" or "electrical overspeed trip" in Section 10.2 with "EOST". Replaced the section number into 10.2.2.3.2.1 from 10.2.2.3.2.2, and revised description about the trip block based on RAI Response. Replaced the section number into 10.2.2.3.2.2 from 10.2.2.3.2.3, and revised description about the overspeed trip functions and mechanisms based on RAI Response. Replaced the section number of	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				the description about the test blocks into 10.2.2.3.2.3 from 10.2.2.3.2.4. Replaced the section number of the description about the thrust bearing trip device into 10.2.2.3.2.4 from 10.2.2.3.2.5. Replaced the section number of the description about the remote trip into 10.2.2.3.2.5 from 10.2.2.3.2.6. Replaced the section number of the description about the other protective device into 10.2.2.3.2.6 from 10.2.2.3.2.7, and replaced “nonreturn valves” with “non-return valves”. Added the description about TSI in Subsection 10.2.2.3.3. Revised the	

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				description about the inspection and test requirements for overspeed trip device in Subsection 10.2.2.3.5. Revised the description about the inspection and test of extraction non-return valves in subsection 10.2.3.5. Replaced "turbine maintenance and inspection procedure" in Subsection 10.2.5 with "turbine maintenance, inspection and test procedure". Revised Table 10.2-2 to reason as discussed in RAI Response. Added Table 10.2-5, Figure 10.2-2 and Figure 10.2-3.	
DCD_10.04.06-17	10.3.7	10.3-21	Amended Response to RAI No. 807 MHI Letter No.	Added new COL item as COL 10.3(4) in	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			UAP-HF-11328 Date 09/29/2011	Subsection 10.3.7.	
DCD_10.04.08-9	10.4.8.1.1 Fig 10.4.8-1	10.4-65 10.4-78 10.4-79	Response to RAI No. 862 MHI Letter No. UAP-HF-11430 Date 12/12/2011	10.4.8.1.1 Corrected description about failure of SGBDS appropriately. Figure 10.4.8-1 Valve tag No. is added for AOV-502A/B/C/D-N to be specified.	-
DCD_06.01.01-21	Table 10.4.9-7	10.4-107	Response to RAI No. 612 MHI Letter No. UAP-HF-10233 Date 08/25/2010	Added information regarding stainless steel weld filler materials.	-
MIC-03-10-00001	10.4.12	10.4-128 [10.4-129]	Result of COL ITEMS Consistency Review at making DCD R3 UTR Rev2	Corrected formatting of the COL Itemsin Section 10.4.12 to be consistent with rest of DCD.	2

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

10.4.12 Combined License Information

MIC-03-10-00001

COL 10.4(1) Circulating Water System

The Combined License Applicant is to determine the site specific final system configuration and system design parameters for the CWS including makeup water and blowdown.

COL 10.4(2) Steam Generator Blowdown System

The Combined License applicant is to address the discharge to Waste Water System including site specific requirements.

COL 10.4(3) Deleted.

COL 10.4(4) Deleted.

COL 10.4(5) System Design for Steam Generator Drain

The Combined License applicant is to address the nitrogen or equivalent system design for Steam Generator Drain Mode. (This is dependent on Waste water system design)

COL 10.4(6) Operating and maintenance procedures for water hammer prevention

The Combined License Applicant is to provide operating and maintenance procedures in accordance with NUREG-0927 and a milestone schedule for implementation of the procedure.

Tier 2

Chapter 11

Chapter 11 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_11.03-19	Table 11.3-3 (Sheet 1 of 2)	11.3-22	Response to RAI No. 712 MHI Letter No. UAP-HF-11140 Date 5/17/2011	Revised Table 11.3-3 reflected on DCD RAI No. 712 response.	-
DCD_11.03-18	11.5.1.2 11.5.6	11.5-3 11.5-19	Response to RAI No. 629 MHI Letter No. UAP-HF-11164 Date 5/31/2011	Added the description about IE bulletin 80-10 as reference 11.5-36.	-
DCD_11.04-19	11.2.5	11.2-18	Response to Amended RAI No. 534 MHI Letter No. UAP-HF-11320 Date 09/21/2011	Editorial correction Replace Ref.11.2-24 with ref.11.2-25 on COL 11.2(8).	-
MIC-03-11-00002	11.4.8	11.4-18	Result of COL ITEMS Consistency Review at making DCD R3 UTR Rev2	Period missing between "systems)" and "The".	2
DCD_11.05-18	11.5.1.2	11.5-3	Response to RAI No. 522 MHI Letter No. UAP-HF-10071 Date 3/8/2010	Added the description about RG 1.45.	2
MIC-03-11-00002	11.5.4	11.5-16	Result of COL ITEMS Consistency Review at	Unnecessary space before parenthesis in COL Item	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			making DCD R3 UTR Rev2	No.should be COL 11.5(1).	

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

Instruments, including back flushing provisions, are located in low radiation areas when possible for accessibility and fulfillment of the ALARA provisions.

11.4.8 Combined License Information

The COL Applicant is to provide the following, which apply on a plant-specific basis:

COL 11.4(1) *The current design meets the waste storage requirements in accordance with ANSI/ANS-55.1. When the COL Applicant desires additional storage capability beyond that which is discussed in this Tier 2 document, the COL Applicant will identify plant-specific needs for on-site waste storage and provide a discussion of on-site storage of low-level waste.*

COL 11.4(2) *Deleted*

COL 11.4(3) *The COL Applicant is to prepare a plan for the process control program describing the process and effluent monitoring and sampling program. The plan should include the proposed implementation milestones.*

COL 11.4(4) *The COL Applicant is to describe mobile/portable SWMS connections that are considered non-radioactive but later may become radioactive through contact or contamination with radioactive systems (i.e., a non-radioactive system becomes contaminated due to leakage, valving errors, or other operating conditions in the radioactive systems). The COL Applicant is to prepare a plan to develop and use operating procedures so that the guidance and information in Inspection and Enforcement (IE) Bulletin 80-10 (Ref. 11.4-29) is followed.* MIC-03-11-00002

COL 11.4(5) *The current design provides collection and packaging of potentially contaminated clothing for offsite shipment and/or disposal. Depending on site-specific requirements, the COL Applicant can send the wastes to an offsite laundry facility processing and/or bring in a mobile compaction unit for volume reduction. The laundry services, including contracted services and/or a temporary mobile compaction subsystem, are COL items.*

COL 11.4(6) *The COL Applicant is required to perform a site-specific cost benefit analysis to demonstrate compliance with the regulatory requirements.*

COL 11.4(7) *The SWMS design does not include solid waste processing facility (e.g. de-watering system, compactor for reducing waste volume) but provides the flexibility for the site-specific utilities to add compaction equipment or to adopt contract services from specialized facilities. This is the responsibility of the COL Applicant.*

COL 11.4(8) *The COL Applicant is to provide piping and instrumentation diagrams (P&IDs).*

monitoring and sampling of radioactive iodine and particulates in gaseous effluents from all potential accident release points are performed.

- Provide monitoring capability for in-plant radiation and airborne radioactivity for a broad range of routine and accident conditions in accordance with the requirements of 10 CFR 50.34(f)(2) (xvii) and 50.34(f)(2)(xxvii) (Ref. 11.5-4).

- Provide monitoring and sampling capabilities to assure plant systems operate as they are designed and installed in accordance with the requirements of 10 CFR 52.47(b)(1) (Ref. 11.5-9).

- Provide capabilities to detect, monitor, quantify, and identify leakage into the containment from the RCS in accordance with the requirements of RG 1.45 (Ref. 11.5-31) and ANSI N42.18-2004 (Ref. 11.5-11).

The process and effluent radiological monitoring and sampling system described herein is used for detailed design. The process and effluent radiological monitoring and sampling system is designed to meet the applicable requirements of ANSI N13.1-1999 (Ref. 11.5-10), ANSI N42.18-2004 (Ref. 11.5-11), RG 1.21 (Ref. 11.5-12), RG 1.33 (Ref. 11.5-17), RG 1.45 (Ref. 11.5-31), RG 1.97 (Ref. 11.5-13), RG 4.15 (Ref. 11.5-14), NUREG-0718 (Ref. 11.5-32), NUREG-0800 BTP 7-10 ~~and~~, NUREG-0800 Appendix 11.5-A (Ref. 11.5-15) and IE bulletin 80-10 (Ref. 11.5-36). DCD_11.05-18 DCD_11.03-18

11.5.2 System Descriptions

11.5.2.1 Process and Effluent Radiological Monitoring and Sampling System

The process and effluent radiological monitoring and sampling system is comprised of various distributed sets of radiation monitors each of which consists of sample collectors, detectors, and a radiation processor, with the exception of line monitors which have no sampling component. Each sample collector and the associated radiation detector, contained in one integral unit is shielded to minimize radiation from background and adjacent equipment. This design consideration is in conformance with the RG 1.45 requirement to minimize the effect of local ambient radiation. The radiation detectors send information to the radiation processors, which are used to determine the concentration of radioactive material in the monitored stream. The processor serves as the data collection center where data is received, processed, and stored. Additionally, the processor maintains a continuous display of the radiation levels for each monitored system and transmits alarm signals in the event that radiation levels exceed the predetermined setpoints. Data and alarm signals are transmitted to the MCR and made accessible to plant operators, in conformance with the requirements of RG 1.45.

The process and effluent radiological monitoring and sampling system measures, analyzes, and displays the radioactivity levels for the main process and effluent streams as described below.

- Liquid process streams that are radioactive or have the potential of becoming radioactive from cross-contamination

The design also includes provisions for manual sampling at key locations to confirm the stream compositions and radiation levels, and to verify the performance and accuracy of the radiological monitors. The manual sampling locations, methodology, analysis objectives, and frequencies are included in Chapter 9, Subsection 9.3.2.

11.5.4 Process Monitoring and Sampling

Radiological monitoring and sampling instruments are provided for gaseous and liquid radwaste discharge streams so that GDC 63 (Ref. 11.5-8) is met.

Radiological monitoring and sampling instruments are provided on key process streams, which contain radioactive material, and those which may become radioactive through cross-contamination. These instruments provide early warning to plant operator to minimize radioactive wastes. The radwaste monitoring and sampling instruments include automatic isolation valves comply with GDC 60 (Ref. 11.5-8).

11.5.5 Combined License Information

COL 11.5-(1) *The COL Applicant is responsible for the addtional site-specific aspects of the process and effluent monitoring and sampling system beyond the standard design, in accordance with RGs 1.21, 1.33 and 4.15 (Ref. 11.5-12, 11.5-17, 11.5-14). Furthermore, the COL Applicant is responsible for assuring the fulfillment of the guidelines issued in 10 CFR 50, Appendix I (Ref. 11.5-3) regarding the offsite doses released through gaseous and liquid effluent streams.* MIC-03-11-00002

COL 11.5(2) *The COL Applicant is to prepare an offsite dose calculation manual to provide specific administrative controls and liquid and gaseous effluent source terms to limit the releases to site-specific requirements containing a description of the methods and parameters that drive to arrive radiation instrumentation alarm setpoint. The COL Applicant is to commit to follow the NEI generic template 07-09A (Ref. 11.5-30) as an alternative to providing the offsite dose calculation manual at the time of application.*

COL 11.5(3) *The COL Applicant is to develop a radiological and environmental monitoring program taking into consideration local land use and census data in identifying all potential radiation exposure pathways. The program shall take into account associated radioactive materials present in liquid and gaseous effluents and direct external radiation from SSCs. The COL Applicant is to follow the guidance outlined in NUREG-1301(Ref. 11.5-21), and NUREG-0133 (Ref. 11.5-18) when developing the radiological effluent monitoring program. The COL Applicant is to commit to follow the NEI generic template 07-09A (Ref. 11.5-30) as an alternative to providing the radiological effluent monitoring program at the time of application.*

Tier 2

Chapter 12

Chapter 12 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_12.03-12.04-34	Table 12.3-7	12.3-51	Response to RAI No. 524 MHI Letter No. UAP-HF-10274 Date 10/12/2010	Revised Table 12.3-7 to reason as discussed in the response to RAI No. 524.	-
RCOL2_12.03-12.04-11 S02	Table 12.3-8 (Sheet 15 of 61)	12.3-66	MHI Letter No. UAP-HF-11218 Date 07/15/2011	Added description about CST overflow.	-
RCOL2_12.03-12.04-11 S02	Table 12.3-8 (Sheet 60 of 61)	12.3-111	MHI Letter No. UAP-HF-11218 Date 07/15/2011	Added description about Auxiliary Boiler blow down.	-
DCD_09.02.05-8	Table 12.3-8 (sheets 7, 8 10, 11)	12.3-58 12.3-59 12.3-61 12.3-62	Response to RAI No. 286 MHI Letter No. UAP-HF-11232 Date 07/25/2011	Revised the Table 12.3-8 which shows RG 4.21 design objectives and system features of the ESWS to identify that any leak form the CCW heat exchanger which is interface between CCWS and ESWS does not allow mixing of the potentially radioactive CCW and the nonradioactive ESW because of the CCW heat exchanger structure.	-
DCD_09.02.02-69	Table 12.3-8 (sheets 13, 14)	12.3-64 12.3-65	Response to RAI No. 576 MHI Letter No.	Added description about in-leakage through a RCP	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			UAP-HF-11238 Date 07/29/2011	thermal barrier in table 12.3-8 (sheet 13). Added description about CCWS makeup source in table 12.3-8 (sheet 14).	
RCOL2_12.03-12.04-11 S03	Table 12.3-8 (Sheet 16 of 62)	12.3-67	MHI Letter No. UAP-HF-11253 Date 08/3/2011	Revised description about CST overflow.	-
DCD_09.02.06-3	Table 12.3-8 (Sheet 16)	12.3-66	Response to RAI No. 863 MHI Letter No. UAP-HF-11432 Date 12/15/2011	Added the second paragraph about impact on safety-related SSCs.	-
DCD_09.04.03-18	12.3.3.3 Table 12.3-8 (Sheets 29, 30, 32)	12.3-23 12.3-79 12.3-80 12.3-82	Response to RAI No. 831 MHI Letter No. UAP-HF-12016 Date 1/27/2012	Revised the description for control function of radioactive airborne materials by AB HVAC System..	-
DCD_09.02.06-3	Table 12.3.8 (sheet 16 of 42)	12.3-66 [12.3-67]	Response to RAI No. 863 MHI Letter No. UAP-HF-11432 Date 12/15/2011	Added the third second paragraph in the “System Features” column.	-
MIC-03-12-00002	12.1.4	12.1-8	Result of COL ITEMS Consistency Review at making DCD R3	Unnecessary space before parenthesis in COL Item No. should be COL 12.1(#).	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			UTR Rev2		

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Operational procedures will be developed, following the guidance of RG 4.21 (Reference 12.1-27), for the operation and handling of all structure, system, and components (SSC) which could be potential sources of contamination within the plant. These procedures will be developed according to the objective of limiting leakage and the spread of contamination within the plant. See Subsection 12.1.4 for COL information.

12.1.4 Combined License Information

COL 12.1-(1) *The COL Applicant is to demonstrate that the policy considerations regarding plant operations are compliance with RG 1.8, 8.8 and 8.10 (Subsection 12.1.1.3).* MIC-03-12-00002

COL 12.1-(2) *Deleted.* MIC-03-12-00002

COL 12.1-(3) *The COL Applicant is to describe how the plant follows the guidance of RG 8.2, 8.4, 8.6, 8.7, 8.9, 8.13, 8.15, 8.25, 8.27, 8.28, 8.29, 8.34, 8.35, 8.36 and 8.38.*

COL 12.1-(4) *Deleted.* MIC-03-12-00002

COL 12.1-(5) *The COL Applicant is to describe the operational radiation protection program for ensuring that occupational radiation exposures are ALARA.*

COL 12.1-(6) *The COL Applicant is to describe the periodic review of operational practices to ensure configuration management, personnel training and qualification update, and procedure adherence.* MIC-03-12-00002

COL 12.1-(7) *The COL Applicant is to describe implementation of requirements for record retention are tracked according to 10 CFR 50.75(g) and 10 CFR 70.25(g) as applicable.* MIC-03-12-00002

COL 12.1(8) *The COL Applicant is responsible for the development of the operational procedures, following the guidance of RG 4.21 (Reference 12.1-27), for the operation and handling of all structure, system, and components (SSC) which could be potential sources of contamination within the plant. These procedures will be developed according to the objective of limiting leakage and the spread of contamination within the plant.*

12.1.5 References

12.1-1 "Standards for Protection Against Radiation," Energy. Title 10, Code of Federal Regulations, Part 20, U.S. Nuclear Regulatory Commission, Washington, DC, May 1991.

12.1-2 Generic FSAR Template Guidance for Ensuring That Occupational Radiation Exposures Are As Low As Is Reasonably Achievable (ALARA). NEI Technical Report 07-08A, Revision 0, Oct. 2009.

12.1-3 Qualification and Training of Personnel for Nuclear Power Plants. RG 1.8, Rev. 3, U.S. Nuclear Regulatory Commission, Washington, DC, May 2000.

12.1-4 Information Relevant to Ensuring that Occupational Radiation Exposures at Nuclear Power Stations Will Be as Low as Is Reasonably Achievable. RG 8.8, Rev. 3, U.S. Nuclear Regulatory Commission, Washington, DC, June 1978.

Tier 2

Chapter 13

Chapter 13 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_09.05.02-11	13.3	13.3-1	RAI No. 859 MHI Letter No. UAP-HF-11415 Date 11/30/2011	Revised the description in the sixth paragraph of Subsection 13.3.	-
MIC-03-13-00001	13.6.4	13.6-6	Result of COL ITEMS Consistency Review at making DCD R3 UTR Rev2	Deleted the lone parenthesis.	2

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13.6.4 Combined License Information

COL 13.6(1) *The COL Applicant is to develop and provide the plant overall security plan* (consisting of the physical security plan, safeguards contingency plan, and the guard training and qualification plan) and the cyber security plan *and the implementation schedule for security programs.*

COL 13.6(2) *The COL Applicant is to develop and provide as part of its physical security plan site specific physical security features and capabilities, such as (i) the physical barrier surrounding the protected area boundary; (ii) the isolation zone in areas adjacent to the protected area boundary, (iii) security lighting, or use of low-light technology, for the isolation zone and protected area; (iv) the vehicle barrier system, (v) controlled access points to control entry of personnel, vehicles and materials into the protected area, (vi) the intrusion detection system, and (vii) the closed circuit television camera and video assessment systems to provide monitoring and assessment of the protected area perimeter.*

COL 13.6(3) *The COL Applicant is to revise the non-standard plant vital area and vital equipment information contained in the US-APWR Design Certification, Physical Element Review to be consistent with its site-specific design.*

COL 13.6(4) *The COL Applicant is to make provision for the secondary alarm station in accordance with the requirements of 10 CFR 73.55(i)(4).*

COL 13.6(5) *The COL Applicant physical security plan is to make provision for radio or microwave transmitted two-way voice communication~~)~~ to communicate with the local law enforcement agencies.* MIC-03-13-00001

13.6.5 References

13.6-1 'Contents of Applications; Technical Information in Final Safety Analysis Report,' "Domestic Licensing of Production and Utilization Facilities," Energy. Title 10, Code of Federal Regulations, Part 52.79, U.S. Nuclear Regulatory Commission, Washington, DC.

13.6-2 "Fitness for Duty Programs," Energy. Title 10, Code of Federal Regulations, Part 26, U.S. Nuclear Regulatory Commission, Washington, DC.

13.6-3 "Physical Protection of Plants and Materials," Energy. Title 10, Code of Federal Regulations, Part 73, U.S. Nuclear Regulatory Commission, Washington, DC.

13.6-4 'Conditions of Licenses,' "Domestic Licensing of Production and Utilization Facilities," Energy. Title 10, Code of Federal Regulations, Part 50.54, U.S. Nuclear Regulatory Commission, Washington, DC.

Tier 2

Chapter 14

Chapter 14 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_14.03.07-55	14.2.12.1.70	14.2-102	Response to RAI No. 675 MHI Letter No. UAP-HF-11021 Date 01/31/2011	Replaced “a 1/4” with “less than or equal to -0.25”	-
DCD_14.02-123	14.2.12.1.54	14.2-87 14.2-88	Response to RAI No. 678 MHI Letter No. UAP-HF-11054 Date 03/01/2011	Added “including the emergency letdown line.” Added “and the emergency letdown line” Added “and the emergency letdown line”	-
DCD_03.09.04-11	14.2.12.1.10 14.2.12.1.11	14.2-41 14.2-41 14.2-42	Response to RAI No. 679 MHI Letter No. UAP-HF-11120 Date 04/25/2011	Revised Subsection 14. 2.12. 1.10 and 14. 2.12.1.11 for RAI response.	-
DCD_14.03.03-24	Table 14.3-2 (Sheet 3 of 4)	14.3-53	Response to RAI No. 743 MHI Letter No. UAP-HF-11146 Date 05/26/2011	Replaced “Category” with “Category I”.	-
DCD_09.02.02-80	14.2.12.1.87	14.2-120	Response to RAI No. 697	Added description about the Initial	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
This change is superseded by the amend RAI Response.		14.2-121	MHI Letter No. UAP-HF-11133 Date 5/12/2011	Plant Test Program for alternative water sources.	
DCD_09.02.02-50	14.2.12.1.87	14.2-123 14.2-124	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Subsection 14.2.12.1.87 to add verification that there are not unacceptable water hammer or pressure waves detected when pumps are started or stopped.	-
DCD_09.02.02-55	14.2.12.1.87	4.2-122 14.2-123	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Added that prerequisites in subsection 14.2.12.1.87. Added that test method for water hammer in subsection 14.2.12.1.87. Added that acceptance criteria for water hammer in subsection 14.2.12.1.87.	-
DCD_09.02.02-68	14.2.12.1.34 This change is superseded by the amend RAI Response.	14.2-66	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Added that prerequisites in subsection 14.2.12.1.87. Added that test method for water	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				hammer in subsection 14.2.12.1.87. Added that acceptance criteria for water hammer in subsection 14.2.12.1.87.	
DCD_09.02.02-80	14.2.12.1.87	14.2-120 14.2-121	Amended Response to RAI No. 697 MHI Letter No. UAP-HF-11239 Date 7/29/2011	Revised Subsection 14.2.12.1.87 to add the description regarding verification of the lineup: The cooling water supply line from alternative sources non-ECWS and FSS to the charging pumps, The cooling water supply line from CCWS to the containment fan coolers.	-
DCD_14.02-125	14.2.12.2.3.9	14.2-170	Response to RAI No759 MHI Letter No. UAP-HF-11230 Date 7/20/2011	Added. “2. Adequate mixing of boron is demonstrated by sampling reactor coolant at RCS B-Loop and C-Loop hot legs to determine that a similar minimum boron concentration	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				is achieved at both points under natural circulation conditions" in D. Acceptance Criteria of Subsection 14.2.12.2.3.9	
DCD_03.09.04-11	14.2.12.1.10 14.2.12.1.11	14.2-41 14.2-42	Response to RAI No. 679 MHI Letter No. UAP-HF-11245 Date 7/29/2011	Restored the description of prerequisites to a consistency format of subsection 14.2.12.1	--
DCD_09.02.02-68	14.2.12.1.34 14.2.12.1.115	14.2-68 14.2-145	2nd Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Added that test method for interlocks in subsection 14.2.12.1.34. Revised the subsection 14.2.12.1.115 to reflect change of the channel number of CCW surge tank level gauge. Revised the subsection 14.2.12.1.115 to reflect addition of the channel of CCW surge tank level gauge.	-
DCD_06.05.01-	14.2.12.1.66	14.2-99	Response to RAI No. 826	Revised the sentence of the C.2	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
21			MHI Letter No. UAP-HF-11346 Date 10/06/2011	from “Simulate high vibration signals and verify alarm annunciation.” to “Simulate low airflow and high vibration signals and verify alarm annunciation.”	
DCD_06.05.01-22	14.2.12.1.90	14.2-123	Response to RAI No. 826 MHI Letter No. UAP-HF-11346 Date 10/06/2011	Revised the sentence of the A.1 from “To demonstrate operation of the fire protection system, (water system and gaseous systems)…” to “To demonstrate operation of the fire protection system, (fire dampers, water system and gaseous systems)…” Revised the sentence of the C.1 from “Demonstrate operation of the fire detection system.” to “Verify operation of the fire detection system and gaseous fire suppression systems.”	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Revised the sentence of the C.7 from “Verify operation of the gaseous fire protection systems.” to “Verify operation of fire dampers during full flow conditions.”	
DCD_08.03.01-38	Table 14.3-1d (Sheets 3,4)	14.3-44 14.3-45	Response to RAI No. 394 MHI Letter No. UAP-HF-11404 Date 11/22/2011	Revised the description for adopting different manufacturers for the AAC GTG and Class 1E GTG ensures diversity.	-
DCD_3.12-25	New Subsection 14.2.8.2.2 Table 14.2-1 (sheet 4) 14.2.12.1.1 New Subsection 14.2.12.1.119 14.2.14 Table 14A-1 (sheet 17)	14.2-19 14.2-28 14.2-32 14.2-150 14.2-191 14A-1	Response to RAI No. 742 MHI Letter No. UAP-HF-11363 Date 10/26/2011	Added the description for the pressurizer surge line HFT performance test.	-
MIC-03-14-00002	Table 14.3-1a (Sheet 2 of 8)	14.3-32	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated	Alternatively refer precise subsection 6.2.2.2.6 and 6.2.3 for strainer information.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			08/31/2011		
DCD_03.12-29	Table 14.2-1 (Sheet 5) New Subsection 14.2.12.2.4.23 Table 14.2-3 Table 14A-1	14.2-29 14.2-187 14.2-194 14A-17	Response (60 day) to RAI No. 804 MHI Letter No. UAP-HF-11410 Date 11/25/2011	The statement about cavity flow is added.	-
DCD_09.02.02-82	14.2.12.1.3	14.2-34	Response to RAI No. 760 MHI Letter No. UAP-HF-12043 Date 02/15/2012	Added RCP No. 2 seal type test as a prerequisite to RCP Initial Operation Preoperational Test	-
DCD_14.03.03-26	14.3.4.3	14.3-13 14.3-14	Response to RAI No. 892 MHI Letter No. UAP-HF-12045 Date 02/17/2012	Tier 2 Section 14.3.4.3, “Generic ITAAC,” bullets are revised to provide consistency with Tier 1 Table 2.3-2 ITAAC by addressing both as-designed and as-built pipe break hazard analyses.	-
DCD_14.03.03-27	Acronyms 14.3.4.3 14.3.6 New App 14B	14-vi 14-viii 14.3-14 14.3-26 14A-17	Response to RAI No. 892 MHI Letter No. UAP-HF-12045 Date 02/17/2012	A new COL item is added in DCD Tier 2 Section 14.3.4.3 to provide a DAC ITAAC closure schedule. The wording of Tier 2 Section 14.3.4.3 and Appendix 14B. is changed to align with the plan described in UAP-HF-11135 (ML11136A234)	-

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Tier 2

Chapter 15

Chapter 15 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_15.4.6-6	15.4.6.2 15.4.6.3.3.1	15.4-51 15.4-54	Response to RAI No. 682 MHI Letter No. UAP-HF-11104 Date 04/15/2011	Added the new sentence in 7th paragraph in Subsection 15.4.6.2. Revised the first paragraph in Subsection 15.4.6.3.3.1.	-
DCD_15.4.6-9	15.4.6.2 15.4.6.3.2 15.4.6.3.3.2 Table 15.4.6-1	15.4-51 15.4-52 15.4-53 15.4-54 15.4-54 15.4-55 15.4-56	Response to RAI No. 708 MHI Letter No. UAP-HF-11104 Date 04/15/2011	Revised the 11th paragraph in subsection 15.4.6.2. Replaced the second paragraph and revised the 6th and 7th bullets in subsection 15.4.6.3.2. Revised the 4th paragraph in subsection 15.4.6.3.3.2. Revised the table 15.4.6-1.	-
DCD_16-298	15.0.0.6 15.2.6.4.1 15.2.6.4.2 15.2.6.4.3 Table 15.2.6-1 Figure	15.0-10 15.2-21 15.2-21 15.2-22 15.2-23 15.2-24 15.2-28	Response to RAI No. 399 MHI Letter No. UAP-HF-11160 Date 05/30/2011	Revise the each section regarding to automatic CVCS isolation. Added the new result for LCO case in subsection 15.2.6,	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	15.2.6-4 15.2.7.4.1 15.2.7.4.2 15.2.7.4.3 Figure 15.2.7-11 15.2.8.1 15.2.8.2 15.2.8.4.1 15.2.8.4.2 15.5.2 15.5.2.2 15.5.2.3 15.5.2.4.2 15.5.2.4.3 15.5.2.6 Table 15.5.2-1 Figure 15.5.2-1 through 15.5.2-5	15.2-38 15.2-39 15.2-39 15.2-52 15.2-54 15.2-54 15.2-56 15.2-57 15.5-1 15.5-2 15.5-3 15.5-3 15.5-4 15.5-5 15.5-6 15.5-7 through 15.5-12		15.2.7 and 15.2.8.	
DCD_15-26	15.0.0.3 Table 15.0-5	15.0-7 15.0-30	Response to RAI No. 769 MHI Letter No. UAP-HF-11224 Date 7/15/2011	Added new sentence in last paragraph in subsection 15.0.0.3 Added new footnote in Table 15.0-5	-
DCD_15.0.0-30	15.0.0.2.4	15.0-5	Response to RAI No. 786	Added the description in the	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	Table 15.0-1 (sheets 1-4)	15.0-23 through 15.0-26	MHI Letter No. UAP-HF-11271 Date 8/25/2011	second paragraph in Subsection 15.0.0.2.4 Added the footnote in table 15.0-1.	
DCD_15.0.0-31	15.0.0.2	15.0-3	Response to RAI No. 786 MHI Letter No. UAP-HF-11271 Date 8/25/2011	Added the new paragraph between the Subsection 15.0.0.2 and 15.0.0.2.1. Added the new reference in subsection 15.0.5.	-
DCD_15.01.01-15.01.04-7	Table 15.1.4-1	15.1-62	Response to RAI No. 787 MHI Letter No. UAP-HF-11272 Date 8/25/2011	Added the new event description in Table 15.1.4-1.	-
DCD_15.01.01-15.01.04-8	15.1.2.2	15.1-13	Response to RAI No. 787 MHI Letter No. UAP-HF-11272 Date 8/25/2011	Deleted the last sentence of second paragraph in subsection 15.1.2.2.	-
DCD_15.01.05-6	15.1.5.3.3 Table 15.1.5-1 Figures 15.1.5-27 through 15.1.5-32	15.1-87 15.1-88 15.1-93 15.1-122	Response to RAI No. 788 MHI Letter No. UAP-HF-11273 Date 8/25/2011	Added the description in subsection 15.1.5.3.3 (3). Added the new table in table 15.1.5-1. Added the new figures as Figure 15.1.5-27 through	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				15.1.5-32.	
DCD_15.04.08-11	Table 15.0-1 (sheet 3) 15.4.8.1 15.4.8.2 15.4.8.2.1 15.4.8.2.3 15.4.8.2.4 15.4.8.3.1 15.4.8.3.2 15.4.8.3.3 15.4.8.4.1 15.4.8.4.2 Table 15.4.8-1 Table 15.4.8-2 Figures 15.4.8-2 through 15.4.8-7	15.0-25 15.4-64 15.4-65 15.4-66 15.4-67 15.4-68 15.4-69 15.4-70 15.4-71 15.4-71 15.4-72 15.4-76 15.4-77 15.4-82 through 15.4-87	Response to RAI No. 785 MHI Letter No. UAP-HF-11276 Date 08/31/2011	Added the code name in Table 15.0-1 Revised the several descriptions to update the HFP rod ejection methodology and results.	-
DCD_15.0.0-24 S01	15.0.0.7	15.0-10	Response to RAI No. 687 MHI Letter No. UAP-HF-11295 Date 09/09/2011	Revised the first paragraph of Subsection 15.0.0.7 following the agreement of tel-meeting with NRC.. Revised the 4th and 5th paragraphs of Subsection 15.0.0.7 following the agreement of tel-	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				meeting with NRC..	
DCD_15-26 S01	15.1.4.2 15.1.4.3.2 15.1.5.2 15.1.5.3.2 Table 15.1.5-1 Table 15.2.8-1	15.1-57 15.1-59 15.1-79 15.1-83 15.1-93 15.2-60	Response to Amended RAI No. 769 MHI Letter No. UAP-HF-11305 Date 09/09/2011	Revised the 14th paragraph and added the new bullet in Subsection 15.1.4.2. Revised the 7th bullet in Subsection 15.1.4.3.2. Revised the 3rd paragraph and added the new bullet in "System assumption" in Subsection 15.1.5.2. Revised the 6th bullet in 2nd paragraph in Subsection 15.1.5.3.2 (1). Revised the Table 15.1.5-1. Revised the table 15.2.8-1	-
DCD_15.06.03-6	15.6.3.4.3 Table 15.6.3-1	15.6-25 15.6-30	Response to RAI No. 808 MHI Letter No. UAP-HF-11323 Date 09/22/2011	Revised the sentence of subsection 15.6.3.4.3 Item 1 c.. Added the new time sequence in Table 15.6.3-1.	
DCD_15.02.01-	Table 15.0-	15.0-23	Response to	Revised the whole	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
15.02.05-9	1(Sheet 1) 15.2.2.2 15.2.2.3.1(New Subsection) 15.2.2.3.2(New Subsection) 15.2.2.3.3(New Subsection) 15.2.2.4.1(New Subsection) 15.2.2.4.2 (New Subsection) 15.2.2.4.3(New Subsection) 15.2.2.6 Table 15.2.2-1, 15.2.2-2, 15.2.2-3(New Tables) Figure 15.2.2-1 through Figure 15.2.2-8 (New Figures)	 15.2-15 15.2-16	RAI No. 789 MHI Letter No. UAP-HF-11331 Date 09/30/2011	description of 15.2.2 because of adding the new analysis. Revised the table 15.0-1.	
DCD_15-33	15.2.1.3.2 15.2.1.3.3 15.2.1.4.1 15.2.1.4.2 15.2.1.4.3 Table 15.2.1-1 Table 15.2.1-2 Table 15.2.1-3(New table)	15.2-4 15.2-5 15.2-5 15.2-5 15.2-7	Response to RAI No. 809 MHI Letter No. UAP-HF-11332 Date 09/30/2011	Revised the 5th and 7th bullets of subsection 15.2.1.3.2 Revised the 3rd paragraph of subsection 15.2.1.3.2 Revised subsection 15.2.1.4.1.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	Figure 15.2.1-1 through Figure 15.2.1-7	15.2-8 through 15.2-14		Added the new paragraph in subsection 15.2.1.4.2. Revised the 1st through 3rd description of subsection 15.2.1.4.3	
DCD_15.01.05-8	15.1.5.3.2 15.1.5.3.3 Table 15.1.5-1 Figures 15.1.5-26 through 15.1.5-33	15.1-85 15.1-87 15.1-93 15.1-122	Response to RAI No. 865 MHI Letter No. UAP-HF-11445 Date 12/12/2011	Added the sixth bullet in subsection 15.1.5.3.2 (2). Added the new paragraph and change the description in subsection 15.1.5.3.3 (3). Replace the result in table 15.1.5-1, figure 15.1.5-26 through 15.1.5-33.	-
MIC-03-07-00009	15.6.5.5.1.2	15.6-86	Response to MHI Letter No. UAP-HF-11374 Date 11/02/2011	Revised Subsection 15.6.5.5.1.2 for NRC staff's request.	1
DCD_15-38	Table 15.0-4 Table 15.0-5	15.0-29 15.0-30	Response to RAI No. 882 MHI Letter No. UAP-HF-12009 Date 1/31/2012	Revised the table 15.0-4 and 15.0-5 to add the new column.	-
DCD_15.01.05-	15.1.5.3.2 15.1.5.3.3	15.1-85 15.1-87	Response to RAI No. 865	Added the sixth bullet in subsection	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
8	Table 15.1.5-1 Figures 15.1.5-26 through 15.1.5-33	15.1-93 15.1-122	MHI Letter No. UAP-HF-11445 Date 12/12/2011	15.1.5.3.2 (2). Added the new paragraph and change the description in subsection 15.1.5.3.3 (3). Replace the result in table 15.1.5-1, figure 15.1.5-26 through 15.1.5-33.	

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

Tier 2

Chapter 16

Chapter 16 Specification Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_16-302	5.5.18 5.5.19	5.5-17 5.5-18	Response to RAI No. 674 MHI Letter No. UAP-HF-11007 Date 01/18/2011	Replaced “Revision 0” with “Revision v”. Added “and supplemental documentation.” Replaced “within 12 hours from the configuration change” with “in accordance with NEI 06-09” Added “[and supplementary documentation on PRA development.” Added “(Revision z)”. Replaced “Revision 1” with “and Supplemental documentation”.	-
DCD_14.03.07-55	3.7.11	3.7.11-2	Response to RAI No. 675 MHI Letter No. UAP-HF-11021 Date 01/31/2011	Replaced “atmospheric pressure” with “surrounding areas”	-
DCD_05.03.02-9	3.4.12	3.4.12-1	Response to RAI No. 693 MHI Letter No. UAP-HF-11070 Date 03/22/2011	Added “specified in the PTLR” in LCO 3.4.12 a.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_16-303	5.5.14	5.5-14	Response to RAI No. 747 MHI Letter No. UAP-HF-11153 Date 05/27/2011	Revised Item b and c for RAI response.	-
DCD_15.4.6-6	3.4.6 3.4.7 3.4.8	3.4.6-1 through 3.4.6-3 3.4.7-1 3.4.7-3 3.4.8-1 through 3.4.8-3	Response to RAI No. 682 MHI Letter No. UAP-HF-11104 Date 04/15/2011	Added the new sentence	-
DCD_16-298	3.4.9	3.4.9-1 3.4.9-2	Response to RAI No. 399 MHI Letter No. UAP-HF-11160 Date 05/30/2011	Added the new sentence	-
DCD_09.02.02-49	3.7.7	3.7.7-2	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Added Surveillance Requirement to verify system leakage.	-
DCD_16-136	5.5.11	5.5-10	Response to Amended RAI No. 161 MHI Letter No. UAP-HF-11349 Date 10/07/2011	Added the face velocity “2400 fpm” as test condition at 5.5.11 c.	-
DCD_06.02.02-64	3.5.4	3.5.4-2	GSI-191 Amended	Revised water volume of SR 3.5.4.2	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			Response to RAI No. 740 MHI Letter No. UAP-HF-11280 Date 8/31/2011	for RAI response.	
MIC-03-16-00005	Spec 5.5.5 Spec 5.6.4	5.5-4 5.6-4	Incorporation of past responses to RAI 133-1827 Question 16-130 and 139 (Resolution for SER Confirmatory Item:CI-SRP-16-CTSB-133-1827/130, CI-SRP-16-CTSB-133-1827/139)	Replaced "the Chapter 3" with "Subsection 3.9.1". Add "LTOP arming,".	1
MIC-03-16-00007	1.1 3.1.9 3.3.1 Table 3.3.1-1 (page 1	1.1-1 to 1.1-5 [1.1-1 to 1.1-7] 1.1-7 to 1.1-8 [1.1-8] [1.1-10] 3.1.9-2 3.3.1-1 3.3.1-3 to 3.3.1-4 3.3.1-6 to 3.3.1-13 3.3.1-14 to 3.3.1-	Change due to NRC meeting result on 2012/1/17	Revised the sections and tables listed in Location column for the NRC meeting result.	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	through 9 of 9)	22			
	3.3.2	3.3.2-2 to 3.3.2-3 [3.3.2-2 to 3.3.2-4] 3.3.2-4 to 3.3.2- 5 [3.3.2-5 to 3.3.2-7] 3.3.2-6 to 3.3.2-8 [3.3.2-8 to 3.3.2-13] 3.3.2-9 to 3.3.2- 11 [3.3.2-14 to 3.3.2-17]			
	Table 3.3.2-1 (page 1 to 11 of 11)	3.3.2-12 to 3.3.2-22 [3.3.2-18 to 3.3.2-28]			
	3.3.3	3.3.3-1 to 3.3.3- 4			
	Table 3.3.3-1 (page 1 of 1)	3.3.3-5			

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	3.3.4	3.3.4-1 to 3.3.4-2 [3.3.4-1 to 3.3.4-3]			
	3.3.5	3.3.5-1 to 3.3.5-3 [3.3.5-1 to 3.3.5-4]			
	3.3.6	3.3.6-1 to 3.3.6-2 [3.3.6-1 to 3.3.6-4]			
	Table 3.3.6-1 (page 1 to 2 of 2)	3.3.6-4 to 3.3.6-5 [3.3.6-5 to 3.3.6-6]			
	5.5.21	5.5-20 to 5.5-23 [5.5-20 to 5.5-25]			

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1.0 USE AND APPLICATION

1.1 Definitions

---NOTE---
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition	
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.	
ACTUATION LOGIC TEST ~~Analog (application of test for analog equipment)~~	An ACTUATION LOGIC TEST ~~– Analog (application of the test for~~which is applied to analog equipment~~)~~ shall be the application of various simulated or actual input combinations in conjunction with each possible interlock logic state required for OPERABILITY of a logic circuit and the verification of the required logic output, including Time Delays. The ACTUATION LOGIC TEST ~~– Analog,~~ as a minimum, shall include a continuity check of output devices.	MIC-03-16-00007 MIC-03-16-00007
~~ACTUATION LOGIC TEST (application of test for digital equipment, PSMS)~~	~~An ACTUATION LOGIC TEST is a check of the PSMS software memory integrity to ensure there is no change to the internal PSMS software that would impact its functional operation or the continuous self-test function.~~ ~~The PSMS is self-tested on a continuous basis from the digital side of all input modules to the digital side of all output modules. Self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. For the PSMS the self-testing is described in Topical Report, "Safety I&C System Description and Design Process," MUAP-07004 Section 4.3 and Topical Report, "Safety System Digital Platform -MELTAC-," MUAP-07005 Section 4.1.5. The software memory integrity test is described in Topical Report, "Safety I&C System Description and Design Process," MUAP-07004 Section 4.4.1 and Topical Report, "Safety System Digital Platform -MELTAC-," MUAP-07005 Section 4.1.4.1.c.~~	MIC-03-16-00007
AXIAL FLUX DIFFERENCE (AFD)	AFD shall be the difference in normalized flux signals between the top and bottom halves of a two section excore neutron detector.	

1.1 Definitions

CHANNEL CALIBRATION

A CHANNEL CALIBRATION shall be the adjustment, as necessary, of ~~the~~ channel ~~output~~measurement devices such that ~~it~~the channel responds within the necessary range and accuracy to known values of the parameter that the channel monitors. MIC-03-16-00007

MIC-03-16-00007

The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY. This shall include the processing of the signal within the digital controller to which the channel measurement device is directly interfaced (i.e., RPS, ESFAS or SLS.)

CHANNEL CALIBRATION encompasses devices that are subject to drift between surveillance intervals and all input devices that are not tested through continuous ~~automated~~automatic self-testing. Refer to TADOT for output devices that are not tested through continuous ~~automated~~automatic self-testing. MIC-03-16-00007 MIC-03-16-00007

The performance of a CHANNEL CALIBRATION shall be consistent with ~~s~~Specification 5.5.21 “Setpoint Control Program” (SCP). MIC-03-16-00007

~~For analog measurements on each Technical Specification required automatic protection instrumentation function implemented with a digital bistable function,~~ CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to digital Visual Display Unit (VDU) readout~~, as described in Topical Report, “Safety I&C System Description and Design Process,” MUAP-07004 Section 4.4.2~~. The digital value read on the VDU originates in the controller that processes the trip, actuation, interlock or safety-related display Functions, and is the same digital value processed for those Functions. The CHANNEL CALIBRATION overlaps with other surveillance requirements to adequately test the PSMS safety Functions. MIC-03-16-00007 MIC-03-16-00007

For analog measurements, CHANNEL CALIBRATION confirms the ~~analog measurement~~channel accuracy at five calibration settings corresponding to 0%, 25%, 50%, 75% and 100% of the instrument range. ~~During the calibration of the instrument, the analog signal generated by the instrument is confirmed via the calibration settings on any VDU (e.g., Operational VDU or Safety VDU).~~ MIC-03-16-00007

CHANNEL CALIBRATION (continued)

For analog measurements on each Technical Specification required automatic protection instrumentation function implemented with an analog bistable function, the CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to output device. For these channels, CHANNEL CALIBRATION confirms the analog measurement accuracy at the Nominal Trip Setpoint (NTSP). MIC-03-16-00007

For binary measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel's state change, as described in Topical Report, "Safety I&C System Description and Design Process," MUAP-07004 Section 4.4.1 at the required setpoint. MIC-03-16-00007

Calibration of instrument channels with resistance temperature detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. MIC-03-16-00007

The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.

CHANNEL CHECK

A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter. A CHANNEL CHECK may be conducted manually or automatically. Either method may be used to satisfy the surveillance frequency requirement. MIC-03-16-00007 Where the CHANNEL CHECK is conducted automatically, an alarm shall be generated when the agreement criteria are not met. If the automated CHANNEL CHECK function is unavailable, a manual CHANNEL CHECK shall be conducted at the minimum surveillance frequency. MIC-03-16-00007

1.1 Definitions

CHANNEL OPERATIONAL TEST (COT) -Analog (application of test for analog equipment)	A COT -Analog shall be the injection of a simulated or actual signal into the channel as close toat a point that overlaps with the sensor as practicablesignal checked during CHANNEL CALIBRATION to verify OPERABILITY of all remaining devices in the channel required for channel OPERABILITY. The COT -Analog shall include adjustments, as necessary, of the required alarm, interlock, and trip setpoints required for channel OPERABILITY such that the setpoints are within the necessary range and accuracy. The COT -Analog may be performed by means of any series of sequential, overlapping, or total channel steps.	MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007
CHANNEL OPERATIONAL TEST (COT) (application of test for digital equipment, PSMS)	A COT is a check of the PSMS software memory integrity to ensure there is no change to the internal PSMS software that would impact its functional operation or the continuous self-test function. The PSMS is self-tested on a continuous basis from the digital side of all input modules to the digital side of all output modules. Self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. For the PSMS the self-testing is described in Topical Report, “Safety I&C System Description and Design Process,“ MUAP-07004 Section 4.3 and Topical Report, “Safety System Digital Platform -MELTAC-,“ MUAP-07005 Section 4.1.5. The software memory integrity test is described in Topical Report, “Safety I&C System Description and Design Process,” MUAP-07004 Section 4.4.1 and Topical Report, “Safety System Digital Platform -MELTAC-,“ MUAP-07005 Section 4.1.4.1.c.	MIC-03-16-00007
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.	
CORE OPERATING LIMITS REPORT (COLR)	The COLR is the unit-specific document that provides cycle-specific parameter limits. These cycle-specific parameter limits shall be determined for each cycle in accordance with Specification 5.6.3. Plant operation within these limits is addressed in individual Specifications.	

1.1 Definitions

DOSE EQUIVALENT I-131	DOSE EQUIVALENT I-131 shall be that concentration of I-131 (microcuries/gram) that alone would produce the same committed effective dose equivalent as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The dose conversion factors used for this calculation shall be those listed in Table 2.1 of EPA Federal Guidance Report No. 11, "Limiting Values of Radionuclide Intake and Air Concentration and Dose Conversion Factors for Inhalation, Submersion, and Ingestion," EPA-520/1-88-020, September 1988.
DOSE EQUIVALENT XE-133	DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same effective dose equivalent as the quantity and isotopic mixture of noble gases (Kr-85m, Kr-85, Kr-87, Kr-88, Xe-133,-and Xe-135) actually present. The dose conversion factors used for this calculation shall be those listed in Table III.1 of EPA Federal Guidance Report No. 12, "External Exposure to Radionuclides in Air, Water, and Soil," EPA 402-R-93-081, September 1993.
ENGINEERED SAFETY FEATURES (ESF) RESPONSE TIME	The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include Class 1E GTG starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC. The ESF RESPONSE TIME includes post-test maintenance as necessary, based on manufacturer's recommendation, to maintain device reliability.

MIC-03-16-00007

MIC-03-16-00007

1.1 Definitions

LEAKAGE	LEAKAGE shall be:

a. Identified LEAKAGE

1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff), that is captured and conducted to collection systems or a sump or collecting tank,

2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known either not to interfere with the operation of leakage detection systems or not to be pressure boundary LEAKAGE, or

3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE);

b. Unidentified LEAKAGE

All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE, and

c. Pressure Boundary LEAKAGE

LEAKAGE (except primary to secondary LEAKAGE) through a nonisolable fault in an RCS component body, pipe wall, or vessel wall.

MEMORY INTEGRITY CHECK (MIC)

A MEMORY INTEGRITY CHECK (MIC) is a check of the PSMS software memory integrity to ensure there is no change to the internal PSMS software that would impact its functional operation, including digital Nominal Trip Setpoint values, Time Constants, Time Delays or the continuous automatic self-test function. The MIC overlaps with other surveillance requirements to adequately test the PSMS safety functions. MIC-03-16-00007

The PSMS is automatically self-tested on a continuous basis from the digital side of all input modules to the digital side of all output modules. Continuous automatic self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. For the PSMS the continuous automatic self-testing is described in “Safety I&C System Description and Design Process, “MUAP-07004 Section 4.3 and “Safety System

1.1 Definitions

Digital Platform -MELTAC-, "MUAP-07005 Section 4.1.5. The software memory integrity test is described in "Safety I&C System Description and Design Process, "MUAP-07004 Section 4.4.1 and "Safety System Digital Platform -MELTAC-, "MUAP-07005 Section 4.1.4.1.c. MIC-03-16-00007

MODE — A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.

OPERABLE – OPERABILITY — A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

PHYSICS TESTS — PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:

a. Described in Chapter 14, Initial Test Program,

b. Authorized under the provisions of 10 CFR 50.59, or

c. Otherwise approved by the Nuclear Regulatory Commission.

PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR) — The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates and the low temperature overpressure protection arming temperature, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.4.

QUADRANT POWER TILT RATIO (QPTR) — QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.

RATED THERMAL POWER (RTP) — RTP shall be a total reactor core heat transfer rate to the reactor coolant of 4451 MWt.

1.1 Definitions

REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and methodology for verification have been previously reviewed and approved by the NRC. The RTS RESPONSE TIME includes post-test maintenance as necessary, based on manufacturer's recommendation, to maintain device reliability. MIC-03-16-00007
SAFETY VDU TEST	A SAFETY VDU TEST is a check of the touch response and display OPERABILITY of the Safety VDU (S-VDU). Safety VDU touch screens are tested by manually touching screen targets and confirming correct safety VDU response. The SAFETY VDU TEST overlaps with the MIC for the Safety VDU processor, to ensure the S-VDU is OPERABLE. The SAFETY VDU TEST is explained in "Safety I&C System Description and Design Process," MUAP-07004 Section 4.4.1. MIC-03-16-00007
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming: a. All rod cluster control assemblies (RCCAs) are fully inserted except for the single RCCA of highest reactivity worth, which is assumed to be fully withdrawn. However, with all RCCAs verified fully inserted by two independent means, it is not necessary to account for a stuck RCCA in the SDM calculation. With any RCCA not capable of being fully inserted, the reactivity worth of the RCCA must be accounted for in the determination of SDM, and b. In MODES 1 and 2, the fuel and moderator temperatures are changed to the nominal zero power design level.

1.1 Definitions

TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT)

A TADOT shall consist of operating the trip actuating device and verifying the OPERABILITY of all devices in the channel required for trip actuating device OPERABILITY. ~~The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy.~~ The TADOT may be performed by means of any series of sequential, overlapping, or total channel steps. MIC-03-16-00007

There are two types of binary devices - those that have no drift potential, such as Manual Initiation switches and Actuation Outputs, and those that have drift potential, such as undervoltage (UV) relays, valve position limit switches and RTB trip devices. The ~~operability~~OPERABILITY of binary devices that have drift potential is confirmed through CHANNEL CALIBRATION and/or RESPONSE TIME testing. For some binary devices subject to drift potential, a TADOT may be specified in addition to these surveillance requirements. The ~~operability~~OPERABILITY of binary devices that have no drift potential is confirmed only through TADOT. MIC-03-16-00007 MIC-03-16-00007

~~The~~ For devices with drift potential, the CHANNEL CALIBRATION confirms the accuracy of the device's binary state change with regard to its trip setpoint requirement (i.e., the Allowable Value). The RESPONSE TIME test confirms the accuracy of the devices state change with regard to its trip timing requirement. The TADOT confirms only the state change ~~operability~~OPERABILITY (i.e., there is no setpoint or timing accuracy confirmation needed). The TADOT also includes ~~adjustments~~maintenance as necessary, based on manufacturer's recommendation, to maintain device reliability. MIC-03-16-00007 MIC-03-16-00007

For some binary devices with drift potential, a TADOT is specified in addition to the CHANNEL CALIBRATION and/or RESPONSE TIME test. The TADOT is specified on a more frequent basis than the CHANNEL CALIBRATION or RESPONSE TIME test, to confirm the state change ~~operability~~OPERABILITY of the devices, without checking its state change setpoint or timing accuracy. Checking the setpoint or timing accuracy more frequently than the CHANNEL CALIBRATION or RESPONSE TIME test interval is unnecessary, because the total channel uncertainty, including setpoint and/or timing drift between test intervals, is included in determination of the Nominal Setpoint, the Allowable Value and the response time requirement. MIC-03-16-00007

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.9.1	Perform ~~a~~ CHANNEL CALIBRATION on power range and intermediate range channels per SR 3.3.1.9 consistent with ~~SR 3.3.1.10, and~~ Specification 5.5.21, Setpoint Control Program (SCP).	Prior to initiation of PHYSICS TESTS
SR 3.1.9.2	Verify the RCS lowest loop average temperature is ≥ 541°F.	[30 minutes OR In accordance with the Surveillance Frequency Control Program]
SR 3.1.9.3	Verify THERMAL POWER is ≤ 5% RTP.	[30 minutes OR In accordance with the Surveillance Frequency Control Program]
SR 3.1.9.4	Verify SDM is within the limits specified in the COLR.	[24 hours OR In accordance with the Surveillance Frequency Control Program]

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3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately
B. One required Manual Reactor Trip ~~train~~Function inoperable.	B.1 Restore ~~three~~ train~~s~~ to OPERABLE status.	72 hours
	OR	
	B.2 Be in MODE 3.	78 hours
C. One required Manual Reactor Trip ~~train~~Function inoperable.	C.1 Restore train to OPERABLE status.	72 hours
	OR	
	C.2.1 Initiate action to fully insert all rods.	72 hours
	AND	
	C.2.2 Place the Rod Control System in a condition incapable of rod withdrawal.	73 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One High Power Range Neutron Flux (hHigh sSetpoint) channel inoperable.	------------------NOTE------------------- One channel may be bypassed for up to 12 hours for surveillance testing andor setpoint adjustment, provided the other channels are OPERABLE or placed in the trip condition. ---	
	E.1.1 Place channel in trip.	72 hours
	AND	
	E.1.2 Reduce THERMAL POWER to ≤ 75% RTP.	78 hours
	OR	
	E.2.1 Place channel in trip.	72 hours
	AND	
	E.2.2 --------------NOTE-------------- Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable. -------------------------------------	
	Perform SR 3.2.4.2.	Once per 12 hours
	OR	
	E.3 Be in MODE 3.	78 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. One ~~required~~ channel inoperable.	-------------------NOTE------------------- ~~For High Power Range Neutron Flux channels only, o~~One channel may be bypassed for up to 12 hours for surveillance testing, provided the other channels are OPERABLE or placed in the trip condition. ---	
	F.1 Place channel in trip.	72 hours
	OR	
	F.2 Be in MODE 3.	78 hours
G. One High Intermediate Range Neutron Flux channel inoperable.	G.1 Reduce THERMAL POWER to < P-6.	24 hours
	OR	
	G.2 Increase THERMAL POWER to > P-10.	24 hours
H. Two High Intermediate Range Neutron Flux channels inoperable.	H.1 --------------NOTE-------------- Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ------------------------------------- Suspend operations involving positive reactivity additions.	Immediately
	AND	
	H.2 Reduce THERMAL POWER to < P-6.	2 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
L. One required channel inoperable.	------------------NOTE------------------- Except for Pressurizer Pressure, Pressurizer Level, and SG Water Level, oneOne required channel may be bypassed for up to 12 hours for surveillance testing, provided the other required channels are OPERABLE or placed in the trip condition. ---	
	L.1 Place channel in trip.	72 hours
	OR	
	L.2 Reduce THERMAL POWER to < P-7.	78 hours
M. One required train inoperable.	-------------------NOTE------------------ One inoperablerequired train may be bypassed for up to 4 hours for surveillance testing, provided the other tworequired trains are OPERABLE. ---	
	M.1 Restore train to OPERABLE status.	24 hours
	OR	
	M.2 Be in MODE 3.	30 hours
N. One required RTB train inoperable.	N.1 Restore train to OPERABLE status.	24 hours
	[OR	
	N.2 Apply the requirements of 5.5.18.	24 hours]

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
O. One or more channels inoperable.	O.1 Verify interlock is in required state for existing unit conditions.	1 hour
	OR	
	O.2 Be in MODE 3.	7 hours
P. One or more trains inoperable or one or more required channels inoperable.	P.1 Verify interlock is in required state for existing unit conditions.	1 hour
	OR	
	P.2 Be in MODE 2.	7 hours
Q. One trip mechanism inoperable for ~~one~~a required RTB.	Q.1 Restore inoperable trip mechanism to OPERABLE status.	48 hours
	[OR	
	Q.2 Apply the requirements of Specification 5.5.18.	48 hours]
R. One required train inoperable.	--------------------NOTE------------------- One ~~inoperable~~required train may be bypassed for up to 4 hours for surveillance testing, provided the other ~~two~~required trains are OPERABLE. ---	
	R.1 Restore train to OPERABLE status.	24 hours
	[OR	
	R.2 Apply the requirements of Specification 5.5.18.	24 hours]

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
S. Required Action and associated Completion Time for Condition N, Q, or R not met.	S.1 Be in MODE 3.	6 hours	
T. One Main Turbine Stop Valve Position channel inoperable	-------------------NOTE------------------- One channel may be bypassed for up to 12 hours for surveillance testing. --		MIC-03-16-00007
	T.1 Place channel in trip.	12 hours	
	OR		
	T.2 Reduce ~~thermal power~~THERMAL POWER to <~~-~~P-7	18 hours	MIC-03-16-00007
U. One required channel inoperable.	U.1 Place channel in trip.	1 hour	MIC-03-16-00007
	AND		
	U.2 Restore channel to OPERABLE status.	72 hours	
V. Required Action and associated Completion Time of Condition U not met.	V.1 Be in MODE 3.	6 hours	MIC-03-16-00007
W. One required channel inoperable.	W.1 Place channel in trip.	1 hour	MIC-03-16-00007
	AND		
	W.2 Restore channel to OPERABLE status.	72 hours	
X. Required Action and associated Completion Time of Condition W not met.	X.1 Reduce THERMAL POWER to < P-7.	6 hours	MIC-03-16-00007

SURVEILLANCE REQUIREMENTS

---NOTE---
Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	[12 hours OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.1.2	----------------------------NOTES--------------------------- Not required to be performed until 12 hours after THERMAL POWER is ≥ 15% RTP. --- Compare results of calorimetric heat balance calculation to power range channel output. Adjust power range channel output if calorimetric heat balance calculations results exceed power range channel output by more than +2% RTP.	[24 hours OR In accordance with the Surveillance Frequency Control Program]

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.3	----------------------------NOTE--------------------------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. --- Compare results of the incore detector measurements to Nuclear Instrumentation System (NIS) AFD. Adjust NIS channel if absolute difference is ≥ 3%.	[31 effective full power days (EFPD) OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.1.4	Perform TADOT.	[62 days on a STAGGERED TEST BASIS OR In accordance with the Surveillance Frequency Control Program]
~~SR 3.3.1.5~~	~~Perform ACTUATION LOGIC TEST.~~	~~[24 months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.~~6~~5	-----------------------------NOTE-------------------------- Not required to be performed until 24 hours after THERMAL POWER is ≥ 50% RTP. --- Calibrate excore channels to agree with incore detector measurements.	[92 EFPD OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.1.~~7~~6	~~-----------------------------NOTE-------------------------- Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. ---~~ Perform ~~COT~~MIC consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.3.1.~~8~~7	Perform CHANNEL CHECK.	Within 4 hours after reducing power below P-6 AND [Every 12 hours thereafter OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007
SR 3.3.1.~~9~~8	~~-------------------------NOTE-------------------------~~ ~~This Surveillance shall include verification that the time constants are adjusted to the prescribed values.~~ ~~--~~ Perform ~~a~~ CHANNEL CALIBRATION ~~on each required channel~~ consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007
SR 3.3.1.~~10~~9	-----------------------------NOTE-------------------------- Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform ~~a~~ CHANNEL CALIBRATION ~~on each required channel~~ consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007 MIC-03-16-00007

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1110	Perform a CHANNEL CALIBRATION on each required channel consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.1.1211	----------------------------NOTE--------------------------- Verification of setpoint is not required. --- Perform TADOT.	Prior to exceeding the P-7 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days
SR 3.3.1.1312	----------------------------NOTE--------------------------- Neutron detectors are excluded from response time testing. --- Verify RTS RESPONSE TIME is within limits.	[24 months on a STAGGERED TEST BASIS OR In accordance with the Surveillance Frequency Control Program]

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Table 3.3.1-1 (page 1 of ~~9~~6)
Reactor Trip System Instrumentation

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FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS
1. Manual Reactor Trip Initiation	1,2	3 trains	B	SR 3.3.1.4
	3[(a)], 4[(a)], 5[(a)]	3 trains	C	SR 3.3.1.4
2. High Power Range Neutron Flux				
a. ~~h~~High ~~s~~Setpoint	1,2	4	E	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9 SR 3.3.1.~~13~~12
b. ~~l~~Low ~~s~~Setpoint	1[(b)],2	4	F	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9 SR 3.3.1.~~13~~12
3. High Power Range Neutron Flux Rate				
a. Positive Rate	1,2	4	F	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9 SR 3.3.1.~~13~~12
b. Negative Rate	1,2	4	F	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9 SR 3.3.1.~~13~~12
4. High Intermediate Range Neutron Flux	1[(b)], 2[(c)]	2	G,H	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9 SR 3.3.1.~~13~~12

MIC-03-16-00007 (2a, 2a SRs, 2b, 3a, 3b, 4)

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(b) Below the P-10 (Power Range Neutron Flux) interlocks.

(c) Above the P-6 (Intermediate Range Neutron Flux) interlocks.

Table 3.3.1-1 (page 2 of ~~9~~6)
Reactor Trip System Instrumentation

MIC-03-16-00007

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
5. High Source Range Neutron Flux	$2^{(d)}$	2	I,J	SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.~~8~~9 SR 3.3.1.~~10~~12 ~~SR 3.3.1.13~~	MIC-03-16-00007 MIC-03-16-00007
	$3^{(a)}$, $4^{(a)}$, $5^{(a)}$	2	J,K	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9 SR 3.3.1.~~13~~12	MIC-03-16-00007
6. Overtemperature ΔT~~(j)~~	1,2	3	~~F~~U,V	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.~~7~~10 SR 3.3.1.~~11~~12 ~~SR 3.3.1.13~~	MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

~~(j) Refer to Note 1 after this table.~~ MIC-03-16-00007

Table 3.3.1-1 (page 3 of 96) MIC-03-16-00007
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
7. Overpower ΔT(k)	1,2	3	FU,V	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.710 SR 3.3.1.1112 SR 3.3.1.13	MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007
8. Pressurizer Pressure					
a. Low Pressurizer Pressure	1(e)	3	LW,X	SR 3.3.1.1 SR 3.3.1.76 SR 3.3.1.98 SR 3.3.1.1312	MIC-03-16-00007
b. High Pressurizer Pressure	1,2	3	FU,V	SR 3.3.1.1 SR 3.3.1.76 SR 3.3.1.98 SR 3.3.1.1312	MIC-03-16-00007
9. High Pressurizer Water Level	1(e)	3	LW,X	SR 3.3.1.1 SR 3.3.1.76 SR 3.3.1.98 SR 3.3.1.1312	MIC-03-16-00007
10. Low Reactor Coolant Flow	1(e)	3 per loop	L	SR 3.3.1.1 SR 3.3.1.76 SR 3.3.1.98 SR 3.3.1.12	MIC-03-16-00007
11. Low Reactor Coolant Pump (RCP) Speed	1(e)	3	L	SR 3.3.1.1 SR 3.3.1.76 SR 3.3.1.98 SR 3.3.1.1312	MIC-03-16-00007

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

(k) Refer to Note 2 after this table. MIC-03-16-00007

Table 3.3.1-1 (page 4 of ~~9~~6)
Reactor Trip System Instrumentation

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FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
12.Steam Generator (SG) Water Level					
a. Low	1,2	3 per SG	~~F~~U,V	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~9~~8 SR 3.3.1.~~13~~12	MIC-03-16-0 0007
b. High-High	1(e)	3 per SG	~~L~~W,X	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~9~~8 SR 3.3.1.~~13~~12	MIC-03-16-0 0007
13. Turbine Trip					
a. Turbine Emergency Trip Oil Pressure	1(e)	3	L	SR 3.3.1.~~1~~8 SR 3.3.1.~~7~~11 ~~SR 3.3.1.9~~ ~~SR 3.3.1.12~~	MIC-03-16-0 0007
b. Main Turbine Stop Valve Position	1(e)	1 per valve	T	SR 3.3.1.~~9~~8 SR 3.3.1.~~12~~11	MIC-03-16-0 0007

(e) Above the P-7 (Low Power Reactor Trips Block) interlock.

Table 3.3.1-1 (page 5 of ~~9~~6) MIC-03-16-00007
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
14.ECCS actuation	1,2	3 trains	M	SR 3.3.1.~~5~~6	MIC-03-16-00007
15.Reactor Trip System Interlocks					
a. Intermediate Range Neutron Flux, P-6	2(d)	2	O	SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9	MIC-03-16-00007
b. Low Power Reactor Trips Block, P-7	1	1 per train	P	SR 3.3.1.~~5~~6	MIC-03-16-00007
c. Power Range Neutron Flux, P-10	1,2	4	O	SR 3.3.1.~~7~~6 SR 3.3.1.~~10~~9	MIC-03-16-00007
d. Turbine Inlet Pressure, P-13	1	3	P	SR 3.3.1.1 SR 3.3.1.~~7~~6 SR 3.3.1.~~9~~8	MIC-03-16-00007
16.Reactor Trip Breakers (RTBs)	1,2	3 trains(~~i~~f)	N,S	SR 3.3.1.4 SR 3.3.1.~~13~~12	MIC-03-16-00007
	3(~~b~~a), 4(~~b~~a), 5(~~b~~a)	3 trains(~~i~~f)	D	SR 3.3.1.4 SR 3.3.1.~~13~~12	MIC-03-16-00007

(~~b~~a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted. MIC-03-16-00007

(d) Below the P-6 (Intermediate Range Neutron Flux) interlocks.

(~~i~~f) Two reactor trip breakers per train. MIC-03-16-00007

Table 3.3.1-1 (page 6 of ~~9~~6) MIC-03-16-00007
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
17.Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	3 trains 1 each per RTB	Q,S	SR 3.3.1.4 SR 3.3.1.~~13~~12	MIC-03-16-00007
	3(~~b~~a), 4(~~b~~a), 5(~~b~~a)	3 trains 1 each per RTB	D	SR 3.3.1.4 SR 3.3.1.~~13~~12	MIC-03-16-00007
18.Automatic Trip Logic	1,2	3 trains	R,S	SR 3.3.1.~~5~~6	MIC-03-16-00007
	3(~~b~~a), 4(~~b~~a), 5(~~b~~a)	3 trains	D	SR 3.3.1.~~5~~6	MIC-03-16-00007

(~~b~~a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted. MIC-03-16-00007

Table 3.3.1-1 (page 7 of 9)
Reactor Trip System Instrumentation

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Note 1: Overtemperature ΔT

The Overtemperature ΔT Function is initiated based on setpoints derived for DNB protection or core exit boiling conditions.

$$\Delta T_{SP} = Lowselect(\Delta T_{SP1}, \Delta T_{SP2})$$

$$\Delta T \frac{(1+T_7 s)}{(1+T_8 s)}\left(\frac{1}{1+T_9 s}\right) \geq \Delta T_{SP}$$

Where: T_7=[*]sec T_8=[*]sec T_9=[*]sec

1. DNB Protection

$$\Delta T_{SP1} = \Delta T_0 \left(K_1 - K_2 \frac{(1+T_2 s)}{(1+T_3 s)}(T_{avg} - T_{avg0}) + K_3(P - P_0) - f_1(\Delta I)\right)$$

Where: ΔT is measured RCS ΔT,°F.
ΔT_0 is indicated RCS ΔT at RTP, °F
s is the Laplace transform operator, sec^{-1}.
T_{avg} is the measured RCS average temperature,°F.
T_{avg0} is the nominal T_{avg} at RTP, ≤ [*]°F.

P is the measured pressurizer pressure, psig
P_0 is the nominal RCS operating pressure, ≥ [*] psig

K_1 ≤ [*] K_2 ≥ [*]/ F K_3 ≥ [*]/psig
T_2 ≥ [*] sec T_3 ≤ [*] sec

$f_1(\Delta I)$ = [*] {[*] − (q_t − q_b)} when q_t − q_b ≤ [*]% RTP
0% of RTP when [*]% RTP < q_t − q_b ≤ [*]% RTP
[*] {(q_t − q_b) − [*]} when q_t − q_b > [*]% RTP

Where q_t and q_b are percent RTP in the upper and lower halves of the core, respectively, and q_t + q_b is the total THERMAL POWER in percent RTP.

*These values denoted with [*] are specified in the COLR.

Table 3.3.1-1 (page 8 of 9)
Reactor Trip System Instrumentation

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Note 1: Overtemperature ΔT (continued)

2. Core Exit Boiling Limit

$$\Delta T_{SP2} = \Delta T_0 \left(K_4 - K_5 \frac{(1+T_4 s)}{(1+T_5 s)} (T_{avg} - T_{avg0}) + K_6 (P - P_0) \right)$$

Where:

ΔT is measured RCS ΔT,°F.

ΔT_0 is indicated RCS ΔT at RTP, °F

s is the Laplace transform operator, sec^{-1}.

T_{avg} is the measured RCS average temperature,°F.

T_{avg0} is the nominal T_{avg} at RTP, ≤ [*]°F.

P is the measured pressurizer pressure, psig

P_0 is the nominal RCS operating pressure, ≥ [*] psig

K_4 ≤ [*]	K_5 ≥ [*]/°F	K_6 ≥ [*]/psig
T_4 ≥ [*] sec	T_5 ≤ [*] sec	

*These values denoted with [*] are specified in the COLR.

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Table 3.3.1-1 (page 9 of 9)
Reactor Trip System Instrumentation

Note 2: Overpower ΔT

$$\Delta T \frac{(1+T_{13}s)}{(1+T_{14}s)}\left(\frac{1}{1+T_{15}s}\right) \geq \Delta T_0\left(-K_8\frac{T_6 s}{1+T_6 s}T_{avg} - K_9\left(T_{avg} - T_{avg0}\right) - f_2(\Delta I)\right)$$

Where: ΔT is measured RCS ΔT,°F.
ΔT_0 is indicated RCS ΔT at RTP,°F.
s is the Laplace transform operator, sec^{-1}.
T_{avg} is the measured RCS average temperature,°F.
T_{avg0} is the nominal T_{avg} at RTP, ≤ [*]°F.

$K_7 \leq$ [*]	$K_8 \geq$ [*]/°F for increasing T_{avg} [*]/°F for decreasing T_{avg}	$K_9 \geq$ [*]/°F when $T_{avg} > T_{avg0}$ [*]/°F when $T_{avg} \leq T_{avg0}$
$T_6 \geq$ [*] sec $T_{15} \leq$ [*] sec	$T_{13} \geq$ [*] sec	$T_{14} \leq$ [*] sec

$f_2(\Delta I)$ = [*]

*These values denoted with [*] are specified in the COLR.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One ~~required~~ train inoperable.	--------------------NOTE------------------- One ~~required~~ train may be bypassed for up to 4 hours for surveillance testing, provided the other ~~required~~ train(s) ~~is~~are OPERABLE. ---	
	C.1 Restore train to OPERABLE status.	24 hours
	OR	
	C.2.1 Be in MODE 3.	30 hours
	AND	
	C.2.2 Be in MODE 5.	60 hours
D. One required channel inoperable.	------------------NOTE--------------------- One required channel may be bypassed for up to 12 hours for surveillance testing, provided the other required channels are OPERABLE or placed in the trip condition. ---	
	D.1 Place channel in trip.	72 hours
	OR	
	D.2.1 Be in MODE 3.	78 hours
	AND	
	D.2.2 Be in MODE 4.	84 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One required Containment Pressure channel inoperable.	--------------------NOTE------------------- One required channel may be bypassed for up to 12 hours for surveillance testing, provided the other required channels are OPERABLE ---	MIC-03-16-00007
	E.1 ~~Restore required number of OPERABLE channels.~~ Restore channel to OPERABLE status.	72 hours
	OR	
	E.2.1 Be in MODE 3.	78 hours
	AND	
	E.2.2 Be in MODE 4.	84 hours
F. One ~~required~~ channel or required train inoperable.	------------------NOTE-------------------- One Loss of Offsite Power channel may be bypassed for up to 4 hours for surveillance testing, provided the other channels are OPERABLE or placed in the trip condition. ---	MIC-03-16-00007
	F.1 Restore channel or train to OPERABLE status.	72 hours
	OR	
	F.2.1 Be in MODE 3.	78 hours
	AND	
	F.2.2 Be in MODE 4.	84 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. One ~~required~~ train inoperable.	--------------------NOTE------------------- One ~~inoperable~~ train may be bypassed for up to 4 hours for surveillance testing, provided the other train~~(s)~~ is~~(are)~~ OPERABLE. ---	
	G.1 Restore train to OPERABLE status.	24 hours
	OR	
	G.2.1 Be in MODE 3.	30 hours
	AND	
	G.2.2 Be in MODE 4.	36 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
H. One ~~channel for trip of all~~required Main Feedwater Pumps trips channel inoperable.	H.1 Restore channel to OPERABLE status. OR H.2 Be in MODE 3.	48 hours 54 hours	MIC-03-16-00007
I. One or more required Pressurizer Pressure, P-11 channels inoperable.	I.1 Verify interlock is in required state for existing unit condition. OR I.2.1 Be in MODE 3. AND I.2.2 Be in MODE 4.	1 hour 7 hours 13 hours	MIC-03-16-00007
J. One required Emergency Feedwater Actuation train inoperable.	--------------------NOTE------------------ One ~~inoperable~~required train may be bypassed for up to 4 hours for surveillance testing, provided the other ~~train(s) is(~~required trains are~~)~~ OPERABLE. --- J.1 Restore train to OPERABLE status. [OR J.2 Apply the requirements of Specification 5.5.18.	 72 hours 72 hours]	MIC-03-16-00007

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
K. One required Containment High Range Area Radiation monitoring channel inoperable.	K.1 Restore channel to OPERABLE status. OR K.2.1 Be in MODE 3. AND K.2.2 Be in MODE 5.	72 hours 78 hours 108 hours
L. One or more Actuation Logic and Actuation OutputContainment Purge Isolation trains inoperable. OR Two or more required Containment High Range Area Radiation Monitoring channels inoperable. OR Required Action and associated Completion Time of Condition K not met.	L.1 Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment purge and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
M. One ~~or more Functions with one~~required channel~~ or train~~ inoperable.	M.1 ~~Place one train of the affected subsystem(s) in the emergency mode, depending on the inoperable train.~~Place channel in trip. ~~NOTE~~ ~~Inoperable train A or D affects both subsytem MCREFS and subsystem MCRATCS, while inoperable train B or C affects only subsystem MCRATCS.~~ AND M.2 Restore channel to OPERABLE status	~~7 days~~1 hour 72 hours	MIC-03-16-0 0007
N. Required Action and associated Completion Time of Condition M not met.	N.1 Be in MODE 3. AND N.2 Be in MODE 4.	6 hours 12 hours	MIC-03-16-0 0007

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~N~~O. ~~One or more Functions with two channels or two trains inoperable.~~One S-VDU train inoperable.	~~N.1.1 Place the affected subsystem(s) in the emergency mode.~~	~~Immediately~~
	~~AND~~	
	~~N.1.2 Enter applicable Conditions and Required Actions for the affected subsystem(s) made inoperable by inoperable actuation instrumentation, depending on inoperable trains.~~	~~Immediately~~
	~~OR~~	
	~~N.2 Place all trains of the affected subsystem(s) in emergency mode.~~	~~Immediately~~
	~~----------Note----------~~ ~~Inoperable train A or D affects both subsystem MCREFS and subsystem MCRATCS, while inoperable train B or C affects only subsystem MCRATCS.~~ ~~--------------------------~~	
	--------------------NOTE-------------------- One train may be bypassed for up to 4 hours for surveillance testing, provided the other trains are OPERABLE. --	
	O.1 Restore train to OPERABLE status.	72 hours
	OR	
	O.2 Enter applicable Conditions and Required Actions for the ESF components made inoperable by the inoperable S-VDU train.	72 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
OP. Required Action and associated Completion Time for Condition M or N not met in MODE 1, 2, 3, or 4.One COM-2 train inoperable.	O.1 Be in MODE 3. AND O.2 Be in MODE 5. --------------------NOTE-------------------- One train may be bypassed for up to 4 hours for surveillance testing, provided the other trains are OPERABLE. --	
	P.1 Restore train to OPERABLE status.	612 hours
	OR	
	P.2 Enter applicable Conditions and Required Actions for the ESF components made inoperable by the inoperable COM-2 train.	3612 hours
P. Required Action and associated Completion Time for Condition M or N not met during movement of irradiated fuel assemblies.	P.1 Suspend movement of irradiated fuel assemblies.	Immediately

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Q. One required train inoperable.	--------------------NOTE------------------- One required train may be bypassed for up to 4 hours for surveillance testing, provided the other required train~~(s)~~ ~~is(~~are~~)~~ OPERABLE. ---	
	Q.1 Restore train to OPERABLE status.	24 hours
	[OR	
	Q.2 -------------NOTE--------------- This Required Action is not applicable in MODE 4. ------------------------------------- Apply the requirements of Specification 5.5.18.	24 hours]
R. Required Action and associated Completion Time for Condition Q not met.	R.1 Be in MODE 3.	6 hours
	AND	
	R.2 Be in MODE 5.	36 hours
S. One ~~required~~ train inoperable.	--------------------NOTE------------------- One ~~inoperable~~ train may be bypassed for up to 4 hours for surveillance testing, provided the other train~~(s)~~ ~~is(~~are~~)~~ OPERABLE. ---	
	S.1 Restore train to OPERABLE status.	24 hours
	[OR	
	S.2 Apply the requirements of Specification 5.5.18.	24 hours]

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
T. Required Action and associated Completion Time for Condition J or S not met.	T.1 Be in MODE 3. AND T.2 Be in MODE 4.	6 hours 12 hours
U. One or more MCR Outside Air Intake Radiation Functions with one channel inoperable.	U.1 Place one MCREFS train and two MCRATCS trains in the emergency mode.	7 days
V. One or more MCR Outside Air Intake Radiation Functions with two channels inoperable.	V.1 Place one MCREFS train and two MCRATCS trains in the emergency mode. AND V.2.1 Restore one channel to OPERABLE status. OR V.2.2 Place two MCREFS trains and three MCRATCS trains in the emergency mode.	Immediately 7 days 7 days
W. One or more Functions with one train, A or D, inoperable.	-------------------NOTE------------------- This condition is only applicable to Train A or D. For inoperable Train B or C there is no action required. --- W.1 Place the affected train of MCREFS in the emergency mode.	 7 days

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
X. One or more Functions with two trains, A and D, inoperable.	---------------------NOTE-------------------- This condition is only applicable to Trains A and D. Other inoperable two-train combinations are addressed in Condition Y. ---	
	X.1 Place one MCREFS train in the emergency mode.	Immediately
	AND	
	X.2.1 Restore one MCREFS train to OPERABLE status (i.e., one train in the emergency mode and one train OPERABLE).	7 days
	OR	
	X.2.2 Place two MCREFS trains in the emergency mode.	7 days
	AND	
	X.3.1 Restore one affected MCRATCS train to OPERABLE status (i.e., three trains OPERABLE).	7 days
	OR	
	X.3.2 Place one affected MCRATCS train in the emergency mode (i.e., one train in the emergency mode and two trains OPERABLE).	7 days

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Y. One or more Functions with two trains, except A and D, inoperable.	--------------------NOTE------------------- Inoperable Train A or D affects MCREFS and MCRATCS. Inoperable Train B or C affects MCRATCS. ---	
	Y.1 Restore one affected train to OPERABLE status for the affected subsystem(s).	7 days
	OR	
	Y.2 Place one affected train in the emergency mode for the affected subsytem(s).	7 days
Z. Required Action and associated Completion Time for Condition U, V, W, X or Y not met in MODE 1, 2, 3, or 4.	Z.1 Be in MODE 3.	6 hours
	AND	
	Z.2 Be in MODE 5.	36 hours
AA. Required Action and associated Completion Time for Condition U, V, W, X or Y not met during movement of irradiated fuel assemblies.	AA.1 Suspend movement of irradiated fuel assemblies.	Immediately
BB. One required Reactor Trip, P-4 train inoperable.	BB.1 Restore train to OPERABLE status.	48 hours
	OR	
	BB.2.1 Be in MODE 3.	54 hours
	AND	
	BB.2.2 Be in MODE 4.	60 hours

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SURVEILLANCE REQUIREMENTS

---NOTE---

Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.

SURVEILLANCE		FREQUENCY	
SR 3.3.2.1	Perform CHANNEL CHECK.	[12 hours OR In accordance with the Surveillance Frequency Control Program]	
SR 3.3.2.2	Perform ~~ACTUATION LOGIC TEST~~MIC consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007
~~SR 3.3.2.3~~	~~Perform COT.~~	~~[24 months~~ ~~OR~~ ~~In accordance with the Surveillance Frequency Control Program]~~	MIC-03-16-00007

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.3.2.43	Perform TADOT for aActuation oOutputs.	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007
SR 3.3.2.54	NOTE Verification of relay setpoints not required. Perform TADOT.	[92 days OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007
SR 3.3.2.65	NOTE Verification of setpoint not required for manual initiation functions. Perform TADOT.	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.3.2.76	----------NOTE---------- This Surveillance shall include verification that the time constants are adjusted to the prescribed values. -------------------- Perform a CHANNEL CALIBRATION on each required channel consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007
SR 3.3.2.87	----------NOTE---------- Not required to be performed for the turbine driven EFW pumps until 24 hours after SG pressure is ≥ 1000 psig. -------------------- Verify ESFAS RESPONSE TIMES areis within limit.	[24 months on a STAGGERED TEST BASIS OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007 MIC-03-16-0 0007
SR 3.3.2.98	----------NOTE---------- Verification of setpoint not required. -------------------- Perform TADOT.	Once per reactor trip breaker cycle	MIC-03-16-0 0007

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.2.9	Perform SAFETY VDU TEST.	[24 months OR In accordance with the Surveillance Frequency Control Program]

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Table 3.3.2-1 (page 1 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
1. ECCS Actuation					
a. Manual Initiation	1,2,3,4	3 trains	B	SR 3.3.2.~~6~~5	MIC-03-16-00007
b. Actuation Logic and Actuation Outputs	1,2,3,4	3 trains	Q,R	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-00007
c. High Containment Pressure	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-00007 MIC-03-16-00007
d. Low Pressurizer Pressure	1,2,3(a)	3	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-00007 MIC-03-16-00007
e. Low Main Steam Line Pressure	1,2,3(a)	3 per steam line	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-00007 MIC-03-16-00007

(a) Above the P-11 (Pressurizer Pressure) interlock.

Table 3.3.2-1 (page 2 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
2. Containment Spray					
a. Manual Initiation	1,2,3,4	2 switches per train for ~~3~~4 trains	B	SR 3.3.2.~~6~~5	MIC-03-16-00007
b. Actuation Logic and Actuation Outputs	1,2,3,4	3 trains	Q,R	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-00007
c. High-3 Containment Pressure	1,2,3	3	E	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-00007 MIC-03-16-00007

Table 3.3.2-1 (page 3 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
3. Containment Isolation					
a. Phase A Isolation					
(1) Manual Initiation	1,2,3,4	Trains A and D	B	SR 3.3.2.~~6~~5	MIC-03-16-00007
(2) Actuation Logic and Actuation Outputs	1,2,3,4	Trains A and D	C	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-00007
(3) ECCS Actuation	Refer to Function 1 (ECCS Actuation) for all ~~initiation functions and~~ requirements.				MIC-03-16-00007
b. Phase B Isolation					
(1) Containment Spray - Manual Initiation	Refer to Function 2.a (Containment Spray - Manual Initiation) for all ~~initiation functions and~~ requirements.				MIC-03-16-00007
(2) Actuation Logic and Actuation Outputs	1,2,3,4	4 trains	C	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-00007
(3) High-3 Containment Pressure	Refer to Function 2.c (Containment Spray~~) for all~~ - High-3 Containment Pressure) for all requirements.				MIC-03-16-00007

Table 3.3.2-1 (page 4 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
4. Main Steam Line Isolation					
a. Manual Initiation	1,2~~(h)~~,3~~(h)~~	Trains A and D	F	SR 3.3.2.~~6~~5	MIC-03-16-00007
b. Actuation Logic and Actuation Outputs	1,2~~(h)~~,3~~(h)~~	Trains A and D	S,T	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-00007
c. High-High Containment Pressure	1, 2~~(h)~~, 3~~(h)~~	3	D	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-00007 MIC-03-16-00007
d. Main Steam Line Pressure					
(1) Low Main Steam Line Pressure	1, 2~~(h)~~, 3 (a)~~(h)~~	3 per steam line	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-00007 MIC-03-16-00007
(2) High Main Steam Line Pressure Negative Rate	3 (~~f) (h~~b)	3 per steam line	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-00007 MIC-03-16-00007

(a) Above the P-11 (Pressurizer Pressure) interlock.

(~~f~~b) Below the P-11 (Pressurizer Pressure) interlock. MIC-03-16-00007

~~(h) Except when all MSIVs are closed.~~

Table 3.3.2-1 (page 5 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
5. Main Feedwater Isolation					
~~5A. Main Feedwater Regulation Valve Closure~~					MIC-03-16-0 0007
a. Manual Initiation	1,2,3	Trains A and D	F	SR 3.3.2.5	MIC-03-16-0 0007
~~a~~b. ~~Low T_{avg}~~Actuation Logic and Actuation Outputs	1,2 ~~(i)~~,3 ~~(i)~~	~~3~~Trains A and D	~~D~~S,T	SR 3.3.2.~~1~~2 SR 3.3.2.3 ~~SR 3.3.2.7~~ ~~SR 3.3.2.8~~	MIC-03-16-0 0007
~~Coincident with Reactor Trip, P-4~~	~~Refer to Function 11.a for all P-4 requirements.~~				MIC-03-16-0 0007
~~5B. Main Feedwater Isolation~~					MIC-03-16-0 0007
c. High-High SG Water Level	1,2,3(c)	3 per SG	M,N,	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.6 SR 3.3.2.7	MIC-03-16-0 0007
d. ECCS Actuation	Refer to Function 1 (ECCS Actuation) for all requirements.				MIC-03-16-0 0007
~~a~~e. ~~Manual Initiation~~Low T_{avg}(d)	1,2 ~~(i)~~,3 ~~(i)~~	~~Trains A and D~~3	~~F~~M,N	SR 3.3.2.1 SR 3.3.2.2 SR 3.3.2.6 SR 3.3.2.7	MIC-03-16-0 0007
~~b. Actuation Logic and Actuation Outputs~~	~~1, 2 (i), 3(i)~~	~~Trains A and D~~	~~S,T~~	~~SR 3.3.2.2~~ ~~SR 3.3.2.4~~	MIC-03-16-0 0007
~~c. High-High SG Water Level~~	~~1,2 (i),3(a) (i)~~	~~3 per SG~~	~~D~~	~~SR 3.3.2.1~~ ~~SR 3.3.2.3~~ ~~SR 3.3.2.7~~ ~~SR 3.3.2.8~~	MIC-03-16-0 0007
~~d. ECCS Actuation~~ Coincident with Reactor Trip, P-4	~~Refer to Function 1 (ECCS Actuation) for all initiation functions and requirements.~~ Refer to Function 11.a (ESFAS Interlocks - Reactor Trip, P-4) for all requirements.				MIC-03-16-0 0007

~~(a) Above the P-11 (Pressurizer Pressure) interlock.~~
~~(i) Except when all MFIVs, MFRVs, MFBRVs, and SGWFCVs are closed.~~
~~(j) Except when all MFRVs are closed.~~
(c) The sub-function for trip of all MWF pumps, and closure of the MFIVs and SGWFCVs may be manually bypassed in MODE 3 below the P-11 (Pressurizer Pressure) interlock.
(d) Low T_{avg} coincident with Reactor Trip, P-4 only closes MFW Regulation valves.

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Table 3.3.2-1 (page 6 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
6. Emergency Feedwater Actuation					
a. Manual Initiation	1,2,3	3 trains	F	SR 3.3.2.~~6~~5	MIC-03-16-0007
b. Actuation Logic and Actuation Outputs	1,2,3	3 trains	J,T	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-0007
c. Low SG Water Level	1,2,3	3 per SG	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0007 MIC-03-16-0007
d. ECCS Actuation	Refer to Function 1 (ECCS Actuation) for all ~~initiation functions and~~ requirements.				MIC-03-16-0007
e. LOOP Signal	1,2,3	3 per bus for each EFW train	F	SR 3.3.2.~~5~~4 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0007 MIC-03-16-0007
f. Trip of all Main Feedwater Pumps	1,2	1 per pump	H	SR 3.3.2.~~6~~5 SR 3.3.2.~~8~~7	MIC-03-16-0007

~~(l) Nominal Trip Setpoint~~ MIC-03-16-0007

Table 3.3.2-1 (page 7 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
7. Emergency Feedwater Isolation					
a. Manual Initiation	1,2,3	2 trains per SG	F	SR 3.3.2.~~6~~5	MIC-03-16-0007
b. Actuation Logic and Actuation Outputs	1,2,3	2 trains per SG	G	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-0007
c. High SG Water Level	1,2,3 (a)	3 per SG	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0007 MIC-03-16-0007
Coincident with Reactor Trip, P-4	Refer to Function 11.a (ESFAS Interlocks - Reactor Trip, P-4) for all ~~P-4~~ requirements.				MIC-03-16-0007
and					
No Low Main Steam Line Pressure	Refer to Function~~-~~ 7.d (Emergency Feedwater ISolation - Low Main Steam Line Pressure) for all ~~initiation functions and~~ requirements.				MIC-03-16-0007
d. Low Main Steam Line Pressure	1,2,3 (a)	3 per SG	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0007 MIC-03-16-0007
8. CVCS Isolation					
a. Manual Initiation	1,2,3	Trains A and D	F	SR 3.3.2.~~6~~5	MIC-03-16-0007
b. Actuation Logic and Actuation Outputs	1,2,3	Trains A and D	G	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-0007
c. High Pressurizer Water Level	1,2,3 (a)	3	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0007 MIC-03-16-0007

(a) Above the P-11 (Pressurizer Pressure) interlock.

Table 3.3.2-1 (page 8 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
9. Turbine Trip					
a. Actuation Logic and Actuation Outputs	1,2,3	~~4 trains~~Trains A and D	G	SR 3.3.2.2 SR 3.3.2.~~4~~3	MIC-03-16-0 0007
b. Reactor Trip, P-4	Refer to Function 11.a (ESFAS Interlocks - Reactor Trip, P-4) for all ~~P-4~~ requirements.				MIC-03-16-0 0007
c. High-High SG Water Level	1,2~~(i)~~,3~~(i)~~	3 per SG	~~D~~M,N	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0 0007 MIC-03-16-0 0007
10. Reactor Coolant Pump Trip					
a. ECCS Actuation	Refer to Function 1 (ECCS Actuation) for all ~~initiation functions and~~ requirements.				MIC-03-16-0 0007
Coincident with Reactor Trip, P-4	Refer to Function 11.a (ESFAS Interlocks - Reactor Trip, P-4) for all ~~P-4~~ requirements.				MIC-03-16-0 0007
11. ESFAS Interlocks					
a. Reactor Trip, P-4	1,2,3	3 trains	~~F~~BB	SR 3.3.2.~~9~~8	MIC-03-16-0 0007
b. Pressurizer Pressure, P-11	1,2,3	3	I	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.~~7~~6	MIC-03-16-0 0007

~~(i) Except when all MFIVs, MFRVs, MFBRVs, and SGWFCVs are closed.~~ MIC-03-16-0 0007

Table 3.3.2-1 (page 9 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
12. Containment Purge Isolation					
a. Containment Isolation Phase A - Manual Initiation	Refer to Function 3.a.(1) (Containment Isolation - Phase A Isolation - Manual Initiation) for all initiation functions and requirements.				MIC-03-16-00007
b. Containment Spray - Manual Initiation	Refer to Function 2.a. (Containment Spray - Manual Initiation) for all initiation functions and requirements.				MIC-03-16-00007
c. Actuation Logic and Actuation Outputs	1,2,3,4	Trains A and D	L	SR 3.3.2.2 SR 3.3.2.43	MIC-03-16-00007
d. ECCS Actuation	Refer to Function 1 (ECCS Actuation) for all initiation functions and requirements.				MIC-03-16-00007
e. Containment High Range Area Radiation	1,2,3,4	3	K, L	SR 3.3.2.1 SR 3.3.2.32 SR 3.3.2.6 SR 3.3.2.7 SR 3.3.2.8	MIC-03-16-00007 MIC-03-16-00007

Table 3.3.2-1 (page 10 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
13. Main Control Room (MCR) Isolation					
a. Manual Initiation	1,2,3,4,(~~k~~e)	3 trains including A and D(~~m~~f)	~~M, N, O, P~~W, X, Y, Z, AA	SR 3.3.2.~~6~~5	MIC-03-16-0 0007
b. Actuation Logic and Actuation Outputs	1,2,3,4,(~~k~~e)	3 trains including A and D(~~m~~f)	~~M, N, O,P~~W, X, Y, Z, AA	SR 3.3.2.2 SR 3.3.2.4~~3~~	MIC-03-16-0 0007
c. MCR Outside Air Intake Radiation					
(1) MCR Outside Air Intake Gas Radiation	1,2,3,4,(~~k~~e)	2	~~M, N, O, P~~U, V, Z, AA	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0 0007 MIC-03-16-0 0007
(2) MCR Outside Air Intake Particulate Radiation	1,2,3,4,(~~k~~e)	2	~~M, N, O, P~~U, V, Z, AA	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0 0007 MIC-03-16-0 0007
(3) MCR Outside Air Intake Iodine Radiation	1,2,3,4,(~~k~~e)	2	~~M, N, O, P~~U, V, Z, AA	SR 3.3.2.1 SR 3.3.2.~~3~~2 SR 3.3.2.6 SR 3.3.2.7 ~~SR 3.3.2.8~~	MIC-03-16-0 0007 MIC-03-16-0 0007
d. ECCS Actuation	Refer to ~~LCO 3.3.2, "ESFAS Instrumentation,"~~ Function 1~~,~~ (ECCS Actuation) for all ~~initiation functions and~~ requirements.				MIC-03-16-0 0007

(~~k~~e) During movement of -irradiated fuel assemblies. MIC-03-16-0 0007

(~~m~~f) Two trains of MCREFS are required to be operable (trains A and D); three trains of MCRATS are required to be operable (three out of four trains A, B, C, D).

Table 3.3.2-1 (page 11 of 11)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
14. Block Turbine Bypass and Cooldown Valves					
a. Manual Initiation	1,2 (h),3 (h)	Trains A and D	F	SR 3.3.2.65	MIC-03-16-00007
b. Actuation Logic and Actuation Outputs	1,2 (h),3 (h)	Trains A and D	S,T	SR 3.3.2.2 SR 3.3.2.43	MIC-03-16-00007
c. Low-Low T_{avg} Signal	1,2 (h),3 (h)	3	DM,N	SR 3.3.2.1 SR 3.3.2.32 SR 3.3.2.6 SR 3.3.2.7 SR 3.3.2.8	MIC-03-16-00007 MIC-03-16-00007
15. Manual Control of ESF Components					MIC-03-16-00007
a. Safety VDU	1, 2, 3, 4, 5, 6	4 trains	O	SR 3.3.2.2 SR 3.3.2.9	MIC-03-16-00007
b. COM-2	1, 2, 3, 4, 5, 6	4 trains	P	SR 3.3.2.2	MIC-03-16-00007
c. Actuation Logic and Actuation Outputs	Refer to LCO 3.4 through 3.7 for all requirements applicable to the controlled ESF components.			SR 3.3.2.2 SR 3.3.2.3	MIC-03-16-00007

(h) Except when all MSIVs are closed. MIC-03-16-00007

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3 The PAM iInstrumentation for each Function in Table 3.3.3-1, and for all four trains of the PAM Display Function, shall be OPERABLE. MIC-03-16-00007

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

---NOTE---

Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more PAM Instrumentation Functions with one required channel inoperable. OR One train of the PAM Display Function inoperable.	A.1 Restore required channel or train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 ------------NOTE------------ 1. For RCS Hot and Cold Leg Temperatures, this Condition is applicable only if at least one channel (Hot or Cold) is operable in each loop. Otherwise, go to Condition C. 2. For SG Water Level and EFW flow, this condition is applicable only if at least one channel (Level or flow) is operable in each loop. Otherwise, go to Condition C. ----------------------------------- Initiate action in accordance with Specification 5.6.5.	 Immediately

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more PAM Instrumentation Functions with two required channels inoperable. OR Two trains of the PAM Display Function inoperable.	C.1 ~~-------------NOTE------------~~ ~~1. For RCS Hot and Cold Leg Temperatures, this Condition is applicable only when both channels in the same loop are inoperable.~~ ~~2. For SG Water Level and EFW flow, this condition is applicable only when both channels in the same loop are inoperable.~~ ~~------------------------------------~~ Restore one train or one required channel to OPERABLE status.	7 days
	[OR	
	C.2 --------------NOTE------------- This alternate action may be used only when the Emergency Feedwater Pit Level is inoperable. ------------------------------------ Apply the requirements of Specification 5.5.18.	7 days]

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME	
D. Required Action and associated Completion Time of Condition C not met.	D.1 ~~Enter the Condition referenced~~Be in ~~Table~~MODE 3.~~3.3-1 for the channel.~~ AND D.2 Be in MODE 4.	~~Immediately~~6 hours 12 hours	MIC-03-16-0 0007
~~E. As by Required Action D.1 and referenced in Table 3.3.3-1.~~	~~E.1 Be in MODE 3.~~ ~~AND~~ ~~E.2 Be in MODE 4.~~	~~6 hours~~ ~~12 hours~~	MIC-03-16-0 0007
~~F. As by Required Action D.1 and referenced in Table 3.3.3-1.~~	~~F.1 Initiate action in accordance with Specification 5.6.5.~~	~~Immediately~~	MIC-03-16-0 0007

SURVEILLANCE REQUIREMENTS

---NOTE---
SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM iInstrumentation Function in Table 3.3.3-1. MIC-03-16-00007

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.2	----------------------------NOTE--------------------------- Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION.	[24 months OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.3	Perform MIC for the PAM Instrumentation.	[24 months OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.3.4	Perform SAFETY VDU TEST for all four trains of the PAM Display Function.	[24 months OR In accordance with the Surveillance Frequency Control Program]

MIC-03-16-00007 (SR 3.3.3.1)
MIC-03-16-00007 (SR 3.3.3.3)
MIC-03-16-00007 (SR 3.3.3.4)

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

MIC-03-16-0 0007

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1
1.	Wide Range Neutron Flux	2	E
2.	Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	1 per loop (d)3	E
3.	RCS Cold Leg Temperature (Wide Range)	1 per loop(d)3	E
4.	RCS Pressure (Wide Range)	2	E
5.	Reactor Vessel Water Level	2(d)	F
6.	Containment Pressure	2	E
7.	Containment Isolation Valve Position	2 per penetration flow path(a)(b)	E
8.	Containment High Range Area Radiation	2	F
9.	Pressurizer Water Level	2	E
10.	Steam Generator Water Level (Wide Range)	1 per steam generator(d)SG	E
11.	Steam Generator Water Level (Narrow Range)	2 per steam generatorSG	E
12.	Core Exit Temperature - Quadrant 1	24(c)	E
13.	Core Exit Temperature - Quadrant 2	24(c)	E
14.	Core Exit Temperature - Quadrant 3	24(c)	E
15.	Core Exit Temperature - Quadrant 4	24(c)	E
16.	Emergency Feedwater Flow	1 per SG(d)	E
17.	Degrees of Subcooling	2	E
18.	Main Steam Line Pressure	2 per steam generatorSG	E
19.	Emergency Feedwater Pit Level	2	E
20.	Refueling Water Storage Pit Level (Wide Range)	2	E
21.	Refueling Water Storage Pit Level (Narrow Range)	2	E

(a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) A channel consists of two core exit thermocouples.Two thermocouple channels are required from each of two trains. For each train, one thermocouple channel is required near the center of the core and one thermocouple channel is required near the core perimeter.

(d) RCS hot leg temperature wide range and RCS cold leg temperature wide range of the same loop are pair PAM functions. Similarly, SG water level wide range and an emergency feedwater flow of the same steam generator are pair PAM functions. Either parameter forming a pair can fulfill all PAM requirements. Therefore, only 1 per loop/SG of either parameter of the pair is required.A channel consists of three sections with two sensors per section. A channel is OPERABLE if at least one sensor is OPERABLE in all three sections.

MIC-03-16-0 0007

3.3 INSTRUMENTATION

3.3.4 Remote Shutdown Console (RSC)

LCO 3.3.4 The RSC shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ~~RSC~~One required channel or train inoperable~~.~~ for the Display and Control Function OR One train inoperable for the Transfer of Control Function.	A.1 Restore channel or train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
SR 3.3.4.1	Perform TADOT for each Transfer Switches.	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007
SR 3.3.4.2	Perform ACTUATION LOGICSAFETY VDU TEST for each PSMS trainall four trains of the RSC Display Function.	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007
SR 3.3.4.3	Perform Safety VDU TestCHANNEL CHECK for each train of the PSMSRSC Instrumentation Function.	[24 months31 days OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007
SR 3.3.4.4	-----------------------------NOTE----------------------------- Neutron detectors are excluded from CHANNEL CALIBRATION. --- Perform CHANNEL CALIBRATION for each RSC Instrumentation Function.	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.4.5	Perform MIC for the RSC.	[24 months OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.4.6	Perform TADOT for Actuation Outputs of each RCS Control Function.	[24 months OR In accordance with the Surveillance Frequency Control Program]

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3.3 INSTRUMENTATION

3.3.5 Loss of Power (LOP) Class 1E Gas Turbine Generator (GTG) Start Instrumentation

LCO 3.3.5 The following Loss of Power (LOP) Class 1E Gas Turbine Generator (GTG) Start Instrumentation shall be OPERABLE. MIC-03-16-00007

a. Three channels per required bus of the loss of voltage Function and three channels per required bus of the degraded voltage Function shall be OPERABLE., and MIC-03-16-00007

b. One train per required bus of the LOP Actuation Function.

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated Class 1E GTG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown."

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more channels per required bus inoperable.	A.1 --------------NOTE-------------- The inoperableOne channel may be bypassed for up to 4 hours for surveillance testing of, provided the other channels. on the same bus are operable or placed in the trip condition. ------------------------------------- Place channel in trip.	 6 hours
B. One or more Functions with two or more channels per required bus inoperable.	B.1 Restore all but one channel per required bus to OPERABLE status.	1 hour

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MIC-03-16-00007
MIC-03-16-00007

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train of the LOP Actuation Function per required bus inoperable. OR Required Action and associated Completion Time of Conditions A or B not met.	C.1 Enter applicable Condition(s) and Required Action(s) for the associated Class 1E GTG made inoperable by LOP Class 1E GTG sStart iInstrumentation.	Immediately

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY	
SR 3.3.5.1	Perform ~~CHANNEL CHECK~~<u>TADOT for LOP undervoltage relays</u>.	[~~12 hours~~<u>31 days</u> OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007
SR 3.3.5.2	Perform ~~TADOT~~<u>CHANNEL CALIBRATION</u> for <u>the following</u> LOP undervoltage relays<u> consistent with Specification 5.5.21, Setpoint Control Program (SCP)</u>. a. <u>Loss of voltage</u> b. <u>Degraded voltage</u>	[~~31 days~~<u>24 months</u> OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007
SR 3.3.5.3	Perform ~~CHANNEL CALIBRATION~~<u>MIC</u> for LOP ~~undervoltage relays with Specification 5.5.21, Setpoint Control Program (SCP), with the following time delays~~<u>Class 1E GTG Start Instrumentation</u>. ~~a. Loss of voltage V with a time delay of ≤ [0.8] second~~ ~~b. Degraded voltage with a time delay of ≤ [20] seconds.~~	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-0 0007

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY	
SR 3.3.5.4	Perform ACTUATION LOGIC TEST.Perform TADOT for GTG control outputs.	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007
SR 3.3.5.5	Perform TADOT for Class 1E GTG start Actuation Outputs.	[24 months OR In accordance with the Surveillance Frequency Control Program]	MIC-03-16-00007

3.3 INSTRUMENTATION

3.3.6 Diverse Actuation System (DAS) Instrumentation

LCO 3.3.6 DAS for each function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTION

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions, with one or more subsystems or required ~~DAS Functions~~channels inoperable.	------------------NOTES----------------- 1. The Actuation Logic of one subsystem, or one required channel may be bypassed for up to 4 hours for surveillance testing, provided the Actuation Logic in the other subsystems or the other required channels are OPERABLE. 2. The Actuation Outputs of two subsystems may be bypassed for up to 4 hours for surveillance testing of the Actuation Outputs from the other subsystems, or surveillance testing of the Rod Drive Motor-Generator Set Trip Devices. ---	
	A.1 Restore ~~required Function~~subsystem or channel to OPERABLE status.	30 days
	~~OR~~	
	~~A.2.1 Be in MODE 3.~~	~~Within the following 6 hours~~
	~~AND~~	
	~~A.2.2 Be in MODE 4.~~	~~Within the following 12 hours~~

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.1 Be in MODE 4.	6 hours 12 hours

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SURVEILLANCE REQUIREMENTS

-----NOTE-----
Refer to Table 3.3.6-1 to determine which SRs apply for each DAS Function.

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SURVEILLANCE		FREQUENCY
SR 3.3.6.1	Perform CHANNEL CHECK for each required channel.	[31 days OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.6.2	Perform COT analog consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.6.3	-----NOTE----- The CHANNEL CALIBRATION conducted for the PSMS in LCO 3.3.1 or 3.3.2 may be credited for DAS. ---------- Perform a CHANNEL CALIBRATION on each required channel consistent with Specification 5.5.21, Setpoint Control Program (SCP).	[24 months OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.6.4	Perform ACTUATION LOGIC TEST.	[24 months OR In accordance with the Surveillance Frequency Control Program]

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.6.5	Perform TADOT for the Manual Initiation/Control and Actuation Outputs.	[24 months OR In accordance with the Surveillance Frequency Control Program]
SR 3.3.6.6	Perform TADOT for the Rod Drive Motor-Generator set trip devices.	[24 months OR In accordance with the Surveillance Frequency Control Program]

Table 3.3.6-1 (page 1 of 2)
Diverse Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
1. Reactor Trip/ Turbine Trip/ MFW Isolation					
a. Manual Initiation	1,2,3[(a)]	1[(b)]	A,B	SR 3.3.6.5 ~~SR 3.3.6.6~~	MIC-03-16-00007
b. ~~Automatic~~ Actuation Logic and Actuation Outputs	1,2,3[(a)]	~~2~~4 subsystems	A,B	SR 3.3.6.4 SR 3.3.6.5	MIC-03-16-00007
c. Low Pressurizer Pressure	1,2,3[(a)]	~~2~~3[(c)]	A,B	SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.3	MIC-03-16-00007
d. High Pressurizer Pressure	1,2,3[(a)]	~~2~~3[(c)]	A,B	SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.3	MIC-03-16-00007
e. Low Steam Generator Water Level	1,2,3[(a)]	1[(c)] per SG for any ~~2~~3 SGs	A,B	SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.3	MIC-03-16-00007
f. Rod Drive Motor-Generator Set Trip Device	1,2,3[(a)]	2 subsystems (1 for each MG-Set)	A,B	SR 3.3.6.6	MIC-03-16-00007
2. EFWS Actuation					
a. Manual Initiation	1,2,3[(a)]	1[(b)]	A,B	SR 3.3.6.5	MIC-03-16-00007
b. ~~Automatic~~ Actuation Logic and Actuation Outputs	1,2,3[(a)]	~~2~~4 subsystems	A,B	SR 3.3.6.5	MIC-03-16-00007
c. Low Steam Generator Water Level	Refer to Function 1.e (Reactor Trip/ Turbine Trip/ MFW Isolation - Low Steam Generator Water Level) for all ~~Low Steam Generator Water Level~~ requirements.				MIC-03-16-00007

(a) With the Pressurizer Pressure > P-11

(b) Manual ~~i~~Initiation and Manual Control ~~f~~Functions require operation of 2 switches on the DHP:~~,~~ (1) ~~t~~The Permissive Switch for DAS HSI, which is common to all Manual Initiation and Manual Control Functions, and (2) the ~~m~~Manual ~~i~~Initiation or Manual Control switch ~~on the DHP.~~, which is unique for each Function. Therefore, a channel consists of both switches and their respective interfaces to two of the four DAAC subsystems. MIC-03-16-00007

(c) Required channels for each of the four DAAC subsystems must be OPERABLE.

Table 3.3.6-1 (page 2 of 2)
Diverse Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	
3. ECCS Actuation					
a. Manual Initiation	1,2,3[a]	1[b]	A,B	SR 3.3.6.5	MIC-03-16-0 0007
b. Actuation Logic and Actuation Outputs	1,2,3[a]	4 subsystems	A,B	SR 3.3.6.4 SR 3.3.6.5	MIC-03-16-0 0007
c. Low-Low Pressurizer Pressure	1,2,3[a]	3[c]	A,B	SR 3.3.6.1 SR 3.3.6.2 SR 3.3.6.3	MIC-03-16-0 0007
4. Containment Isolation					
a. Manual Initiation	1,2,3[a]	1[b]	A,B	SR 3.3.6.5	MIC-03-16-0 0007
5. EFW Isolation Valves					
a. Manual Control	1,2,3[a]	1[b] for each SG	A,B	SR 3.3.6.5	MIC-03-16-0 0007
6. Pressurizer Safety Depressurization Valves					
a. Manual Control	1,2,3[a]	1[b]	A,B	SR 3.3.6.5	MIC-03-16-0 0007
b. Actuation Logic and Actuation Outputs	1,2,3[a]	4 subsystems	A,B	SR 3.3.6.4 SR 3.3.6.5	MIC-03-16-0 0007
7. Main Steam Depressurization Valves					
a. Manual Control	1,2,3[a]	1[b] for each SG	A	SR 3.3.6.5	
b. Actuation Logic and Actuation Outputs	1,2,3[a]	4 subsystems	A,B	SR 3.3.6.4 SR 3.3.6.5	MIC-03-16-0 0007
8. Main Steam Line Isolation					MIC-03-16-0 0007
a. Manual Initiation	1,2,3[a]	1[b]	A,B	SR 3.3.6.5	MIC-03-16-0 0007
b. Actuation Logic and Actuation Outputs	1,2,3[a]	4 subsystems	A,B	SR 3.3.6.4 SR 3.3.6.5	MIC-03-16-0 0007

(a) With the Pressurizer Pressure > P-11

(b) ~~One channel is~~Manual Initiation and Manual Control Functions require operation of 2 switches on the DHP: (1) ~~t~~The Permissive Switch for DAS HSI, which is common to all Manual Initiation~~/~~ and Manual Control ~~f~~Functions, and (2) the Manual Initiation or Manual Control switch, which is unique for each Function. Therefore, a channel consists of both switches and their respective interfaces to two of the four DAAC subsystems.

(c) Required channels for each of the four DAAC subsystems must be OPERABLE.

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5.5 Programs and Manuals

5.5.20 Control Room Envelope Habitability Program (continued)

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

5.5.21 Setpoint Control Program (SCP)

a. The Setpoint Control Program (SCP) implements the regulatory requirement of 10 CFR 50.36 (c)(1)(ii) (A) that technical specifications will include items in the category of limiting safety system settings (LSSS), which are settings for automatic protective devices related to those variables having significant safety functions. MIC-03-16-00007

b. The Nominal Trip Setpoint (NTSP), Allowable Value (AV), Performance Test Acceptance Criteria (PTAC), and Calibration Tolerance (CT) for each Technical Specification required automatic protection instrumentation function (i.e., reactor trip, ESFAS actuation and permissive interlocks) shall be calculated in conformance with the instrumentation setpoint methodology previously reviewed and approved by the NRC in [Title, Revision No., dated Month dd, yyyy, (MLxxxxxxxxx)], and the conditions stated in the associated NRC safety evaluation, [Letter to MHI from NRC, Title, dated Month, dd, yyyy, (MLxxxxxxxxx)]. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

c. For each Technical Specification required automatic protection instrumentation function implemented with a ~~digital bistable function~~conventional analog bistable, performance of a ~~CHANNEL CALIBRATION~~COT surveillance shall include the following: MIC-03-16-00007

1. ~~If all as-found calibration setting values are inside the two-sided limits of (calibration setting ± pre-defined test acceptance criteria band (PTAC)), then the channel is fully operable.~~The as-found value of the instrument channel trip setting shall be compared with the previous as-left value or the specified NTSP.

i. ~~If any as-found calibration setting value is outside the two-sided limits of (calibration setting ± PTAC), but inside the limits of ± AV, then the channel is operable but degraded, and corrective action is required to restore the channel to within specifications.~~If the as-found value of the instrument channel trip setting differs from the previous as-left value or the specified NTSP by more than the PTAC, but less than the specified AV, then the instrument channel shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the surveillance requirement met and returning the instrument channel to service. This condition shall be dispositioned by the plant's corrective action program. MIC-03-16-00007

ii. If any as-found calibration setting value is outside the two-sided limits of ± AV, then the channel is inoperable, and corrective action is required, including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required.If the as-found value of the instrument channel trip setting differs from the specified NTSP by more than the specified AV, then the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

The Calibration Tolerance (CT) limits are applied to the calibration setting. The instrument channel calibration settings shall be set or confirmed to be within the specified CT around the five calibration settings (0, 25, 50, 75 and 100 percent) at the completion of each CHANNEL CALIBRATION surveillance. CT is a two-sided limit controlled by plant procedures, and is typically Sensor Calibration Accuracy (SCA), Rack Calibration Accuracy (RCA), or a combination of both.

d. For each Technical Specification required automatic protection instrumentation function implemented with a binary sensor connected to a digital channel or an analog bistable function, performance of a CHANNEL CALIBRATION surveillance (binary sensors connected to digital channels) or a COT-analog surveillance (analog bistables) shall include the following:

1. If the as-found trip setting differs from the specified NTSP by less than the PTAC, then the channel is fully operable.

2. If the as-found trip setting differs from the specified NTSP by more than the PTAC, but less than the specified AV, then the channel is operable but degraded, and corrective action is required to restore the channel to within specifications.

3. If the as-found trip setting is differs from the specified NTSP by more than the specified AV, then the channel is inoperable, and corrective action is required, including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required.

The CT limits are applied to NTSP.

2. The instrument channel trip setting shall be set or confirmed to be within the specified CT around the NTSP at the completion of each COT-analog surveillance; otherwise, the surveillance. CT is a MIC-03-16-00007

~~two-sided limit controlled by plant procedures, and is typically a function of SCA, RCA or a combination of both.~~ requirement is not met and the instrument channel shall be immediately declared inoperable. MIC-03-16-00007

d. For each Technical Specification required automatic protection instrumentation function implemented with ~~an analog~~a conventional analog bistable ~~function~~, the difference between the instrument channel trip setting as-found value and either the previous as-left ~~trip setting~~ value or the specified NTSP shall be trended and evaluated to verify that the instrument channel is functioning in accordance with its design basis. MIC-03-16-00007

e. For each Technical Specification required automatic protection instrumentation function implemented with a binary sensor (e.g., pressure switches, UV relays), performance of a CHANNEL CALIBRATION surveillance shall include the following: MIC-03-16-00007

1. The as-found value of the instrument channel state change shall be compared with the previous as-left value or the specified NTSP.

i. If the as-found value of the instrument channel state change differs from the previous as-left value or the specified NTSP by more than the PTAC, but less than the specified AV, then the instrument channel shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the surveillance requirement met and returning the instrument channel to service. This condition shall be dispositioned by the plant's corrective action program.

ii. If the as-found value of the instrument channel state change differs from the specified NTSP by more than the specified AV, then the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

2. The instrument channel state change shall be set or confirmed to be within the specified CT around the NTSP at the completion of each CHANNEL CALIBRATION surveillance; otherwise, the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

f. For each Technical Specification required automatic protection instrumentation function implemented with a binary sensor, the difference between the instrument channel ~~trip setting~~state change as-found value and either the previous as-left ~~trip setting~~ value or the specified NTSP shall be trended and evaluated to verify that the instrument channel is functioning in accordance with its design basis.

g. For each Technical Specification required automatic protection instrumentation function implemented with ~~a digital bistable function~~an analog sensor (e.g., pressure transmitter), performance of a CHANNEL CALIBRATION surveillance shall include the following: MIC-03-16-00007

1. The as-found value of the instrument channel calibration setting shall be compared with the previous as-left value or the specified calibration setting at five calibration settings corresponding to 0%, 25%, 50%, 75% and 100% of the instrument range. MIC-03-16-00007

    i. If any as-found calibration setting value is outside the two-sided limits of "previous as-left value ± PTAC" or "calibration setting ± PTAC," but inside the specified limits of ± AV, then the instrument channel shall be evaluated to verify that it is functioning in accordance with its design basis before declaring the surveillance requirement met and returning the instrument channel to service. This condition shall be dispositioned by the plant's corrective action program.

    ii. If any as-found calibration setting value is outside of the two-sided limits of ± AV, then the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

2. The instrument channel calibration settings shall be set or confirmed to be within the specified CT around the five calibration settings (0%, 25%, 50%, 75%, and 100%) at the completion of each CHANNEL CALIBRATION surveillance; otherwise, the surveillance requirement is not met and the instrument channel shall be immediately declared inoperable.

h. For each Technical Specification required automatic protection instrumentation function implemented with an analog sensor, the difference between the instrument channel calibration setting (0%, 25%, 50%, 75% and 100 ~~percent~~%) as-found value and either the previous as-left ~~values~~value or the specified calibration setting shall be trended and evaluated to verify that the instrument channel is functioning in accordance with its design basis.

i. The SCP shall establish a document containing the current values of the specified NTSP, AV, PTAC, and CT for each Technical Specification required automatic protection instrumentation function, and references to the calculation documentation. Changes to this document shall be governed by the regulatory requirements of 10 CFR 50.59. In addition, changes to the specified NTSP, AV, PTAC, and CT values shall be governed by the approved setpoint methodology. This document, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC. MIC-03-16-00007 MIC-03-16-00007

j. For each Technical Specification required automatic protection instrumentation function implemented with a digital bistable, the Nominal Trip Setpoint value shall be confirmed during the software MEMORY INTEGRITY CHECK (MIC). MIC-03-16-00007

---------------------------------------REVIEWER'S NOTE-- MIC-03-16-00007

The referenced NRC approved setpoint methodology shall meet the following guidance, and shall be applicable to Technical Specification required automatic protection instrumentation function surveillances that require verification that ~~setpoints (or channel outputs)~~channel trip settings, state change values, and calibration settings are within the necessary range and accuracy (e.g., COT, CHANNEL CALIBRATIONS): MIC-03-16-00007

1. The methodology allows little variation in the values calculated by different analysts using identical input values (such as uncertainties and channel calibration drift).

2. ~~For each Technical Specification required automatic protection instrumentation function implemented with an analog bistable function, the as-left value of the instrument channel trip setting~~The as-left value of the instrument channel (applicable to trip settings, state change values, and calibration settings) shall be the value at which the channel was set or left at the completion of the surveillance with no additional adjustment of the instrument channel. MIC-03-16-00007

   ~~For each Technical Specification required automatic protection instrumentation function implemented with a digital bistable function, the asleft value of the instrument channel calibration of the surveillance with no additional adjustment of the instrument channel.~~ MIC-03-16-00007

3. ~~For each Technical Specification required automatic protection instrumentation function implemented with an analog bistable function, t~~The as-found value of the instrument channel (applicable to trip settings, state change values, and calibration settings) shall be the ~~trip setting~~ value measured during the subsequent performance of the surveillance before making any adjustment to the instrument channel that could change the ~~trip setting~~ value.

4. If the requirements of 5.5.21.c.1 or 5.5.21.~~d include an allowance for~~e.1 are satisified by comparing the as-found value to ~~be compared with~~ the specified ~~calibration setting or~~ NTSP, then the following conditions shall be applied: MIC-03-16-00007

   a. The setting tolerance band (i.e., the specified CT) must be less than or equal to the square root of the sum of the squares of reference accuracy, measurement and test equipment errors, and readability uncertainties;

   b. The setting tolerance band (i.e., the specified CT) must be included in the total loop uncertainty; and

   c. The pre-defined test acceptance criteria band (i.e., the specified PTAC) for the as-found value must include either the setting tolerance band (the specified CT) or the uncertainties associated MIC-03-16-00007 with the setting tolerance band (the specified CT), but not both of these. MIC-03-16-00007

5. If the requirements of 5.5.21.g.1 are satisfied by comparing the as-found value to the specified calibration setting, then the following conditions shall be applied:

   a. The setting tolerance band (i.e., the specified CT) must be less than or equal to the square root of the sum of the squares of reference accuracy, measurement and test equipment errors, and readability uncertainties;

   b. The setting tolerance band (i.e., the specified CT) must be included in the total loop uncertainty; and

   c. The pre-defined test acceptance criteria band (i.e., the specified PTAC) for the as-found value must include either the setting tolerance band (the specified CT) or the uncertainties associated with the setting tolerance band (the specified CT), but not both of these. MIC-03-16-00007

Chapter 16 Bases Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_15.4.6-6	B 3.4.6 B 3.4.7 B 3.4.8	B3.4.6-1 B 3.4.6-3 B 3.4.6-4 B 3.4.6-5 B 3.4.7-1 through B 3.4.7-5 B 3.4.8-1 through B.3.4.8-4	Response to RAI No. 682 MHI Letter No. UAP-HF-11104 Date 04/15/2011	Revised each items and added the new paragraphs.	-
DCD_16-298	B3.4.9	B3.4.9-1 through B3.4.9-5	Response to RAI No. 399 MHI Letter No. UAP-HF-11160 Date 05/30/2011	Revised each items and added the new sentence	-
DCD_09.02.02-49 This change is superseded by the amend RAI Response.	B3.7.7	B3.7.7-4	Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Added Surveillance Requirement and associated Bases to verify system leakage.	-
DCD_09.02.02-49	B3.7.7	B3.7.7-4 B3.7.7-5 B3.7.7-6	2nd Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11365 Date 10/27/2011	Added Surveillance Requirement and associated Bases to verify system leakage.	-
DCD_09.02.02-	B3.7.7	B3.7.7-1	Response to RAI No. 774	Added summary description on cross-	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
84			MHI Letter No. UAP-HF-11263 Date 08/12/2011	tie use.	
DCD_16-304	Ch 16 – Bases B3.1.4 B3.1.6 B3.2.3 B3.4.1 B3.4.16 B3.5.1 B3.7.15	 B3.1.4-8 B3.1.6-5 B3.2.3-6 B3.4.1-3 B3.4.1-4 B3.4.16-5 B3.5.1-9 B3.7.15-2	Response to RAI No. 816 MHI Letter No. UAP-HF-11315 Date 9/16/2011	Correct errors in the TS Bases related to Surveillance Frequency Control Program.	-
MIC-03-16-00004	B 3.4.12	B3.4.12-4	NRC request (Resolution for SER Confirmatory Item:CI-SRP-16-STSB-146-1804/89)	Replaced "Appendix K (Refs. 5 and 6)" with "Appendix K (Refs. 6 and 7)".	1
MIC-03-16-00007	B 3.1.9 B 3.3.1 B 3.3.2	B 3.1.9-7 B 3.3.1-1 to B 3.3.1-58 [B 3.3.1-1 to B 3.3.1-69] B3.3.2-1 to B 3.3.2-71	Change due to NRC meeting result on 2012/1/17	Revised the sections listed in Location column for the NRC meeting result.	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	    B 3.3.3 B 3.3.4 B 3.3.5 B 3.3.6	[B 3.3.2-1 to B 3.3.2-96] B3.3.3-1 to B3.3.3-13 [B3.3.3-1 to B3.3.3-18] B 3.3.4-1 to B 3.3.4-4 [B 3.3.4-1 to B 3.3.4-14] B 3.3.5-1 to B 3.3.5-9 [B 3.3.5-1 to B 3.3.5-11] B 3.3.6-1 to B 3.3.6-14 [B 3.3.6-1 to B3.3.6-20]			
MIC-03-16-00008	B 3.9.4	B 3.9.4-4	Typo miss in developing DCD Rev.3	Revise “ALTERNATIONS” to “ALTERATIONS”	2

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is “-“, the change was not made in a T/R.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.1.9.1

The power range and intermediate range neutron detectors must be verified to be OPERABLE in MODE 2 by LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation." A CHANNEL CALIBRATION is performed on each power range and intermediate range channel per SR 3.3.1.9, consistent with Specification 5.5.21, Setpoint Control Program (SCP), prior to initiation of the PHYSICS TESTS. This will ensure that the RTS is properly aligned to provide the required degree of core protection during the performance of the PHYSICS TESTS. MIC-03-16-00007

SR 3.1.9.2

Verification that the RCS lowest loop T_{avg} is ≥ 541°F will ensure that the unit is not operating in a condition that could invalidate the safety analyses. [Verification of the RCS temperature at a Frequency of 30 minutes during the performance of the PHYSICS TESTS will ensure that the initial conditions of the safety analyses are not violated. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.1.9.3

Verification that the THERMAL POWER is ≤ 5% RTP will ensure that the plant is not operating in a condition that could invalidate the safety analyses. [Verification of the THERMAL POWER at a Frequency of 30 minutes during the performance of the PHYSICS TESTS will ensure that the initial conditions of the safety analyses are not violated. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.1.9.4

The SDM is verified by performing a reactivity balance calculation, considering the following reactivity effects:

a. RCS boron concentration,

b. Control bank position,

c. RCS average temperature,

B 3.3 INSTRUMENTATION

B 3.3.1 Reactor Trip System (RTS) Instrumentation

BASES

BACKGROUND

The RTS initiates a unit shutdown, based on the values of selected unit parameters, to protect against violating the core fuel design limits and Reactor Coolant System (RCS) pressure boundary during anticipated operational occurrences (AOOs) and to assist the Engineered Safety Features (ESF) Systems in mitigating accidents.

The protection and monitoring systems have been designed to assure safe operation of the reactor. This is achieved by specifying limiting safety system settings (LSSS) in terms of parameters directly monitored by the RTS, as well as specifying LCOs on other reactor system parameters and equipment performance.

Technical Specifications are required by 10 CFR 50.36 to contain LSSS defined by the regulation as "...settings for automatic protective devices...so chosen that automatic protective action will correct the abnormal situation before a Safety Limit (SL) is exceeded." The ~~Analytic~~Analytical Limit is the limit of the process variable at which a safety action is initiated, as established by the safety analysis, to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the ~~Analytic~~Analytical Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protective devices must be chosen to be more conservative than the ~~Analytic~~Analytical Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur. MIC-03-16-0007 MIC-03-16-0007 MIC-03-16-0007

The Nominal Trip Setpoint, recorded and maintained in a document established by the Setpoint Control Program (SCP), is a predetermined setting for a protective device chosen to ensure automatic actuation prior to the process variable reaching the ~~Analytic~~Analytical Limit and thus ensuring that the SL would not be exceeded. As such, the Nominal Trip Setpoint accounts for uncertainties in setting the device (e.g., calibration), uncertainties in how the device might actually perform (e.g., repeatability), changes in the point of action of the device over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident environments). In this manner, the Nominal Trip Setpoint plays an important role in ensuring that SLs are not exceeded. As such, the Nominal Trip Setpoint meets the definition of an LSSS (Ref. 1) and is used to meet the requirement that they be contained in the Technical Specifications. This is an acceptable approach for digital systems because the digital setpoints do not drift as in analog systems. The Nominal Trip Setpoint is applicable to automatic protection instrumentation functions for Reactor Trip, ESF Actuation Systems (ESFAS) actuation and permissive interlocks. MIC-03-16-0007 MIC-03-16-0007 MIC-03-16-0007 MIC-03-16-0007

BACKGROUND (continued)

Technical Specifications contain ~~measured accuracy values~~Allowable Values related to the OPERABILITY of equipment required for safe operation of the facility.~~-~~ The ~~measured accuracy value~~Allowable Value accommodates expected drift in the analog components of the channel that would have been specifically accounted for in the setpoint methodology for calculating the Nominal Trip Setpoint and thus the automatic protective action would still have ensured that the SL would not be exceeded with the "as~~-~~-found" settings of the protective device. Therefore, the device would still be OPERABLE since it would have performed its safety function and the only corrective action required would be to recalibrate the device to account for further drift during the next surveillance interval. MIC-03-16-0007 MIC-03-16-0007 MIC-03-16-0007

However, there is also some point beyond which the device would have not been able to perform its function due, for example, to greater than expected drift. This value needs to be specified in the Technical Specifications in order to define OPERABILITY of the devices and is designated as the Allowable Value.

The Allowable Value, recorded and maintained in a document established by the Setpoint Control Program (SCP)~~ demonstrates~~, is considered a limiting value such that a channel is OPERABLE if the ~~measured accuracy is~~ as-found value does not~~ to~~ exceed the Allowable Value during CHANNEL CALIBRATION.~~ (protection functions implemented with digital bistable functions) or COT (protection functions implemented with~~ The Allowable Value is applicable to automatic protection instrumentation functions for Reactor Trip, ESFAS actuation and permissive interlocks. MIC-03-16-0007

For analog ~~bistable functions). The~~measurements, the CHANNEL CALIBRATION verifies the ~~instrument~~channel accuracy at five calibration settings corresponding to 0%, 25%, 50%, 75% and 100% of the instrument range. For binary measurements, the CHANNEL CALIBRATION verifies the accuracy of the channel's state change at the required setpoint. As such, the Allowable Value accounts for the expected instrument loop uncertainties, such as drift, during the surveillance interval. In this manner, the actual setting of the device will still meet the LSSS definition and ensure that a SL is not exceeded at any given point of time as long as the device has not drifted beyond that expected during the surveillance interval. MIC-03-16-0007

Note that, although the channel is "OPERABLE" under these circumstances, the channel ~~should~~shall be left adjusted to a value within the established channel ~~c~~Calibration ~~t~~Tolerance (CT) band, in accordance with uncertainty assumptions stated in the referenced setpoint methodology (as-left criteria), and confirmed to be operating within the statistical allowances of the uncertainty terms assigned. The Calibration Tolerance, recorded and maintained in a document established by the SCP, is applicable to automatic MIC-03-16-0007 MIC-03-16-0007

BASES

BACKGROUND (continued)

protection instrumentation functions for Reactor Trip, ESFAS actuation and permissive interlocks. MIC-03-16-0007

If the ~~actual accuracy~~as-found value of the device is found to have exceeded the Allowable Value, or the as-left value of the device cannot be adjusted to a value within the Calibration Tolerance, the device would be considered inoperable from a technical specification perspective. This requires corrective action including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required.

In the Protection and Safety Monitoring System (PSMS), setpoints associated with analog measurements are stored as digital values that have no potential for variation due to time, environmental drift or component aging. For analog measurements, the only factors that can result in variation in the trip Functions reside in the uncertainties that are pertinent to the analog portion of the system. Therefore, for analog measurements in the PSMS, it is appropriate for the Allowable Value to be expressed in terms of values that are measured during periodic testing of the analog portion of the system (i.e., CHANNEL CALIBRATION). MIC-03-16-0007

For PSMS analog measurements, the as-found and as-left values are measured from sensor to digital Visual Display Unit (VDU) readout during CHANNEL CALIBRATION. The US-APWR enhances human performance by establishing a standard CHANNEL CALIBRATION method for all analog measurements, whereby the as-found and as-left values read at the VDU are measured at the same five calibration settings, regardless of the PSMS trip setpoint(s).

Since the PSMS trip logic and setpoints for analog measurements are stored as digital values with no drift potential, and those digital values are confirmed through the MEMORY INTEGRITY CHECK (MIC), the only untested area required to confirm channel operability pertains to the accuracy of the analog input signal. When the analog input accuracy is confirmed, by reading the digital values of the five point CHANNEL CALIBRATION settings on any VDU driven by the same digital value used in the controller that executes the trip Functions, the operability of the complete channel is confirmed, including the accuracy of all trip setpoints associated with that channel.

BASES

BACKGROUND (continued)

In the PSMS, setpoints associated with binary measurements are stored within the binary device itself. These setpoints have potential for variation due to time, environmental drift or component aging. However, these sensors are interfaced to the digital portion of the PSMS, which has no potential for variation due to time, environmental drift or component aging. For binary measurements, the only factors that can result in variation in the trip Functions reside in the uncertainties that are pertinent to the binary sensor itself. Therefore, for binary measurements in the PSMS, it is appropriate for the Allowable Value to be expressed in terms of values that are measured during periodic testing of the binary device (i.e., CHANNEL CALIBRATION). MIC-03-16-0007

For PSMS binary measurements, the as-found and as-left state change values are measured from sensor to VDU readout during CHANNEL CALIBRATION. The US-APWR enhances human performance by establishing a standard CHANNEL CALIBRATION method for all binary measurements, whereby the as-found and as-left values read at the VDU are measured at the channel's required state change.

Since the PSMS trip logic for binary sensors is stored as digital values with no drift potential, and those digital values are confirmed through the MIC, the only untested area required to confirm channel operability pertains to the accuracy of the binary input signal. When the binary input accuracy is confirmed, by reading the channel's state change on any VDU driven by the same digital value used in the controller that executes the trip Functions, the operability of the complete channel is confirmed, including the accuracy of the trip setpoint associated with that channel.

During AOOs, which are those events expected to occur one or more times during the unit life, the acceptable limits are:

1. The Departure from Nucleate Boiling Ratio (DNBR) shall be maintained above the Safety Limit (SL) value to prevent departure from nucleate boiling (DNB),

2. Fuel centerline melt shall not occur, and

3. The RCS pressure SL of 2733.5 psig shall not be exceeded.

Operation within the SLs of Specification 2.0, "Safety Limits (SLs)," also maintains the above values and assures that offsite dose will be within the 10 CFR 50 and 10 CFR 100 criteria during AOOs.

BASES

BACKGROUND (continued)

Accidents are events that are analyzed even though they are not expected to occur during the unit life. The acceptable limit during accidents is that offsite dose shall be maintained within an acceptable fraction of 10 CFR 100 limits. Different accident categories are allowed a different fraction of these limits, based on probability of occurrence. Meeting the acceptable dose limit for an accident category is considered having acceptable consequences for that event.

The RTS instrumentation is segmented into four distinct but interconnected modules as illustrated in Chapter 7 (Ref. 2), and as identified below:

1. Field transmitters, process sensors or field contacts: provide a measurable electronic signal based upon the physical characteristics of the parameter being measured,

2. The RPS, including Nuclear Instrumentation System (NIS): provides signal conditioning, analog to digital conversion, digital bistables for setpoint comparison, process algorithm actuation, compatible electrical signal output to the ~~r~~Reactor ~~t~~Trip ~~b~~Breakers (RTBs), and digital output to control board/control room/miscellaneous VDUs, and MIC-03-16-00007 MIC-03-16-00007

3. Reactor trip~~-~~ breakers (RTBs): provide the means to interrupt power to the control rod drive mechanisms (CRDMs) and allows the rod cluster control assemblies (RCCAs), or "rods," to fall into the core and shut down the reactor. MIC-03-16-00007

4. Manual Reactor Trip switches: provide the ~~m~~Manual ~~r~~Reactor ~~t~~Trip ~~i~~Initiation in the control room. MIC-03-16-00007

BACKGROUND (continued)

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. To account for the calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the Nominal Trip Setpoint and Allowable Values. The OPERABILITY of each transmitter or sensor is determined by either "as-found" calibration data evaluated during the CHANNEL CALIBRATION orand by qualitative assessment of field transmitter or sensor as related to the channel behavior observed during performance of the CHANNEL CHECK. MIC-03-16-00007 MIC-03-16-00007

Protection and Safety Monitoring System

Generally, four channels of process control equipment are used for the signal processing of unit parameters measured by the field instruments. Four channels provides the capability for unlimited bypass of one channel while maintaining single failure criteria, therefore generally allowing a requirement for only three channels to be OPERABLE. The process control equipment provides signal conditioning, analog to digital conversion, comparable digital output signals for VDUs located on the main control board, and comparison of measured input signals with setpoints established by safety analyses. These setpoints are defined in Chapter 7 (Ref. 2). If the measured value of a unit parameter exceeds the predetermined setpoint, ana digital output from a digital bistable is processed for decision evaluation. Channel separation is maintained throughout the PSMS. Some unit parameters provide input only to the PSMS, while others are used by the PSMS and are retransmitted to the Plant Control and Monitoring System (PCMS) for use in one or more control systems. MIC-03-16-00007 MIC-03-16-00007

Generally, if a parameter is used only for input to the protection circuits, three channels with a two-out-of-three logic are sufficient to provide the required reliability and redundancy. If one channel fails in a direction that would not result in a partial Function trip, the Function is still OPERABLE with a two-out-of-two logic. If one channel fails, such that a partial Function trip occurs, a trip will not occur and the Function is still OPERABLE with a one-out-of-two logic.

BASES

BACKGROUND (continued)

Generally, if a parameter is used for input to the protection circuits and a control function, three channels with a two-out-of-three logic are also sufficient to provide the required reliability and redundancy. ~~The~~When three or more channels are OPERABLE, the Signal Selection Algorithm (SSA) within the PCMS ensures the control systems can withstand an input failure to the control system without causing erroneous control system operation, which would otherwise require the protection function actuation. Since the input failure does not cause an erroneous control system action that challenges the protection function, the input failure is considered a single failure in the RTS and the RTS remains capable of providing its protective function with the remaining two ~~operable~~OPERABLE channels. Again, a single failure will neither cause nor prevent the protection function actuation. These requirements are described in IEEE-603-1991 (Ref. 4). The actual number of channels required for each unit parameter is specified in Reference 2. When there are less than three OPERABLE channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared channels, when there are only three required channels. [MIC-03-16-00007]

The RTB trains are arranged in a two~~-~~-out~~-~~-of~~-~~-four configuration. Therefore, three logic trains are required to ensure no single random failure of a logic train will disable the RTS. The logic trains are designed such that testing required while the reactor is at power may be accomplished without causing trip. Provisions allow removing logic trains from service during maintenance.

Allowable Values and RTS Setpoints

The Nominal Trip Setpoints used in the digital bistables or binary sensors are based on the Analytical Limits defined in the accident analysis and the channel uncertainty. The selection of these Nominal Trip Setpoints is such that adequate protection is provided when all sensor and processing ~~t~~Time ~~d~~Delays are taken into account. [MIC-03-16-00007]

To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those RTS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Nominal Trip Setpoints ~~recorded~~ and ~~maintained in a document established by the SCP in the accompanying LCO~~Allowable Values are conservative ~~with respect~~ to protect the Analytical Limits. The methodology identified in the SCP, used to calculate the Allowable Values and Nominal Trip Setpoints, incorporates all of the known uncertainties applicable to each channel (Ref. ~~2~~12). The magnitudes of these uncertainties are factored into the determination of each Nominal Trip Setpoint and ~~corresponding~~ Allowable Value. [MIC-03-16-00007]

BASES

BACKGROUND (continued)

The Nominal Trip Setpoint entered into the digital bistable or binary sensor is more conservative than that specified by the Analytical Limit ~~(LSSS) to account~~. The Nominal Trip Setpoint accounts for measurement errors detectable by the CHANNEL CALIBRATION~~.~~ and other unmeasurable errors (such as the effects of anticipated environmental conditions), which are both considered in the Allowable Value for CHANNEL CALIBRATION. The Allowable Value serves as the Technical Specification OPERABILITY limit for the purpose of the CHANNEL CALIBRATION. One example of such a change in measurement error is drift during the surveillance interval. If the ~~measured accuracy~~as-found value does not exceed the Allowable Value, the channel is considered OPERABLE. MIC-03-16-00007 MIC-03-16-00007

The Nominal Trip Setpoint (i.e., LSSS) is the value at which the digital bistable or binary sensor is set. The Nominal Trip Setpoint value ensures the ~~LSSS and the~~ safety analysis limits are met for the surveillance interval selected when a channel is adjusted based on the stated channel uncertainties. Any channel is considered to be properly adjusted when the "as~~-~~-left" value is within the established Calibration Tolerance (CT) band, in accordance with the methods and assumptions ~~in~~of the SCP. The Nominal Trip Setpoint value (i.e., expressed as a value without inequalities) ~~is used~~ for digital bistables, is confirmed during the ~~purposes of COT~~MIC. The Nominal Trip Setpoint value (i.e., expressed as a value with inequalities) for binary sensors is confirmed during the CHANNEL CALIBRATION. MIC-03-16-00007 MIC-03-16-00007

Nominal Trip Setpoints and Allowable Values, consistent with the requirements of the ~~Allowable Value~~SCP, ensure that SLs are not violated during AOOs ~~(~~and that the consequences of Postulated Accidents (PAs) will be acceptable, ~~providing~~provided the unit is operated from within the LCOs at the onset of the AOO or PA and the equipment functions as designed~~)~~.

~~Digital~~Within the PSMS controllers, Nominal Trip Setpoints and Time Constants are digital settings maintained in non-volatile software memory within each Reactor Protection System(RPS) train. Digital settings have no potential for variation due to time, environmental drift or component aging; therefore, these digital settings have no surveillance tolerance. Each ~~train of the process control equipment is~~PSMS controller has continuous automatic self-~~tested continuously on line to verify~~testing, which verifies that the digital Nominal Trip Setpoint and Time Constant settings are correct. Nominal Trip Setpoints and Time Constants are also verified periodically through ~~a diverse software memory integrity test, which may~~the MIC which must be conducted with the ~~RTS train~~affected PSMS controller out of service. A designated instrument channel is taken out of service for periodic ~~calibration~~CHANNEL CALIBRATION. SRs for the channels and trains are specified in the SRs section.

BASES

BACKGROUND (continued)

~~NOTE:~~ The Allowable Value ~~recorded and maintained in a document established by the SCP~~ is the maximum deviation ~~at the calibration setpoints~~ that can be measured during CHANNEL CALIBRATION, whereby the channel is considered OPERABLE. This value ~~is~~includes the deviations that are included in the calculations that determined the ~~TRIP SETPOINT recorded and maintained in a document established by the SCP~~Nominal Trip Setpoint. The “expected as-found value” shall be as specified in the plant-specific setpoint analysis. The expected as-found value reflects the expected normal drift of actual plant equipment, so that a degraded device can be identified before the Allowable Value limit is reached. The expected as-found value is also referred to as the Performance Test Acceptance Criteria (PTAC). The PTAC, recorded and maintained in a document established by the SCP, is applicable to automatic protection instrumentation functions for Reactor Trip, ESFAS actuation and permissive interlocks. MIC-03-16-00007 MIC-03-16-00007

Reactor Trip Breakers

The RTBs are in the electrical power supply line from the control rod drive motor generator set power supply to the CRDMs. Opening of the RTBs interrupts power to the CRDMs, which allows the shutdown rods and control rods to fall into the core by gravity. There are eight RTBs, two from each of four RTB trains, arranged in a two~~-~~-out~~-~~-of~~-~~-four configuration. MIC-03-16-00007

During normal operation the output from the RPS is a voltage signal that energizes the undervoltage coils in the RTBs. When protective action is required, the RPS output voltage signal is removed, the undervoltage coils are de-energized, the breaker trip lever is actuated by the de-energized undervoltage coil, and the RTBs are tripped open. This allows the shutdown rods and control rods to fall into the core. In addition to the de-energization of the undervoltage coils, each breaker is also equipped with a shunt trip device that is energized to trip the breaker open upon receipt of a ~~r~~Reactor ~~t~~Trip signal from the RPS. Either the undervoltage coil or the shunt trip mechanism is sufficient by itself, thus providing a diverse trip mechanism. MIC-03-16-00007

The decision logic matrix Functions are described in the functional diagrams included in Reference 2. In addition to the ~~r~~Reactor ~~t~~Trip or ESF, these diagrams also describe the various "permissive interlocks" that are associated with unit conditions. Each train has built in continuous automatic self-testing that automatically tests the decision logic Functions while the unit is at power. When any one or two trains are taken out of service for testing, the other two trains are capable of providing unit monitoring and protection until the testing has been completed. MIC-03-16-00007 MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The RTS ~~f~~Functions to maintain the SLs during all AOOs and mitigates the consequences of PAs in all MODES in which the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted. MIC-03-16-00007

Each of the analyzed accidents and transients can be detected by one or more RTS Functions. The accident analysis described in Reference 3 and 9 takes credit for most RTS ~~trip~~ Functions. RTS ~~trip~~ Functions not specifically credited in the accident analysis are qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the unit. These RTS ~~trip~~ Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. They may also serve as backups to RTS ~~trip~~ Functions that were credited in the accident analysis. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 in the accompanying LCO, to be OPERABLE. A channel is OPERABLE provided the "as-found" value, measured during surveillance testing, does not exceed its associated Allowable Value~~. For digital functions~~ and provided the "as-left" value is within the specified calibration tolerance at the completion of each CHANNEL CALIBRATION. For analog measurements, Allowable Values are defined in terms pertinent to the five channel calibration settings~~. For analog functions~~ 0%, 25%, 50%, 75% and 100%. For binary measurements there is one Allowable Value~~s are~~ defined in terms pertinent to the state change at the Nominal Trip Setpoint. A Nominal Trip Setpoint ~~may be~~is set more conservative than the ~~Limiting Trip Setpoint as necessary in response~~Allowable Value to ~~plant conditions~~account for channel uncertainties. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions. MIC-03-16-00007

The LCO generally requires OPERABILITY of three or two channels in each instrumentation Function, three trains of Manual Reactor Trip ~~in each logic Function~~Initiation, and three trains in each Automatic Trip Logic Function. Three OPERABLE instrumentation channels in a two-out-of-three configuration are required when one RTS channel is also used as a control system input. ~~The~~When there are three or more OPERABLE channels, the SSA within the control system prevents the possibility of ~~the~~a shared channel failing in such a manner that it creates a transient that requires RTS action. The input failure is considered a single failure in the RTS and RTS remains capable of providing its protective function with the remaining two ~~operable~~OPERABLE channels. The SSA ensures there is no potential for control system and protection system interaction that could simultaneously create a need for RTS trip and disable one RTS channel. When there are less than three OPERABLE channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared channels, when there are only three required channels. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The two-out-of-three configuration allows one channel to be tripped during maintenance or testing without causing a ~~r~~Reactor ~~t~~Trip. Specific exceptions to the above general philosophy exist and are discussed below. MIC-03-16-00007

~~In all cases where the LCO states "Restore channel or train to OPERABLE status", this means restore the required number of channels or trains to OPERABLE status. Therefore, restoration of an alternate channel or train, other than the failed channel or train, is also acceptable~~Due to redundant components within the PSMS, such as controllers, communication links and power supplies, an inoperable component may or may not result in an inoperable channel/train. Where an inoperable component results in an inoperable required channel/train, LCOs are entered. For inoperable components that do not result in inoperable channels/trains, LCOs are not entered. MIC-03-16-00007

Reactor Trip System Functions

The safety analyses and OPERABILITY requirements applicable to each RTS Function are discussed below:

1. Manual Reactor Trip ~~i~~Initiation MIC-03-16-00007

The Manual Reactor Trip ~~i~~Initiation ensures that the control room operator can initiate a ~~r~~Reactor ~~t~~Trip at any time by using any two~~-~~-out~~-~~-of~~-~~-four hardwired reactor trip switches in the control room. A Manual Reactor Trip ~~i~~Initiation accomplishes the same results as any one of the automatic trip Functions. It is used by the reactor operator to shut down the reactor whenever any parameter is rapidly trending toward its Nominal Trip Setpoint. MIC-03-16-00007

The LCO requires three Manual Reactor Trip ~~trains~~Functions to be OPERABLE. Each train is controlled by a manual reactor trip switch. Each train activates two ~~r~~Reactor ~~t~~Trip ~~b~~Breakers in its respective train. Three independent trains are required to be OPERABLE so that no single random failure will disable the Manual Reactor Trip ~~i~~Initiation Function. MIC-03-16-00007 MIC-03-16-00007

In MODE 1 or 2, ~~m~~Manual ~~i~~Initiation of a ~~r~~Reactor ~~t~~Trip must be OPERABLE. These are the MODES in which the shutdown rods and/or control rods are partially or fully withdrawn from the core. In MODE 3, 4, or 5, the ~~m~~Manual ~~i~~Initiation Function must also be OPERABLE if one or more shutdown rods or control rods are withdrawn or the Rod Control System is capable of withdrawing the shutdown rods or the control rods. In this condition, inadvertent control rod withdrawal is possible. In MODE 3, 4, or 5, ~~m~~Manual MIC-03-16-00007 MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

~~i~~Initiation of a ~~r~~Reactor ~~t~~Trip does not have to be OPERABLE if the Rod Control System is not capable of withdrawing the shutdown rods or control rods and if all rods are fully inserted. If the rods cannot be withdrawn from the core, or all of the rods are inserted, there is no need to be able to trip the reactor. In MODE 6, neither the shutdown rods nor the control rods are permitted to be withdrawn and the CRDMs are disconnected from the control rods and shutdown rods. Therefore, the ~~m~~Manual ~~i~~Initiation Function is not required. MIC-03-16-00007 MIC-03-16-00007

2. High Power Range Neutron Flux

The NIS power range detectors are located external to the reactor vessel and measure neutrons leaking from the core. Four channels are required because each channel measures neutron flux in one quadrant of the core. Anomalies occurring in one core quadrant can be seen by the neutron flux detector in that quadrant and by the neutron detectors in the two adjacent quadrants, but may not be detected by the detector in the opposite quadrant. Therefore, to ensure event detection and accommodate a single failure, neutron flux detectors must be OPERABLE in all four quadrants. MIC-03-16-00007

The NIS power range detectors also provide control inputs to the Rod Control System and the Steam Generator (SG) Water Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal ~~Selector~~Selection Algorithm (SSA). ~~The~~When there are three or more OPERABLE NIS power range channels, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. ~~Therefore, four~~When there are less than three OPERABLE NIS power range channels ~~are sufficient, an additional channel is not required. Therefore~~, the ~~actuation logic must be able to withstand~~SSA cannot prevent erroneous control system operation due to an input failure ~~to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation~~. This is reflected in the LCO Completion Times for shared NIS power range channels. MIC-03-16-00007 MIC-03-16-00007

Note that this Function also provides a signal to prevent automatic and manual rod withdrawal prior to initiating a ~~r~~Reactor ~~t~~Trip. Limiting further rod withdrawal may terminate the transient and eliminate the need to trip the reactor. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a. ~~h~~High ~~s~~Setpoint MIC-03-16-00007

The High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) trip Function ensures that protection is provided, from all power levels, against a positive reactivity excursion leading to DNB during power operations. These can be caused by rod withdrawal or reductions in RCS temperature.

The LCO requires all four of the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) channels to be OPERABLE. MIC-03-16-00007

In MODE 1 or 2, when a positive reactivity excursion could occur, the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) trip must be OPERABLE. MIC-03-16-00007 This Function will terminate the reactivity excursion and shut down the reactor prior to reaching a power level that could damage the fuel. In MODE 3, 4, 5, or 6, the NIS power range detectors cannot detect neutron levels in this range. In these MODES, the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) does not have MIC-03-16-00007 to be OPERABLE because the reactor is shut down and reactivity excursions into the power range are extremely unlikely. Other RTS Functions and administrative controls provide protection against reactivity additions when in MODE 3, 4, 5, or 6.

b. ~~l~~Low ~~s~~Setpoint MIC-03-16-00007

The LCO requirement for the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) trip Function ensures that protection is MIC-03-16-00007 provided against a positive reactivity excursion from low power or subcritical conditions.

The LCO requires all four of the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) channels to be OPERABLE. MIC-03-16-00007

In MODE 1, below the Power Range Neutron Flux (P-10 setpoint), and in MODE 2, the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) trip must be OPERABLE. This Function MIC-03-16-00007 may be manually blocked by the operator when two~~-~~-out~~-~~-of~~-~~-four power range channels are greater than approximately 10% RTP (P-10 setpoint). This Function is automatically unblocked when three out of four power range channels are below the P-10 setpoint. Above the P-10 setpoint, positive reactivity additions are mitigated by the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) trip Function. MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 3, 4, 5, or 6, the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) trip Function does not have to be OPERABLE because the reactor is shut down and the NIS power range detectors cannot detect neutron levels in this range. Other RTS ~~trip~~ Functions and administrative controls provide protection against positive reactivity additions or power excursions in MODE 3, 4, 5, or 6. MIC-03-16-00007 MIC-03-16-00007

3. High Power Range Neutron Flux Rate

The High Power Range Neutron Flux Rate trips use the same channels as discussed for Function 2 above. Four channels are required because each channel measures neutron flux in one quadrant of the core. Anomalies occurring in one core quadrant can be seen by the neutron flux detector in that quadrant and by the neutron detectors in the two adjacent quadrants, but not by the detector in the opposite quadrant. Therefore, to ensure event detection and accommodate a single failure, neutron flux detectors must be OPERABLE in all four quadrants. MIC-03-16-00007

a. Positive Rate

The High Power Range Neutron Flux Positive Rate trip Function ensures that protection is provided against rapid increases in neutron flux that are characteristic of an RCCA drive rod housing rupture and the accompanying ejection of the RCCA. This Function compliments the High Power Range Neutron Flux (~~h~~High and ~~l~~Low ~~s~~Setpoint) trip Functions to ensure that the criteria are met for a rod ejection from the power range. MIC-03-16-00007

The LCO requires all four of the High Power Range Neutron Flux Positive Rate channels to be OPERABLE.

In MODE 1 or 2, when there is a potential to add a large amount of positive reactivity from a rod ejection accident (REA), the High Power Range Neutron Flux Positive Rate trip must be OPERABLE. In MODE 3, 4, 5, or 6, the High Power Range Neutron Flux Positive Rate trip Function does not have to be OPERABLE because other RTS ~~trip~~ Functions and administrative controls will provide protection against positive reactivity additions. Also, since only the shutdown banks may be withdrawn in MODE 3, 4, or 5, the remaining complement of control bank worth ensures a sufficient degree of SDM in MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

the event of an REA. In MODE 6, no rods are withdrawn and the SDM is increased during refueling operations. The reactor vessel head is also removed or the closure bolts are detensioned preventing any pressure buildup. In addition, the NIS power range detectors cannot detect neutron levels present in this ~~mode~~MODE. MIC-03-16-00007

This Function has a dynamic transfer function. The Time Constants for this Function are recorded and maintained in a document established by the Setpoint Control Program (SCP).

b. Negative Rate

The High Power Range Neutron Flux Negative Rate trip Function ensures that protection is provided for multiple rod drop accidents. At high power levels, a multiple rod drop accident could cause local flux peaking that would result in an unconservative local DNBR. DNBR is defined as the ratio of the heat flux required to cause a DNB at a particular location in the core to the local heat flux. The DNBR is indicative of the margin to DNB. No credit is taken for the operation of this Function for those rod drop accidents in which the local DNBRs will be greater than the limit.

The LCO requires all four High Power Range Neutron Flux Negative Rate channels to be OPERABLE.

In MODE 1 or 2, when there is potential for a multiple rod drop accident to occur, the High Power Range Neutron Flux Rate trip must be OPERABLE. In MODE 3, 4, 5, or 6, the High Power Range Neutron Flux Negative Rate trip Function does not have to be OPERABLE because the core is not critical and DNB is not a concern. Also, since only the shutdown banks may be withdrawn in MODE 3, 4, or 5, the remaining complement of control bank worth ensures a sufficient degree of SDM in the event of an REA. In MODE 6, no rods are withdrawn and the required SDM is increased during refueling operations. In addition, the NIS power range detectors cannot detect neutron levels present in this MODE.

This Function has a dynamic transfer function. The Time Constants for this Function are recorded and maintained in a document established by the Setpoint Control Program (SCP). MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

4. High Intermediate Range Neutron Flux

The High Intermediate Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) trip Function. The NIS intermediate range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS intermediate range detectors do not provide any input to control systems. Note that this Function also provides a signal to prevent automatic and manual rod withdrawal prior to initiating a ~~r~~Reactor ~~t~~Trip. Limiting further rod withdrawal may terminate the transient and eliminate the need to trip the reactor. MIC-03-16-00007 MIC-03-16-00007

The LCO requires two channels of High Intermediate Range Neutron Flux to be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function.

Because this trip Function is important only during startup, there is generally no need to disable channels for testing while the Function is required to be OPERABLE. Therefore, a third channel is unnecessary.

In MODE 1 below the P-10 setpoint, and in MODE 2 above the P-6 setpoint, when there is a potential for an uncontrolled RCCA bank rod withdrawal accident during reactor startup, the Intermediate Range Neutron Flux trip must be OPERABLE. Above the P-10 setpoint, the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) trip and the High Power Range Neutron Flux Positive Rate trip provide core protection for a rod withdrawal accident. In MODE 2 below the P-6 setpoint, the High Source Range Neutron Flux trip provides the core protection for reactivity accidents. In MODE 3, 4, or 5, the High Intermediate Range Neutron Flux trip does not have to be OPERABLE because the control rods must be fully inserted and only the shutdown rods may be withdrawn. The reactor cannot be started up in this condition. The core also has the required SDM to mitigate the consequences of a positive reactivity addition accident. In MODE 6, all rods are fully inserted and the core has a required increased SDM. Also, the NIS intermediate range detectors cannot detect neutron levels present in this MODE. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

5. <u>High Source Range Neutron Flux</u>

The LCO requirement for the High Source Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) trip Function. MIC-03-16-00007 In MODES 3, 4, and 5, administrative controls also prevent the uncontrolled withdrawal of rods. The NIS source range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS source range detectors do not provide any inputs to control systems. The source range trip is the only RTS automatic protection function required in MODES 3, 4, and 5 when rods are capable of withdrawal or one or more rods are not fully inserted. Therefore, the functional capability at the specified <u>Nominal</u> MIC-03-16-00007 Trip Setpoint is assumed to be available.

The High Source Range Neutron Flux Function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events.

In MODE 2 when below the P-6 setpoint and in MODES 3, 4, and 5 when there is a potential for an uncontrolled RCCA bank rod withdrawal accident, the High Source Range Neutron Flux trip must be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function. Above the P-6 setpoint, the High Intermediate Range Neutron Flux trip and the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) trip will provide core MIC-03-16-00007 protection for reactivity accidents. Above the P-6 setpoint, the High Source Range Neutron Flux trip may be manually bypassed which will also de-energize the NIS source range detectors. Above the P-10 setpoint, the High Source Range Neutron Flux trip is automatically bypassed and the NIS source range detectors are automatically de-energized.

In MODES 3, 4, and 5 with all rods fully inserted and the Rod Control System not capable of rod withdrawal, and in MODE 6, the outputs of the Function to RTS logic are not required OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

6. Overtemperature ΔT

The Overtemperature ΔT trip Function is initiated based on setpoints derived for DNB protection or core exit conditions. This trip Function also limits the range over which the Overpower ΔT trip Function must provide protection. The inputs to the Overtemperature ΔT trip include all pressure, coolant temperature, axial power distribution, and reactor power as indicated by loop ΔT assuming full reactor coolant flow. Protection from violating the DNBR limit or core exit boiling is assured for those transients that are slow with respect to delays from the core to the measurement system. The Function monitors both variation in power and flow since a decrease in flow has the same effect on ΔT as a power increase. The rReactor tTrip occurs if indicatedmeasured loop ΔT exceeds the lower setpoint of the DNB protection limit setpoint and the core exit boiling limit setpoint. The Overtemperature ΔT trip Function uses each loop's ΔT as a measure of reactor power and is compared with a setpoint that is automatically varied with the following parameters: MIC-03-16-00007

- reactor coolant average temperature - the Nominal Trip Setpoint is varied to correct for changes in coolant density and specific heat capacity with changes in coolant temperature, MIC-03-16-00007
- pPressurizer pPressure - the Nominal Trip Setpoint is varied to correct for changes in system pressure, and MIC-03-16-00007
- axial power distribution - f(ΔI), the Nominal Trip Setpoint is varied to account for imbalances in the axial power distribution as detected by the NIS upper and lower power range detectors. If axial peaks are greater than the design limit, as indicated by the difference between the upper and lower NIS power range detectors, the Nominal Trip Setpoint is reduced in accordance with Note FSAR Section 7.2.1 of Table 3.4.3.1-1 (Ref. 2). MIC-03-16-00007 MIC-03-16-00007

Dynamic compensation is included for system piping delays from the core to the temperature measurement system.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Overtemperature ΔT trip Function is calculated for each loop as described in Note FSAR Section 7.2.1 of Table 3.4.3.1-1 (Ref. 2). Trip occurs if Overtemperature ΔT is indicated in two loops. The pressure and temperature signals are used for other control functions. The interface from the safety channels in the PSMS to the PCMS is through the SSA. When three or more temperature and pressure channels are OPERABLE, Tthe SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). When there are less than three OPERABLE temperature and pressure channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for temperature and pressure channels, since there are only three required channels. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

Note that this Function also provides a signal to generate a turbine runback prior to reaching the Nominal Trip Setpoint. A turbine runback will reduce turbine power and reactor power. A reduction in power will normally alleviate the Overtemperature ΔT condition and may prevent a rReactor tTrip. MIC-03-16-00007 MIC-03-16-00007

The LCO requires three channels of the Overtemperature ΔT trip Function to be OPERABLE. Note that the Overtemperature ΔT Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions.

In MODE 1 or 2, the Overtemperature ΔT trip must be OPERABLE to prevent DNB. In MODE 3, 4, 5, or 6, this trip Function does not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about DNB.

The cycle dependent variables for this Function are specified in the COLR. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

7. Overpower ΔT

The Overpower ΔT trip Function ensures that protection is provided to ensure the integrity of the fuel (i.e., no fuel pellet melting and less than 1% cladding strain) under all possible overpower conditions. This trip Function also limits the required range of the Overtemperature ΔT trip Function and provides a backup to the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) trip. The Overpower ΔT trip Function ensures that the allowable heat generation rate (kW/ft) of the fuel is not exceeded. It uses the ΔT of each loop as a measure of reactor power with a setpoint that is automatically varied with the following parameters: MIC-03-16-00007 MIC-03-16-00007

- reactor coolant average temperature - the Nominal Trip Setpoint is varied to correct for changes in coolant density and specific heat capacity with changes in coolant temperature, and MIC-03-16-00007

- rate of change of reactor coolant average temperature - including dynamic compensation for the delays between the core and the temperature measurement system.

The Overpower ΔT trip Function is calculated for each loop as per ~~Note~~ FSAR Section 7.2~~ of Table~~ .1.4.3.~~3.1-1~~2 (Ref. 2). Trip occurs if Overpower ΔT is indicated in two loops. The temperature signals are also used for other control functions. The interface from the safety channels in the PSMS to the PCMS is through the SSA. When three or more temperature channels are OPERABLE, ~~T~~the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). When there are less than three OPERABLE temperature channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for temperature channels, since there are only three required channels. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

Note that this Function also provides a signal to generate a turbine runback prior to reaching the Allowable Value. A turbine runback will reduce turbine power and reactor power. A reduction in power will normally alleviate the Overpower ΔT condition and may prevent a ~~r~~Reactor ~~t~~Trip. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The LCO requires three channels of the Overpower ΔT trip Function to be OPERABLE. Note that the Overpower ΔT trip Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions.

In MODE 1 or 2, the Overpower ΔT trip Function must be OPERABLE. These are the only times that enough heat is generated in the fuel to be concerned about the heat generation rates and overheating of the fuel. In MODE 3, 4, 5, or 6, this trip Function does not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about fuel overheating and fuel damage.

The cycle dependent variables for this Function are specified in the COLR. MIC-03-16-00007

8. Pressurizer Pressure

The same sensors provide inputs to the High and Low Pressurizer Pressure trips and the Overtemperature ΔT trip. The Pressurizer Pressure channels are also used to provide control inputs to the Pressurizer Pressure Control System. The interface from the safety channels in the PSMS to the PCMS is through the SSA. When three or more Pressurizer Pressure channels are OPERABLE, ~~T~~the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). When there are less than three OPERABLE pressure channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for Pressurizer Pressure channels, since there are only three required channels. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

a. Low Pressurizer Pressure

The Low Pressurizer Pressure trip Function ensures that protection is provided against violating the DNBR limit due to low pressure.

The LCO requires three channels of Low Pressurizer Pressure to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 1, when DNB is a major concern, the Low Pressurizer Pressure trip must be OPERABLE. This trip Function is automatically enabled on increasing power by the P-7 interlock (NIS power range P-10 or ~~t~~Turbine ~~i~~Inlet ~~p~~Pressure greater than approximately 10% of full power equivalent (P-13)). On decreasing power, this trip Function is automatically blocked below P-7. Below the P-7 setpoint, no conceivable power distributions can occur that would cause DNB concerns. MIC-03-16-00007

This Function has a dynamic transfer function. The Time Constants for this Function are recorded and maintained in a document established by the Setpoint Control Program (SCP). MIC-03-16-00007

b. High Pressurizer Pressure

The High Pressurizer Pressure trip Function ensures that protection is provided against over pressurizing the RCS. This trip Function operates in conjunction with the pressurizer relief and safety valves to prevent RCS overpressure conditions. MIC-03-16-00007

The LCO requires three channels of the High Pressurizer Pressure to be OPERABLE.

The High Pressurizer Pressure LSSS is selected to be below the pressurizer safety valve actuation pressure setting. This setting minimizes challenges to safety valves.

In MODE 1 or 2, the High Pressurizer Pressure trip must be OPERABLE to help prevent RCS overpressurization and minimize challenges to the safety valves. In MODE 3, 4, 5, or 6, the High Pressurizer Pressure trip Function does not have to be OPERABLE because transients that could cause an overpressure condition will be slow to occur. Therefore, the operator will have sufficient time to evaluate unit conditions and take corrective actions. Additionally, low temperature overpressure protection systems provide overpressure protection when below MODE 4.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

9. High Pressurizer Water Level

The High Pressurizer Water Level trip Function provides a backup signal for the High Pressurizer Pressure trip and also provides protection against water relief through the pressurizer safety valves. These valves are designed to pass steam in order to achieve their design energy removal rate. A ~~r~~Reactor ~~t~~Trip is actuated prior to the pressurizer becoming water solid. The LCO requires three channels of High Pressurizer Water Level to be OPERABLE. The pressurizer level channels are used as input to the Pressurizer Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the SSA. When three or more High Pressurizer Water Level channels are OPERABLE, ~~T~~the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). When there are less than three OPERABLE High Pressurizer Water Level channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for High Pressurizer Water Level channels, since there are only three required channels.

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MIC-03-16-00007

MIC-03-16-00007

In MODE 1, when there is a potential for overfilling the pressurizer, the High Pressurizer Water Level trip must be OPERABLE. This trip Function is automatically enabled on increasing power by the P-7 interlock. On decreasing power, this trip Function is automatically blocked below P-7. Below the P-7 setpoint, transients that could raise the ~~p~~Pressurizer ~~w~~Water ~~l~~Level will be slow and the operator will have sufficient time to evaluate unit conditions and take corrective actions.

MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

10. Low Reactor Coolant Flow

The Low Reactor Coolant Flow trip Function ensures that protection is provided against violating the DNBR limit due to low flow in one or more RCS loops, while avoiding ~~r~~Reactor ~~t~~Trips due to normal variations in loop flow. Above the P-7 setpoint, the ~~r~~Reactor ~~t~~Trip on low flow in any one RCS loop is automatically enabled. Each RCS loop has four flow detectors to monitor flow. The flow signals are not used for any control system input. MIC-03-16-00007

The LCO requires three Low Reactor Coolant Flow channels per loop to be OPERABLE in MODE 1 above P-7.

In MODE 1 above the P-7 setpoint, a loss of flow in one RCS loop could result in DNB conditions in the core. Below the P-7 setpoint, all ~~r~~Reactor ~~t~~Trips on low flow are automatically blocked since there is insufficient heat production to generate DNB conditions. MIC-03-16-00007

11. Low Reactor Coolant Pump (RCP) Speed

The Low RCP Speed trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops. The speed of each RCP is monitored. Above the P-7 setpoint a low speed detected on two or more RCPs will initiate a ~~r~~Reactor ~~t~~Trip. The Nominal Trip Setpoint reflects only steady state instrument uncertainties as the detectors do not provide primary protection for any event that results in a harsh environment. MIC-03-16-00007

The LCO requires three Low RCP Speed channels (one channel per loop) to be OPERABLE in MODE 1 above P-7. One channel per loop is sufficient for this trip Function because the Low RCS Flow trip alone provides sufficient protection of unit SLs for loss of flow events. The Low RCP Speed trip serves only to anticipate the low flow trip, minimizing the thermal transient associated with loss of a pump. Below the P-7 setpoint, all ~~r~~Reactor ~~t~~Trips on loss of flow are automatically blocked since no power distributions are expected to occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the ~~r~~Reactor ~~t~~Trip on loss of flow in two or more loops is automatically enabled. MIC-03-16-00007 MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

12. Steam Generator Water Level

The same sensors provide inputs to the Low SG Water Level trip and the High-High SG Water Level trip. Additionally, the level transmitters provide control inputs to the SG Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the SSA. When three or more High-High SG Water Level channels are OPERABLE for each Steam Generator, Tthe SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). When there are less than three OPERABLE High-High SG Water Level channels for each Steam Generator, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for High-High SG Water LEvel channels, since there are only three required channels for each Steam Generator. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

a. Low SG Water Level

The Low SG Water Level trip Function ensures that protection is provided against a loss of heat sink and actuates the Emergency Feedwater (EFW) System prior to uncovering the SG tubes. The SGs are the heat sink for the reactor. In order to act as a heat sink, the SGs must contain a minimum amount of water. A narrow range low level in any SG is indicative of a loss of heat sink for the reactor. This Function also performs the ESFAS function of starting the EFW pumps on low SG level. MIC-03-16-00007

The LCO requires three channels of Low SG Water Level per SG to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 1 or 2, when the reactor requires a heat sink, the Low SG Water Level trip must be OPERABLE. The normal source of water for the SGs is the Main Feedwater (MFW) System (not safety related). The MFW System is only in operation in MODE 1 or 2. The EFW System is the safety related backup source of water to ensure that the SGs remain the heat sink for the reactor. During normal startups and shutdowns, the EFW System provides feedwater to maintain SG level. In MODE 3, 4, 5, or 6, the Low SG Water Level Function does not have to be OPERABLE because the MFW System is not in operation and the reactor is not operating or even critical. Decay heat removal is accomplished by the EFW System in MODE 3 and by the Residual Heat Removal (RHR) System in MODE 4, 5, or 6.

b. High-High SG Water Level

The High-High SG Water Level trip Function ensures that protection is provided against an excessive cooldown due to increase in feedwater flow. An increase in the feedwater flow rate will cause an increase in SG ~~w~~Water ~~l~~Level and reduction in the reactor coolant temperature. Reduction in the coolant temperature adds reactivity as a result of the positive moderator density coefficient, thereby increasing the reactor power. MIC-03-16-00007

This Function also performs the ESFAS functions of generating a ~~t~~Turbine ~~t~~Trip and initiating ~~m~~Main ~~f~~Feedwater ~~i~~Isolation. MIC-03-16-00007

The LCO requires three channels of the High-High SG Water Level trip Function to be OPERABLE in MODE 1 above P-7. The trip Function is automatically enabled on increasing power by the P-7 interlock and automatically blocked on decreasing power once the P-7 interlock is cleared. Although the High-High SG Water Level trip is blocked below the P-7 setpoint, the ESFAS functions to trip the turbine and isolate Main Feedwater are OPERABLE above and below the P-7 setpoint. These ESFAS functions allow the operator sufficient time to evaluate plant conditions and take corrective actions.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

13. Turbine Trip

a. Turbine Emergency Trip Oil Pressure

The Turbine Emergency Trip Oil Pressure trip Function anticipates the loss of heat removal capabilities of the secondary system following a ~~t~~Turbine ~~t~~Trip. This trip Function acts to minimize the pressure/temperature transient on the reactor. Any ~~t~~Turbine ~~t~~Trip from a power level below the P-7 setpoint, approximately 10% power, will not actuate a ~~r~~Reactor ~~t~~Trip. Four pressure switches monitor the control oil pressure in the Turbine Electrohydraulic Control System. A low pressure condition sensed by two-out-of-four pressure switches will actuate a ~~r~~Reactor ~~t~~Trip. These pressure switches do not provide any input to the control system. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the High Pressurizer Pressure trip Function and RCS integrity is ensured by the pressurizer safety valves.

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MIC-03-16-00007
MIC-03-16-00007

The LCO requires three channels of Turbine Emergency Trip Oil Pressure to be OPERABLE in MODE 1 above P-7.

Below the P-7 setpoint, a ~~t~~Turbine ~~t~~Trip does not actuate a ~~r~~Reactor ~~t~~Trip. In MODE 2, 3, 4, 5, or 6, there is no potential for a ~~t~~Turbine ~~t~~Trip, and the Turbine Emergency Trip Oil Pressure trip Function does not need to be OPERABLE.

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b. Turbine Trip - Main Turbine Stop Valve Position

The Main Turbine Stop Valve Position trip Function anticipates the loss of heat removal capabilities of the secondary system following a ~~t~~Turbine ~~t~~Trip from a power level Above the P-7 setpoint. This action will actuate a ~~r~~Reactor ~~t~~Trip. The trip Function anticipates the loss of secondary heat removal capability that occurs when the stop valves close. Tripping the reactor in anticipation of loss of secondary heat removal acts to minimize the pressure and temperature transient on the reactor. This trip Function will normally operate in the presence of a single failure due to redundant limit switches on

MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

each valve. However this trip Function is not required to operate in the presence of a single channel failure. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the High Pressurizer Pressure trip Function, and RCS integrity is ensured by the pressurizer safety valves. This trip Function is diverse to the Turbine Emergency Trip Oil Pressure ~~t~~Turbine ~~t~~Trip Function. Each main turbine stop valve is equipped with two limit switches that input to the RTS. If the limit switches indicate that all four stop valves are closed, a ~~r~~Reactor ~~t~~Trip is initiated. MIC-03-16-00007 MIC-03-16-00007

The LSSS for this Function is set to assure channel trip occurs when the associated stop valve is completely closed.

The LCO requires four Main Turbine Stop Valve Position channels, one per valve, to be OPERABLE in MODE 1 above P-7. One channel on each valve must trip to cause ~~r~~Reactor ~~t~~Trip. MIC-03-16-00007

Below the P-7 setpoint, a load rejection can be accommodated by the Turbine Bypass System. In MODE 2, 3, 4, 5, or 6, there is no potential for a load rejection, and the Turbine Trip - Main Turbine Stop Valve Position trip Function does not need to be OPERABLE.

14. ECCS ~~a~~Actuation MIC-03-16-00007

The ECCS ~~a~~Actuation ~~r~~Reactor ~~t~~Trip function ensures that if a ~~r~~Reactor ~~t~~Trip has not already been generated by the RTS, the ESFAS ~~a~~Automatic ~~a~~Actuation ~~l~~Logic will initiate a ~~r~~Reactor ~~t~~Trip upon any signal that initiates ECCS ~~a~~Actuation. This is a condition of acceptability for the loss of coolant accident (LOCA). However, other transients and accidents take credit for varying levels of ESF performance and rely upon rod insertion, except for the most reactive rod that is assumed to be fully withdrawn, to ensure reactor shutdown. Therefore, a ~~r~~Reactor ~~t~~Trip is initiated every time an ~~SI~~ECCS Actuation signal is present. MIC-03-16-00007

Nominal Trip Setpoint and Allowable Values are not applicable to this Function. The ECCS ~~a~~Actuation signals are provided within the RPS. Therefore, there is no measurement signal with which to associate an LSSS.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The LCO requires three trains of ECCS ~~a~~Actuation to be OPERABLE in MODE 1 or 2. MIC-03-16-0 0007

A ~~r~~Reactor ~~t~~Trip is initiated every time an ECCS ~~a~~Actuation signal is present. Therefore, this trip Function must be OPERABLE in MODE 1 or 2, when the reactor is critical, and must be shut down in the event of an accident. In MODE 3, 4, 5, or 6, the reactor is not critical, and this trip Function does not need to be OPERABLE. MIC-03-16-0 0007

15. Reactor Trip System Interlocks

Reactor protection interlocks are provided to ensure ~~r~~Reactor ~~t~~Trips are in the correct configuration for the current unit status. They back up operator actions to ensure protection system Functions are not bypassed during unit conditions under which the safety analysis assumes the Functions are not bypassed. Therefore, the interlock Functions do not need to be OPERABLE when the associated ~~r~~Reactor ~~t~~Trip functions are outside the applicable MODES. These are: MIC-03-16-0 0007 MIC-03-16-0 0007

a. Intermediate Range Neutron Flux, P-6

The Intermediate Range Neutron Flux, P-6 interlock is actuated when any NIS intermediate range channel goes approximately one decade above the minimum channel reading. If both channels drop below the setpoint, the permissive will automatically be defeated. The LCO requirement for the P-6 interlock ensures that the following Functions are performed:

- on increasing power, the P-6 interlock allows the manual block of the NIS Source Range, Neutron Flux ~~r~~Reactor ~~t~~Trip. This prevents a premature block of the source range trip and allows the operator to ensure that the intermediate range is OPERABLE prior to leaving the source range. When the source range trip is blocked, the high voltage to the detectors is also removed, MIC-03-16-0 0007

- on decreasing power, the P-6 interlock automatically energizes the NIS source range detectors and enables the NIS Source Range Neutron Flux ~~r~~Reactor ~~t~~Trip, and MIC-03-16-0 0007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- on increasing power, the P-6 interlock provides a backup block signal to the source range flux doubling circuit. Normally, this Function is manually blocked by the control room operator during the reactor startup.

The LCO requires two channels of Intermediate Range Neutron Flux, P-6 interlock to be OPERABLE in MODE 2 when below the P-6 interlock setpoint.

Above the P-6 interlock setpoint, the NIS Source Range Neutron Flux ~~r~~Reactor ~~t~~Trip will be blocked, and this Function will no longer be necessary. MIC-03-16-00007

In MODE 3, 4, 5, or 6, the P-6 interlock does not have to be OPERABLE because the NIS Source Range is providing core protection.

b. Low Power Reactor Trips Block, P-7

The Low Power Reactor Trips Block, P-7 interlock is actuated by input from either the Power Range Neutron Flux, P-10, or the Turbine Inlet Pressure, P-13 interlock. The LCO requirement for the P-7 interlock ensures that the following Functions are performed:

(1) on increasing power, the P-7 interlock automatically enables ~~r~~Reactor ~~t~~Trips on the following Functions: MIC-03-16-00007

- Low Pressurizer Pressure,
- High Pressurizer Water Level,
- Low Reactor Coolant Flow,
- Low RCP Speed,
- High Steam Generator (SG) Water Level, MIC-03-16-00007
- Turbine Trip - Turbine Emergency Trip Oil Pressure, and
- Turbine Trip - Main Turbine Stop Valve Position.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

These ~~r~~Reactor ~~t~~Trips are only required when operating above the P-7 setpoint (approximately 10% power). The ~~r~~Reactor ~~t~~Trips provide protection against violating the DNBR limit. Below the P-7 setpoint, the RCS is capable of providing sufficient natural circulation without any RCP running. MIC-03-16-00007 MIC-03-16-00007

(2) on decreasing power, the P-7 interlock automatically blocks ~~r~~Reactor ~~t~~Trips on the following Functions: MIC-03-16-00007

- Low Pressurizer Pressure,
- High Pressurizer Water Level,
- Low Reactor Coolant Flow,
- Low RCP Speed,
- High Steam Generator (SG) Water Level, MIC-03-16-00007
- Turbine Trip - Turbine Emergency Trip Oil Pressure, and
- Turbine Trip - Main Turbine Stop Valve Position.

Nominal Trip Setpoint and Allowable Value are not applicable to the P-7 interlock because it is a logic Function and thus has no parameter with which to associate an LSSS. MIC-03-16-00007
The P-7 interlock is a logic Function with train and not channel identity. Therefore, the LCO requires the Low Power Reactor Trips Block, P-7 interlock to be OPERABLE in each OPERABLE RTS train in MODE 1.

The low power trips are blocked below the P-7 setpoint and unblocked above the P-7 setpoint. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the interlock performs its Function when power level drops below 10% power, which is in MODE 1.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

c. Power Range Neutron Flux, P-10

The Power Range Neutron Flux, P-10 interlock is actuated at approximately 10% power, as determined by two-out-of-four NIS power range detectors. If power level falls below 10% RTP on 3 of 4 channels, the nuclear instrument trips will be automatically unblocked. The LCO requirement for the P-10 interlock ensures that the following Functions are performed:

- on increasing power, the P-10 interlock allows the operator to manually block the Intermediate Range Neutron Flux ~~r~~Reactor ~~t~~Trip. Note that blocking the ~~r~~Reactor ~~t~~Trip also blocks the signal to prevent automatic and manual rod withdrawal, MIC-03-16-00007

- on increasing power, the P-10 interlock allows the operator to manually block the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) ~~r~~Reactor ~~t~~Trip, MIC-03-16-00007

- on increasing power, the P-10 interlock automatically provides a backup signal to block the Source Range Neutron Flux ~~r~~Reactor ~~t~~Trip, and also to de-energize the NIS source range detectors, MIC-03-16-00007

- the P-10 interlock provides one of the two inputs to the P-7 interlock, and

- on decreasing power, the P-10 interlock automatically enables the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) ~~r~~Reactor ~~t~~Trip and the Intermediate Range Neutron Flux ~~r~~Reactor ~~t~~Trip (and rod stop). MIC-03-16-00007

The LCO requires four channels of Power Range Neutron Flux, P-10 interlock to be OPERABLE in MODE 1 or 2.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

OPERABILITY in MODE 1 ensures the Function is available to perform its decreasing power Functions in the event of a reactor shutdown. This Function must be OPERABLE in MODE 2 to ensure that core protection is provided during a startup or shutdown by the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) and High Intermediate Range Neutron Flux ~~r~~Reactor ~~t~~Trips. In MODE 3, 4, 5, or 6, this Function does not have to be OPERABLE because the reactor is not at power and the Source Range Neutron Flux ~~r~~Reactor ~~t~~Trip provides core protection. MIC-03-16-00007

d. Turbine Inlet Pressure, P-13

The Turbine Inlet Pressure, P-13 interlock is actuated when the pressure in the first stage of the high pressure turbine is greater than approximately 10% of the ~~turbine~~rated full power~~.~~ pressure. This is determined by two-out-of-four pressure detectors. The LCO requirement for this Function ensures that three of the inputs to the P-7 interlock are available. MIC-03-16-00007

The LCO requires three channels of Turbine Inlet Pressure, P-13 interlock to be OPERABLE in MODE 1.

The Turbine Inlet Chamber Pressure, P-13 interlock must be OPERABLE when the turbine generator is operating. The interlock Function is not required OPERABLE in MODE 2, 3, 4, 5, or 6 because the turbine generator is not operating.

16. Reactor Trip Breakers

This trip Function applies to the RTBs exclusive of individual trip mechanisms. The LCO requires three OPERABLE trains of trip breakers. A trip breaker train consists of all trip breakers associated with a single RTS logic train that are racked in, closed, and capable of supplying power to the Rod Control System. Thus, the train consists of two main breakers. Three OPERABLE trains ensure no single random failure can disable the RTS trip capability.

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS~~ trip~~ Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted. MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

17. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms

The LCO requires both the Undervoltage and Shunt Trip Mechanisms to be OPERABLE for each RTB that is in service. The trip mechanisms are not required to be OPERABLE for trip breakers that are open, racked out, incapable of supplying power to the Rod Control System, or declared inoperable under Function 19 above. OPERABILITY of both trip mechanisms on each breaker ensures that no single trip mechanism failure will prevent opening any breaker on a valid signal.

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS ~~trip~~ Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted. MIC-03-16-00007

18. Automatic Trip Logic

The LCO requirement for the RTBs (Functions 16 and 17) and Automatic Trip Logic (Function 18) ensures that means are provided to interrupt the power to allow the rods to fall into the reactor core. Each RTB is equipped with an undervoltage coil and a shunt trip coil to trip the breaker open when needed. The ~~r~~Reactor ~~t~~Trip signals generated by the RTS Automatic Trip Logic cause the RTBs to open and shut down the reactor. MIC-03-16-00007

The LCO requires three trains of RTS Automatic Trip Logic to be OPERABLE. Having three OPERABLE trains ensures that random failure of a single logic train will not prevent ~~r~~Reactor ~~t~~Trip. MIC-03-16-00007

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS ~~trip~~ Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted. MIC-03-16-00007

The RTS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 8).

BASES

ACTIONS

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.1-1.

In the event a channel's accuracy is found nonconservative with respect to the Allowable Value, or the transmitter, instrument loop, signal processing electronics, or digital bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected.

When the number of inoperable channels in a trip Function exceeds those specified in one or other related Conditions associated with a trip Function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 must be immediately entered if applicable in the current MODE of operation. MIC-03-16-00007

In all cases where the LCO states "Restore channel or train to OPERABLE status", this means restore the required number of channels or trains to OPERABLE status. Therefore, restoration of an alternate channel or train, other than the failed channel or train, is also acceptable. MIC-03-16-00007

A.1

Condition A applies to all RTS protection Functions.

Condition A addresses the situation where one or more required channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.1-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

B.1 and B.2

Condition B applies to the Manual Reactor Trip in MODE 1 or 2. This action addresses the train orientation for this Function. With one required train inoperable, the inoperable train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining two OPERABLE trains are adequate to perform the safety function.

~~The Completion Time of 72 hours is reasonable considering that there are three automatic actuation trains and two other Manual Reactor Trip trains OPERABLE, and the low probability of an event occurring during this interval. The completion time also considers that the manual reactor trip function, for the inoperable Manual Reactor Trip train, can also be actuated from the Safety VDU for that train. Therefore, the ability to initiate a manual reactor trip through safety related equipment remains functional in all three required trains.~~ MIC-03-16-00007

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If the Manual Reactor Trip Function cannot be restored to OPERABLE status within the allowed 72 hour Completion Time, the unit must be brought to a MODE in which the requirement does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 additional hours (78 hours total time). The 6 additional hours to reach MODE 3 is reasonable, based on operating experience, to reach MODE 3 from full power operation in an orderly manner and without challenging unit systems.

With the unit in MODE 3, ACTION C would apply to any inoperable Manual Reactor Trip Function if the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

The ~~initial c~~Completion ~~t~~Time of 72 hours is justified ~~in~~because two trains are adequate to perform the ~~PSMS reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19. The manual reactor trip~~safety function ~~remains fully operable from the Safety VDUs, even when one~~, and there are three automatic actuation trains and two other Manual Reactor Trip ~~channel is~~trains OPERABLE. In addition, the Completion Time considers that the Manual Reactor Trip Function, for the inoperable Manual Reactor Trip Function, can be actuated from the Safety VDU for that train. Therefore, the ability to initiate a manual Reactor Trip through safety related equipment remains functional in all three trains. MIC-03-16-00007

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

C.1, C.2.1, and C.2.2

Condition C applies to the Manual ~~r~~Reactor ~~t~~Trip Function in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. MIC-03-16-00007

~~• Manual Reactor Trip~~ MIC-03-16-00007

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ACTIONS (continued)

This action addresses the train orientation for ~~one~~this Function. With one required train inoperable, the inoperable train must be restored to OPERABLE status within 72 hours. If the affected Function cannot be restored to OPERABLE status within the allowed 72 hour Completion Time, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, action must be initiated within the same 72 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With rods fully inserted and the Rod Control System incapable of rod withdrawal, this Function is no longer required. MIC-03-16-0 0007

The Completion Time of 72 hours is ~~reasonable considering that~~justified because two trains are adequate to perform the safety function, and there are three automatic actuation trains and two other Manual Reactor Trip ~~trains~~Functions OPERABLE~~, and the low probability of an event occurring during this interval. The completion time also~~. In addition, the Completion Time considers that the ~~m~~Manual ~~r~~Reactor ~~t~~Trip ~~f~~Function, for the inoperable Manual Reactor Trip train, can ~~also~~ be actuated from the Safety VDU for that train. Therefore, the ability to initiate a manual ~~r~~Reactor ~~t~~Trip through safety related equipment remains functional in all three ~~required~~ trains. MIC-03-16-0 0007 MIC-03-16-0 0007

~~The initial completion time~~The Completion Time of 72 hours is also justified in the ~~PSMS~~US-APWR reliability ~~analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The~~and risk analyses, the summary and result of ~~the PSMS reliability analysis is evaluated and confirmed~~which are documented in ~~the US-APWR PRA~~FSAR Chapter 19~~. The manual reactor trip function remains fully operable from the Safety VDUs, even when one Manual Reactor Trip channel is inoperable~~(Ref. 10).

D.1, D.2.1, and D.2.2

Condition D applies to the following ~~r~~Reactor ~~t~~Trip Functions in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted: MIC-03-16-0 0007

- RTBs,
- RTB Undervoltage and Shunt Trip Mechanisms, and
- Automatic Trip Logic.

BASES

ACTIONS (continued)

This action addresses the train orientation for these Functions. With one required train inoperable, the inoperable train must be restored to OPERABLE status within 48 hours. If the affected Function(s) cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, action must be initiated within the same 48 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With rods fully inserted and the Rod Control System incapable of rod withdrawal, these Functions are no longer required. MIC-03-16-00007

The Completion Time of 48 hours is reasonable considering that in this Condition, justified because the two remaining OPERABLE trains are adequate to perform the safety function, and given. In addition, the low probability of an event occurring during this interval. The Completion Time also considers that the two remaining OPERABLE trains each have continuous automatic self-testing and redundant RTBsfor the Automatic Trip Logic. MIC-03-16-00007

The Completion Time of 48 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

E.1.1, E.1.2, E.2.1, E.2.2, and E.3

Condition E applies to the Power Range Neutron Flux (hHigh sSetpoint) Function. MIC-03-16-00007

The NIS power range detectors provide input to the Rod Control System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known MIC-03-16-00007

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours. This results in a partial trip condition requiring only one-out-of-three logic for actuation. of the two-out-of-four trips.

The Completion Time of 72 hours allowed to place the inoperable channel in the tripped condition is justified because the three remaining OPERABLE channels are adequate to perform the safety function. In addition, the Completion Time considers that the three remaining OPERABLE channels have continuous automatic self-testing (as described for COT), and continuous automatic CHANNEL CHECKS. In addition, with the remaining three OPERABLE channels, the SSA within the PCMS ensures the control

BASES

ACTIONS (continued)

systems can withstand an input failure to the control system without causing erroneous control system operation, which would otherwise require the protection function actuation. MIC-03-16-00007

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to ≤ 75% RTP within 78 hours. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits. With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost.

As an alternative to the above actionsRequired Actions, the inoperable channel can be placed in the tripped condition within 72 hours and the QPTR monitored once every 12 hours as per SR 3.2.4.2, QPTR verification. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel and allows continued unit operation at power levels < 75% RTP. The 12 hour Surveillance Frequency is consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)." MIC-03-16-00007 MIC-03-16-00007

As an alternative to the above Required Actions, the plant must be placed in a MODE where this Function is no longer required OPERABLE. Seventy-eight hours are allowed to place the plant in MODE 3. The 78 hour Completion Time includes 72 hours for channel corrective maintenance, and an additional 6 hours for the MODE reduction as required by Required Action E.3. This is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. If Required Actions cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered. MIC-03-16-00007 MIC-03-16-00007

OneThe Required Actions are modified by a Note that allows placing one channel may be bypassedin bypass for up to 12 hours forwhile performing surveillance testing and, or setpoint adjustments when a setpoint adjustment. The 12 hours bypass limit is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWRreduction is required by other Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.Specifications, provided the other channels are OPERABLE, or two channels are OPERABLE and one is placed in the trip condition. With one channel bypassed, the system can detect all anomalies, but it cannot also sustain a single failure. MIC-03-16-00007

BASES

ACTIONS (continued)

The Bypass Time of 12 hours is justified because the remaining OPERABLE channels are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE channels have continuous automatic self-testing and continuous automatic CHANNEL CHECKS. MIC-03-16-00007

The Bypass Time of 12 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

~~The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 12 hours while performing routine surveillance testing of other channels. The Note also allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. The 12 hour time limit is justified based on operating experience.~~

Required Action E.2.2 has been modified by a Note which only requires SR 3.2.4.2 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux Channel which renders the High Flux Trip Function inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using the movable incore detectors once per 12 hours may not be necessary.

~~The initial completion time of 72 hours is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.~~ MIC-03-16-00007

F.1 and F.2

Condition F applies to the following ~~r~~Reactor ~~t~~Trip Functions: MIC-03-16-00007

- High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint),
- ~~Overtemperature ΔT,~~
- ~~Overpower ΔT,~~

ACTIONS (continued)

- High Power Range Neutron Flux Rate (Positive Rate), and MIC-03-16-0 0007
- High Power Range Neutron Flux Rate (Negative Rate)~~,~~.
- ~~High Pressurizer Pressure, and~~
- ~~Low SG Water Level.~~

~~A known~~With one ~~required~~channel inoperable, the inoperable channel must be placed in the trip~~ped~~ condition within 72 hours. Placing the channel in the trip~~ped~~ condition results in a partial trip condition requiring only one-out-of~~-two logic (for the trip functions where the required number of operable channels is three) or one-out-of-~~-three logic ~~(for the trip functions where the required number of operable channels is four)~~ for actuation of the two-out-of-~~N~~four trips.~~, where N is three or four (depending on the required number of operable channels). The 72 hours allowed to place the inoperable channel in the tripped condition is justified because the remaining two operable channels (for the trip functions where the required number of operable channels is three) or the remaining three operable channels (for the trip functions where the required number of operable channels is four) have automatic self-testing (as described for COT), and automatic CHANNEL CHECKS.~~

The Completion Time of 72 hours to place the inoperable channel in the trip condition is justified because the three remaining OPERABLE channels are adequate to perform the safety function. In addition, the Completion Time considers that the three remaining OPERABLE channels have continuous automatic self-testing and continuous automatic CHANNEL CHECKS.

In addition, with the remaining three OPERABLE channels, the SSA within the PCMS ensures the control systems can withstand an input failure to the control system without causing erroneous control system operation, which would otherwise require the protection function actuation.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

If the inoperable channel cannot be placed in the trip condition within the specified Completion Time, the unit must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours ~~is~~are allowed MIC-03-16-0 0007
to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to place the unit in MODE 3 from full power in an orderly manner and without challenging unit systems.

BASES

ACTIONS (continued)

MIC-03-16-00007

The number of Required Channels for the High Power Range Neutron Flux Rate is four. Four channels are required because each channel measures neutron flux in one quadrant of the core. Anomalies occurring in one core quadrant can be seen by the neutron flux detector in that quadrant and by the neutron detectors in the two adjacent quadrants, but not by the detector in the opposite quadrant. So to ensure event detection and accommodate a single failure, neutron flux detectors must be operable in all four quadrants.

The Required Actions have beenare modified by a Note that allows placing the inoperableone channel in the bypassed conditionbypass for up to 12 hours while performing routine surveillance testing, ofprovided the other channels are OPERABLE, or two channels are OPERABLE and one is placed in the trip condition. With one channel bypassed, the system can detect all anomalies, but it cannot also sustain a single failure. The 12 hour time limit is based on operating experience.

The Bypass Time of 12 hours is justified because the remaining OPERABLE channels are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE channels have continuous automatic self-testing and continuous automatic CHANNEL CHECKS.

The Bypass Time of 12 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

The initial completion time of 72 hours is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.

One channel may be bypassed for up to 12 hours for surveillance testing and setpoint adjustment. The 12 hours bypass limit is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.

BASES

ACTIONS (continued)

G.1 and G.2

Condition G applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint, MIC-03-16-00007 and one channel is inoperable. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. If THERMAL POWER is greater than the P-6 setpoint but less than the P-10 setpoint, 24 hours is allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. MIC-03-16-00007

The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. MIC-03-16-00007

The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take into account the redundant capability afforded by the redundant OPERABLE channel~~, and the low probability of its failure during this period~~. MIC-03-16-00007

This action does not require the inoperable channel to be tripped because the Function uses one-out-of-two logic. Tripping one channel would trip the reactor. Thus, the Required Actions specified in this Condition are only applicable when channel failure does not result in ~~r~~Reactor ~~t~~Trip. MIC-03-16-00007

H.1 and H.2

Condition H applies to two inoperable Intermediate Range Neutron Flux trip channels in MODE 2 when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint. Required Actions specified in this Condition are only applicable when channel failures do not result in ~~r~~Reactor ~~t~~Trip. MIC-03-16-00007 Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. MIC-03-16-00007

With no intermediate range channels OPERABLE, the Required Actions are to suspend operations involving positive reactivity additions immediately. This will preclude any power level increase since there are no OPERABLE Intermediate Range Neutron Flux channels. The operator must also reduce THERMAL POWER below the P-6 setpoint within two hours. Below P-6, the Source Range Neutron Flux channels will be able to monitor the core power

ACTIONS (continued)

level. The Completion Time of 2 hours will allow a slow and controlled power reduction to less than the P-6 setpoint ~~and takes into account the low probability of occurrence of an event during this period that may require the protection afforded by the NIS Intermediate Range Neutron Flux trip~~. MIC-03-16-00007

Required Action H.1 is modified by a Note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

I.1

Condition I applies to one inoperable Source Range Neutron Flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately.

Required Action I.1 is modified by a Note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

J.1

Condition J applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, and in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this Condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, the core is in a more stable condition.

K.1, K.2.1, and K.2.2

Condition K applies to one inoperable source range channel in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this Condition, below P-6, the NIS

BASES

ACTIONS (continued)

source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to an OPERABLE status. If the channel cannot be returned to an OPERABLE status, action must be initiated within the same 48 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour.

L.1 and L.2

Condition L applies to the following rReactor tTrip Functions: MIC-03-16-00007

- Low Pressurizer Pressure,
- High Pressurizer Water Level,
- Low Reactor Coolant Flow,
- Low Reactor Coolant Pump Speed, and MIC-03-16-00007
- High-High SG Water Level, and
- Turbine Trip – Turbine Emergency Trip Oil Pressure.

With one required channel inoperable, the inoperable channel must be placed in the tripped condition within 72 hours. Failure of one channel places the Function in a two-out-of-two configuration, when the failed channel does not result in a trip channel. This configuration provides adequate plant protection, but does not meet the single failure criteria. Therefore, within 72 hours the inoperable channel must be tripped to place the Function in a one-out-of-two configuration that satisfies the single failure criteria. Placing the channel in the tripped condition when above the P-7 setpoint, results in a partial trip condition requiring only one additional channel to initiate a rReactor tTrip. MIC-03-16-00007 MIC-03-16-00007

These Functions do not have to be OPERABLE below the P-7 setpoint because there is insufficient heat production to generate DNB conditions below the P-7 setpoint. The 72 hours allowed to place the channel in the tripped condition is justified because the remaining two operable channels have automatic self-testing (as described for COT), and automatic CHANNEL CHECKS. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time. MIC-03-16-00007

BASES

ACTIONS (continued)

~~Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant OPERABLE channels, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition L.~~The Completion Time of 72 hours to place the inoperable channel in the trip condition is justified because the two remaining OPERABLE channels are adequate to perform the safety function. The Completion Time also considers that the two remaining OPERABLE channels have continuous automatic self-testing. MIC-03-16-00007

In addition, the two remaining OPERABLE channels have continuous automatic CHANNEL CHECKS, except for Turbine Trip – Turbine Emergency Trip Oil Pressure. This additional justification is not needed for Turbine Trip – Turbine Emergency Trip Oil Pressure, because this is an anticipatory function that is not credited in the safety analysis.

~~Expect for Pressurizer~~For all functions (except Turbine Trip – Turbine Emergency Trip Oil Pressure), ~~Pressurizer Level, and SG Water Level, one channel may be bypassed for up to 12 hours for surveillance testing. The 12 hours bypass limit is~~the Completion Time of 72 hours is also justified in the ~~PSMS~~US-APWR reliability ~~analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to~~and risk analyses, the ~~US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The~~summary and result of ~~the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA~~which are documented in FSAR Chapter 19~~. This bypass is not allowed for Pressurizer Pressure, Pressurizer Level, and SG Water Level because these channels are also used for control. If a failure were to occur in one of the two remaining control channels, a plant transient could occur that would require a plant trip, but a plant trip would not occur with only one remaining operable channel.~~ (Ref. 10).

~~The initial completion time of 72 hours is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.~~The Required Actions are modified by a Note that allows placing one required channel in bypass for up to 12 hours while performing surveillance testing, provided the other required channels are OPERABLE, or one required channel is OPERABLE and the other required channel is placed in the trip condition. With one required channel bypassed, the system can detect all anomalies, but it cannot also sustain a single failure.

BASES

ACTIONS (continued)

The Bypass Time of 12 hours is justified because the remaining OPERABLE channels are adequate to perform the safety function. The Bypass Time also considers that the remaining OPERABLE channels have continuous automatic self-testing. MIC-03-16-00007

In addition the remaining OPERABLE channels have continuous automatic CHANNEL CHECKS, except for Turbine Trip – Turbine Emergency Trip Oil Pressure. This additional justification is not needed for Turbine Trip – Turbine Emergency Trip Oil Pressure, because this is an anticipatory function that is not credited in the safety analysis.

The Bypass Time of 12 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

M.1 and M.2

Condition M applies to the ECCS aActuation input in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one required train inoperable, 24 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. MIC-03-16-00007

The Completion Time of 24 hours is reasonable considering that in this Condition,justified because the two remaining OPERABLE trains are adequate to perform the safety function and given. In addition, the low probability of an event during this interval. The 24 hours allowed to restore the train to OPERABLE status alsoCompletion Time considers that the two remaining OPERABLE trains each have continuous automatic self-testing as described for ACTUATION LOGIC TEST. MIC-03-16-00007

The Completion Time of 24 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The Required Actions have been modified by a Note that allows bypassingplacing one inoperablerequired train in bypass for up to 4 hours forwhile performing surveillance testing, provided the other tworequired trains are OPERABLE. MIC-03-16-00007

BASES

ACTIONS (continued)

The Bypass Time of 4 hours is justified because the remaining OPERABLE trains are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE trains have continuous automatic self-testing. MIC-03-16-00007

The Bypass Time of 4 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

N.1 [and N.2]

Condition N applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one required train inoperable, 24 hours isare allowed for train corrective maintenance to restore the train to OPERABLE status. MIC-03-16-00007

The 24 hour Completion Time is reasonable considering that in this Condition, of 24 hours is justified because the two remaining OPERABLE trains are adequate to perform the safety function and given the low probability of an event during this interval. In addition, the Completion Time considers that the two remaining OPERABLE trains each have continuous automatic self-testing.

The Completion Time of 24 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

[Required Action N.2 allows the option to apply the requirements of Specification 5.5.18 to determine a Risk Informed Completion Time.]

The initial completion time of 24 hours is justified in the PSMS reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19. MIC-03-16-00007

O.1 and O.2

Condition O applies to the P-6 and P-10 interlocks. With one or more required channels inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 3 within the next 6 hours. Verifying the interlock status manually accomplishes the interlock's Function. MIC-03-16-00007

The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. MIC-03-16-00007

BASES

ACTIONS (continued)

The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function. MIC-03-16-00007

P.1 and P.2

Condition P applies to the P-7 and P-13 interlocks in MODE 1. With one or more required channels~~/~~ inoperable (P-13), or one or more trains inoperable ~~for two-out-of-four coincidence logic~~(P-7), the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 2 within the next 6 hours. These actions are conservative for the case where power level is being raised. Verifying the interlock status manually accomplishes the interlock's Function. MIC-03-16-00007

The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. MIC-03-16-00007

The Completion Time of 1 hour is required because the P-13 interlock is generated using the Turbine Inlet Pressure instrumentation channels, which are shared with the PCMS. The SSA within the PCMS prevents erroneous control system actions due to a single failed shared instrument channel, which would otherwise require the protection function actuation. When there are less than three OPERABLE required Turbine Inlet Pressure instrumentation channels, the SSA cannot prevent erroneous control system operation due to an input failure.

The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power in an orderly manner and without challenging unit systems.

Q.1 [and Q.2]

Condition Q applies to the RTB Undervoltage and Shunt Trip Mechanisms, i.e., diverse trip features, in MODES 1 and 2. For ~~one RTB~~either of the two RTBs in a required train, with one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours. MIC-03-16-00007

The Completion Time of 48 hours for Required Action Q.1 is reasonable considering that in this Condition there is one remaining diverse feature for the affected RTB, one OPERABLE RTB in the affected RTB train and two OPERABLE RTB trains capable of performing the safety function~~ and given the low probability of an event occurring during this interval~~. MIC-03-16-00007

ACTIONS (continued)

The Completion Time of 48 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10). MIC-03-16-00007

[Required Action Q.2 allows the option to apply the requirements of Specification 5.5.18 to determine a Risk Informed Completion Time.]

R.1 [and R.2]

Condition R applies to the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one required train inoperable, 24 hours are allowed to restore the train to OPERABLE status. MIC-03-16-00007

The Completion Time of 24 hours is ~~reasonable considering that in this Condition,~~ justified because the two remaining OPERABLE required trains are adequate to perform the safety function ~~and given~~. In addition, the ~~low probability of an event during this interval. The 24 hours allowed to restore the train to OPERABLE status also~~ Completion Time considers that the two remaining OPERABLE required trains each have continuous automatic self-testing ~~as described for ACTUATION LOGIC TEST~~.

The Completion Time of 24 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

[Required Action R.2 allows the option to apply the requirements of Specification 5.5.18 to determine a Risk Informed Completion Time.]

The Required Actions have been modified by a Note that allows ~~bypassing~~ placing one ~~inoperable~~ required train in bypass for up to 4 hours ~~for~~ while performing surveillance testing, provided the other ~~two~~ required trains are OPERABLE. MIC-03-16-00007

The Bypass Time of 4 hours is justified because the remaining OPERABLE trains are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE trains have continuous automatic self-testing. MIC-03-16-00007

The Bypass Time of 4 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

BASES

ACTIONS (continued)

S.1

Condition S applies when the Required Action and associated Completion Time for Condition N, Q, or R have not been met. If the train cannot be returned to OPERABLE status, the unit must be placed in a MODE where the requirement does not apply. This is accomplished by placing the unit in MODE 3 within 6 hours. The Completion Time of 6 hours is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

Placing the unit in MODE 3 ~~from Condition N~~, with any of the applicable Functions inoperable, results in Condition D entry ~~while an RTB is inoperable~~. MIC-03-16-00007

~~(From Condition Q) With the unit in MODE 3, Condition D would apply to any inoperable RTB trip mechanism.~~

T.1 and T.2

Condition T applies to Main Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 12 hours. If placed in the trip~~ped~~ condition, this results in a partial trip condition requiring three additional channels to initiate a ~~r~~Reactor ~~t~~Trip. If the channel can not be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-7 setpoint within the next 6 hours. The 6 hours allowed for reducing power ~~is~~are consistent with other power reduction action ~~c~~Completion ~~t~~Times. MIC-03-16-00007 MIC-03-16-00007

The Required Actions are modified by a Note that allows placing one channel in bypass for up to 12 hours while performing ~~routine~~ surveillance testing. MIC-03-16-00007

~~These times~~The Completion Time and Bypass Time are justified because this is an anticipatory trip that is not credited in the safety analysis, and a diverse ~~t~~Turbine ~~t~~Trip is also initiated from the Turbine Emergency Oil Pressure. MIC-03-16-00007

ACTIONS (continued)

U.1 and U.2 MIC-03-16-00007

Condition U applies to the following Reactor Trip Functions:

- Overtemperature ΔT,
- Overpower ΔT,
- High Pressurizer Pressure, and
- Low SG Water Level.

With one required channel inoperable, the inoperable channel must be placed in the trip condition within 1 hour and restored to OPERABLE status in 72 hours.

This Condition applies to functions that operate on two-out-of-three logic and have channels that are shared with the control systems. Normally the SSA can prevent erroneous control system operations. However, when there are less than three OPERABLE required channels, the SSA cannot prevent erroneous control system operation due to an input failure. With two OPERABLE required channels and one required channel in the trip condition, if a channel failure occurs in an OPERABLE required channel and results in erroneous control system operation, the remaining OPERABLE required channel can provide a plant trip. However, the channel that causes the erroneous control system operation cannot be credited as the single failure; therefore, this configuration does not satisfy the single failure criteria. To satisfy the single failure criteria, three required channels must be restored to OPERABLE status within 72 hours.

The Completion Time of 1 hour to place the failed channel in the trip condition is based on operating experience and the minimum amount of time allowed for manual operator actions.

The Completion Time of 72 hours to restore the inoperable channel is justified because the two remaining OPERABLE channels are adequate to perform the safety function. In addition, the two remaining OPERABLE channels have continuous automatic self-testing and continuous automatic channel checks.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref.10).

BASES

ACTIONS (continued)

Bypass of a required channel is not allowed because there are only three required channels and these channels are also used for control. If a failure were to occur in one of the two remaining required control channels, a plant transient could occur that would require a plant trip, but a plant trip would not occur with only one remaining OPERABLE required channel. MIC-03-16-00007

V.1

If the Required Action and associated Completion Time of Condition U is not met, the unit must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours are allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to place the unit in MODE 3 from full power in an orderly manner and without challenging unit systems.

W.1 and W.2

Condition W applies to the following Reactor Trip Functions:

- Low Pressurizer Pressure,
- High Pressurizer Water Level, and
- High-High SG Water Level.

With one required channel inoperable, the inoperable channel must be placed in the trip condition within 1 hour and restored to OPERABLE status in 72 hours.

This Condition applies to functions that operate on two-out-of-three logic and have channels that are shared with the control systems. Normally the SSA can prevent erroneous control system operations. However, when there are less than three OPERABLE required channels, the SSA cannot prevent erroneous control system operation due to an input failure. With two OPERABLE required channels and one required channel in the trip condition, if a channel failure occurs in an OPERABLE required channel and results in erroneous control system operation, the remaining OPERABLE required channel can provide a plant trip. However, the channel that causes the erroneous control system operation cannot be credited as the single failure; therefore, this configuration does not satisfy the single failure criteria. When above the P-7 setpoint, to satisfy the single failure criteria, three channels must be restored to OPERABLE status within 72 hours.

ACTIONS (continued)

These Functions do not have to be OPERABLE below the P-7 setpoint because there is insufficient heat production to generate DNB conditions below the P-7 setpoint. MIC-03-16-00007

The Completion Time of 1 hour to place the failed channel in the trip condition is based on operating experience and the minimum amount of time allowed for manual operator actions.

The Completion Time of 72 hours to restore the inoperable channel is justified because the two remaining OPERABLE channels are adequate to perform the safety function. In addition, the two remaining OPERABLE channels have continuous automatic self-testing and continuous automatic CHANNEL CHECKS.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref.10).

Bypass of a required channel is not allowed because there are only three required channels and these channels are also used for control. If a failure were to occur in one of the two remaining required control channels, a plant transient could occur that would require a plant trip, but a plant trip would not occur with only one remaining OPERABLE required channel.

X.1

If the Required Action and associated Completion Time of Condition W is not met, the unit must be placed in which THERMAL POWER is below P-7. Six hours are allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

The Completion Time of 6 hours is reasonable, based on operating experience, to reduce THERMAL POWER to below P-7 from full power in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

The SRs for each RTS Function are identified by the SRs column of Table 3.3.1-1 for that Function.

A Note has been added to the SR Table stating that Table 3.3.1-1 determines which SRs apply to which RTS Functions.

Note that each channel of process protection supplies all trains of the RTS. However, when testing a Channel, it is only necessary to manually verify that the channel is OPERABLE in its respective train. This is because the interface to other trains is continuously verified through continuous automatic self-testing. SelfContinuous automatic self-testing is confirmed through periodic COT and ACTUATION LOGIC TESTMIC. The CHANNEL CALIBRATION is performed in a manner that is consistent with the methods and assumptions of SectionSpecification 5.5.21, Setpoint Control Program (SCP). MIC-03-16-00007

SR 3.3.1.1

Performance of the CHANNEL CHECK ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION. MIC-03-16-00007

Agreement criteria are determined based on a combination of the channel instrument uncertainties. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE. MIC-03-16-00007

[The Surveillance Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

A CHANNEL CHECK may be conducted manually or automatically. For the US-APWR an automated CHANNEL CHECK is normally conducted continuously, which satisfies the 12 hour Surveillance Frequency requirement. Where the CHANNEL CHECK is conducted automatically, an alarm shall be generated when the agreement criteria is not met. If the automated CHANNEL CHECK function is unavailable, a manual CHANNEL CHECK shall be conducted at the minimum 12 hour Surveillance Frequency. MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

The equipment that performs the automated CHANNEL CHECK, and continuous self-testing described for COT and ACTUATION LOGIC TEST, shall be confirmed OPERABLE every 12 hours. This shall include the capability to generate fault alarms.

SR 3.3.1.2

SR 3.3.1.2 compares the calorimetric heat balance calculation to the power range channel output. If the calorimetric heat balance calculation results exceed the power range channel output by more than 2% RTP, the power range channel is not declared inoperable, but must be adjusted. The power range channel output shall be adjusted consistent with the calorimetric heat balance calculation results if the calorimetric calculation exceed the power range channel output by more than + 2% RTP. If the power range channel output cannot be properly adjusted, the channel is declared inoperable.

If the calorimetric is performed at part power (<70% RTP), adjusting the power range channel indication in the increasing power direction will assure a rReactor tTrip below the safety analysis limit (<118% RTP). Making no adjustment to the power range channel in the decreasing power direction due to a part power calorimetric assures a rReactor tTrip consistent with the safety analyses. MIC-03-16-00007 MIC-03-16-00007

SURVEILLANCE REQUIREMENTS (continued)

This allowance does not preclude making indicated power adjustments, if desired, when the calorimetric heat balance calculation is less than the power range channel output. To provide close agreement between indicated power and to preserve operating margin, the power range channels are normally adjusted when operating at or near full power during steady-state conditions. However, discretion must be exercised if the power range channel output is adjusted in the decreasing power direction due to a part power calorimetric (< 70% RTP). This action may introduce a non-conservative bias at higher power levels which may result in an NIS ~~r~~Reactor ~~t~~Trip above the safety analysis limit (> 118% RTP). The cause of the potential non-conservative bias is the decreased accuracy of the calorimetric at reduced power conditions. The primary error contributor to the instrument uncertainty for a secondary side power calorimetric measurement is the feedwater flow measurement, which is typically a ΔP measurement across a feedwater venturi. While the measurement uncertainty remains constant in ΔP as power decreases, when translated into flow, the uncertainty increases as a square term. MIC-03-16-00007

Thus a 1% flow error at 100% power can approach a 10% flow error at 30% RTP even though the ΔP error has not changed. An evaluation of extended operation at part power conditions would conclude that it is prudent to administratively adjust the digital setpoint of the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) digital bistables to ≤ 85% RTP when: 1) the power range channel output is adjusted in the decreasing power direction due to a part power calorimetric below 70% RTP; or 2) for a post refueling startup. The evaluation of extended operation at part power conditions would also conclude that the potential need to adjust the indication of the High Power Range Neutron Flux in the decreasing power direction is quite small, primarily to address operation in the intermediate range about P-10 (nominally 10% RTP) to allow enabling of the High Power Range Neutron Flux (~~l~~Low ~~s~~Setpoint) and the Intermediate Range Neutron Flux ~~r~~Reactor ~~t~~Trips. Before the High Power Range Neutron Flux (~~h~~High ~~s~~Setpoint) digital bistables are reset to ≤ 109% RTP, the power range channel adjustment must be confirmed based on a calorimetric performed at ≥ 70% RTP. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

The Note clarifies that this ~~Surveillance~~SR is required only if reactor power is ≥ 15% RTP and that 12 hours are allowed for performing the first ~~Surveillance~~SR after reaching 15% RTP. A power level of 15% RTP is chosen based on plant stability, i.e., automatic rod control capability and turbine generator synchronized to the grid. MIC-03-16-00007 MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

[The Surveillance Frequency of every 24 hours is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Together these factors demonstrate that a difference between the calorimetric heat balance calculation and the power range channel output of more than +2% RTP is not expected in any 24 hour period. MIC-03-16-0 0007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] In addition, control room operators periodically monitor redundant indications and alarms to detect deviations in channel outputs.

SR 3.3.1.3

SR 3.3.1.3 compares the incore system to the NIS channel output. If the absolute difference is ≥ 3%, the NIS channel is still OPERABLE, but must be readjusted. The excore NIS channel shall be adjusted if the absolute difference between the incore and excore AFD is ≥ 3%.

If the NIS channel cannot be properly readjusted, the channel is declared inoperable. This ~~Surveillance~~SR is performed to verify the f(ΔI) input to the Overtemperature ΔT Function and Overpower ΔT Function. MIC-03-16-0 0007

A Note clarifies that the ~~Surveillance~~SR is required only if reactor power is ≥ 15% RTP and that 24 hours ~~is~~are allowed for performing the first ~~Surveillance~~SR after reaching 15% RTP. MIC-03-16-0 0007

[The Surveillance Frequency of every 31 effective full power days (EFPD) is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Also, the slow changes in neutron flux during the fuel cycle can be detected during this interval. MIC-03-16-0 0007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.4

SR 3.3.1.4 is the performance of a TADOT. This test shall verify RTB train OPERABILITY by actuation of the two RTBs for each train to their trip~~ped~~ state. Each RTB may be actuated together or individually. MIC-03-16-00007

The RTB train test shall include three separate but overlapping tests: (1) The Undervoltage ~~T~~test for verification of RTB operability using only the ~~u~~Undervoltage ~~t~~Trip ~~m~~Mechanism~~.~~, (2) The Shunt Trip test for verification of RTB operability using only the ~~s~~Shunt ~~t~~Trip ~~m~~Mechanisms~~.~~, and (3) The Manual Reactor Trip ~~T~~test for verification of RTB operability using the hardwired switches. The Undervoltage ~~T~~test shall bypass the ~~s~~Shunt ~~t~~Trip ~~m~~Mechanism, so each RTB actuates using only the ~~u~~Undervoltage Trip ~~m~~Mechanism. The Shunt Trip ~~T~~test shall bypass the ~~u~~Undervoltage Trip ~~m~~Mechanism, so each RTB actuates using only the ~~s~~Shunt ~~t~~Trip ~~m~~Mechanism. The Manual Reactor Trip ~~T~~test shall actuate the RTB with both mechanisms. Figure 4.4-1 of ~~Topical Report~~ MUAP-07004 (Ref. 6) describes an acceptable overlapping method for conducting these three separate tests that confirms OPERABLE status. MIC-03-16-00007

[The Surveillance Frequency of every 62 days on a STAGGERED TEST BASIS applies to all four RTB trains. This Surveillance~~test~~ ~~f~~Frequency is justified based on industry experience. The Surveillance~~test~~ ~~f~~Frequency also considers the added reliability of the US-APWR RTB configuration, which includes redundant RTBs within each train and the overall two-out-of-four train configuration. Since each test actuates each RTB to its required trip~~ped~~ state, the STAGGERED TEST BASIS results in each RTB being tested every 248 days, and each tripping method being tested every 744 days. ~~OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.~~ MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

The TADOT STAGGERED TEST BAS~~E~~IS Surveillance ~~f~~Frequency of 62 days, with each RTB tested every 248 days, and each trip method~~ology~~ ultimately tested every 744 days, is also justified in the ~~PSMS reliability analysis. For detailed information, refer to the~~ US-APWR ~~Technical Report MUAP-07030 PRA, Attachment 6A.12. The~~ reliability and risk analyses, the summary and result of ~~the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA~~which are documented in FSAR Chapter 19~~.]~~ (Ref. 10).

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The PSMS is self-tested on a continuous basis from the digital side of all input modules to the digital side of all output modules. Self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. The self-testing is described in Reference 6 and 7. The ACTUATION LOGIC TEST is a check of the RTS software memory integrity to ensure there is no change to the internal RTS software that would impact its functional operation or the continuous self-test function. The software memory integrity test is described in Reference 6 and 7. [The Frequency of every 24 months is justified based on the reliability of the PSMS. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-00007

The complete continuity check from the input device to the output device is performed by the combination of the continuous CHANNEL CHECK, the 24 month CHANNEL CALIBRATION for the non digital side of the input module, the continuous self-testing for the digital side, the 24 month COT, the 24 month ACTUATION LOGIC TEST and the STAGGERED 62 days TADOT for the non-digital side of the output module. The Channel CALIBRATION, COT, ACTUATION LOGIC TEST and TADOT, which are manual tests, overlap with the CHANNEL CHECK and self-testing and confirm the functioning of the self-testing.

The ACTUATION LOGIC TEST interval of 24 months with the self test capability is justified in the PSMS reliability analysis. For detailed information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.]

SR 3.3.1.65

SR 3.3.1.65 is a calibration of the excore channels to the incore channels. If the measurements do not agree, the excore channels are not declared inoperable but must be calibrated to agree with the incore detector measurements. If the excore channels cannot be adjusted, the channels are declared inoperable. This SurveillanceSR is performed to verify the f(ΔI) input to the Overtemperature ΔT Function and Overpower ΔT Function. MIC-03-16-00007

A Note modifies SR 3.3.1.65. The Note states that this SurveillanceSR is required only if reactor power is > 50% RTP and that 24 hours isare allowed for performing the first surveillanceSR after reaching 50% RTP. MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

[The Surveillance Frequency of 92 EFPD is adequate. It is based on industry operating experience, considering instrument reliability and operating history data for instrument drift. MIC-03-16-00007 MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.1.~~7~~6 MIC-03-16-00007

SR 3.3.1.~~7~~6 is the performance of a ~~COT~~MIC for the RTS Instrumentation. This includes the RPS.

The PSMS is self-tested automatically on a continuous basis from the digital side of all input modules to the digital side of all output modules. ~~Self~~Continuous automatic self-testing encompasses all ~~digital~~PSMS safety-related functions including digital Nominal Trip Setpoints, Time Constants and ~~trip~~actuation logic functions. ~~-~~The continuous automatic self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. The continuous automatic self-testing is described in Reference 6 and Reference 7. MIC-03-16-00007

The ~~COT~~MIC is a diverse check of the ~~RTS~~PSMS software memory integrity, consistent with the Setpoint Control Program (SCP), to ensure there is no change to the internal ~~RTS~~PSMS software that would impact its functional operation, including digital Nominal Trip Setpoints, ~~values~~Time Constants, actuation logic functions or the continuous automatic self-testing. ~~self-test function.~~ The ~~software memory integrity test~~MIC is described in Reference 6 and Reference 7.

~~A COT ensures the entire channel will perform the intended Function. A COT also ensures that the logic processing for interlocks (i.e., P-6 and P-10) is operating correctly. The combination of the COT, CHANNEL CALIBRATION, continuous self-testing and continuous CHANNEL CHECK ensures the complete P-6 and P-10 interlocks are operating correctly.~~

~~[The Frequency of 24 months is justified based on the reliability of the PSMS. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.~~The capability to generate continuous automatic self-testing fault alarms shall be confirmed OPERABLE during the MIC.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The complete continuityOPERABILITY check from the measurement channel input device to the output deviceReactor Trip Breaker is performed by the combination of the continuous automatic self-testing for the digital devices (the RPS and data communication interfaces), the continuous automatic CHANNEL CHECK (SR 3.3.1.1 and SR 3.3.1.7), the 24 monthCHANNEL CALIBRATION (SR 3.3.1.8, SR 3.3.1.9 and SR 3.3.1.10), the MIC (SR 3.3.1.6) and the TADOT (SR 3.3.1.4 and SR 3.3.1.11). The CHANNEL CALIBRATION for the non digital side of the input module, the continuous self-testing for the digital side, the 24 month COT, 24 months Actuation Logic TestMIC and the STAGGERED 62 days TADOT for the non-digital side of the output module. The CHANNEL CALIBRATION, COT and TADOT, which are manual tests, overlap with the CHANNNEL CHECKcontinuous automatic and self-testing and confirm the functioning of the continuous automatic self-testing. MIC-03-16-00007

The COT interval of 24 months with the self test capability is justified in the PSMS reliability analysis. For detailed information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWT PRA Chapter 19.][The Surveillance Frequency of 24 months is justified because the software memory integrity is checked by the continuous automatic self-testing.

The Surveillance Frequency of 24 months is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 10).

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

The Note allows a normal shutdown to proceed without a delay for testing in MODE 2 and for a short time in MODE 3 until the RTBs are open and SR 3.3.1.7 is no longer required to be performed. If the unit is to be in MODE 3 with the RTB closed for 4 hours this Surveillance must be performed prior to 4 hours after entry into MODE 3.

SR 3.3.1.87

Performance of the CHANNEL CHECK within 4 hours after reducing power below P-6 and [once every 12 hours thereafter OR in accordance with the Surveillance Frequency Control Program] ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the

BASES

SURVEILLANCE REQUIREMENTS (continued)

same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION. MIC-03-16-00007

Agreement criteria are determined based on a combination of the channel instrument uncertainties. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The Surveillance Frequency of 4 hours is based on the need to verify OPERABILITY of the SR instruments within a reasonable time after being re-energized. MIC-03-16-00007

MIC-03-16-00007

[The 12 hour Surveillance fFrequency thereafter is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels. OR The Surveillance Frequency thereafter is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-00007

A CHANNEL CHECK may be conducted manually or automatically. For the US-APWR an automated CHANNEL CHECK is normally conducted continuously, which satisfies the 12 hour Surveillance Frequency requirement. Where the CHANNEL CHECK is conducted automatically, an alarm shall be generated when the agreement criteria is not met. If the automated CHANNEL CHECK function is unavailable, a manual CHANNEL CHECK shall be conducted at the minimum 12 hour Surveillance Frequency. MIC-03-16-00007

The equipment that performs the automated CHANNEL CHECK, and continuous self-testing described for COT and ACTUATION LOGIC TEST, shall be confirmed OPERABLE including the capability to generate fault alarms.OR The Surveillance Frequency thereafter is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.1.98

SR 3.3.1.8 is the performance of a CHANNEL CALIBRATION.

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifiesmust be performed consistent with the methods and assumptions of Specification 5.5.21, SCP, to verify that the MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

channel responds to a measured parameter within the necessary range and accuracy~~ as defined by the Allowable Value~~. MIC-03-16-00007

The CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to digital VDU readout as described in Reference 6.

For analog measurements, the CHANNEL CALIBRATION confirms the ~~accuracy of the channel from sensor to digital VDU read out (Ref. 6). The CHANNEL CALIBRATION confirms the analog measurement accuracy conforms to~~calibration settings are within the Allowable Value at multiple points over the entire measurement channel span, encompassing all ~~r~~Reactor ~~t~~Trip and interlock Nominal Trip Setpoint values. Digital ~~r~~Reactor ~~t~~Trip and interlock Nominal Trip Setpoint values are confirmed through a ~~COT~~MIC. MIC-03-16-00007 MIC-03-16-00007

For binary measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel's state change~~, as described in Reference 6~~. The state change must occur within the Allowable Value of the Nominal Trip Setpoint. MIC-03-16-00007

~~CHANNEL CALIBRATIONS must be performed consistent with the methods and assumptions in Section 5.5.21 SCP~~The equipment that performs the automated CHANNEL CHECK shall be confirmed OPERABLE, including the capability to generate fault alarms during the CHANNEL CALIBRATION. MIC-03-16-00007

[The Surveillance Frequency of 24 months is based on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in accordance with ~~Section~~Specification 5.5.21, Setpoint Control Program (SCP). MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.3.1.9 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable.~~ MIC-03-16-0 0007

SR 3.3.1.~~10~~9

SR 3.3.1.~~10~~9 is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.~~9~~8, for the neutron flux channels. This SR is modified by a Note stating that the neutron detectors are excluded from the CHANNEL CALIBRATION.

~~The CHANNEL CALIBRATION~~For this SR the calibration for the power range neutron detectors consists of a normalization of the detectors based on a power calorimetric and flux map performed above 15% RTP. ~~The CHANNEL CALIBRATION~~For this SR the calibration for the source range and intermediate range neutron detectors consists of obtaining the detector plateau or discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. This ~~Surveillance~~SR is not required for the NIS power range detectors for entry into MODE 2 or 1, and is not required for the NIS intermediate range detectors for entry into MODE 2, because the unit must be in at least MODE 2 to perform the test for the intermediate range detectors and MODE 1 for the power range detectors. MIC-03-16-0 0007 MIC-03-16-0 0007

[The 24 month Surveillance Frequency is based on the need to perform this ~~Surveillance~~SR under the conditions that apply during a plant outage and the potential for an unplanned transient if the ~~Surveillance~~SR were performed with the reactor at power. Operating experience has shown these components usually pass the ~~Surveillance~~SR when performed on the 24 month Surveillance Frequency. MIC-03-16-0 0007 MIC-03-16-0 0007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.1.~~11~~10 MIC-03-16-0 0007

SR 3.3.1.~~11~~10 is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.~~9~~8. ~~Whenever a sensing element is replaced, the next required~~ CHANNEL CALIBRATION ~~of the resistance temperature detectors (RTD) sensors~~ is accomplished by ~~an in-place~~a cross calibration that compares the ~~other sensing elements with the recently~~signals from the installed ~~sensing element~~channels to a channel with a reference RTD, in accordance with FSAR Section 7.1.3.14 (Ref. 13).

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~This test will verify t~~The rate lag compensation for flow from the core to the RTDs is implemented in the RPS through digital functions; this rate lag function is confirmed through the MIC, SR 3.3.1.6. MIC-03-16-00007

[The Surveillance Frequency is justified by the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in accordance with ~~Section~~Specification 5.5.21, Setpoint Control Program (SCP). MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.1.~~12~~11 MIC-03-16-00007

SR 3.3.1.~~12~~11 is the performance of a TADOT of Turbine Trip Functions. This TADOT is performed prior to exceeding the P-7 interlock whenever the unit has been in MODE 3. This ~~Surveillance~~SR is not required if it has been performed within the previous 31 days. Verification of the Nominal Trip Setpoint ~~does~~is not ~~have to be~~ performed ~~for this~~during the TADOT ~~Surveillance~~SR; the Nominal Trip Setpoint is verified during CHANNEL CALIBRATION. Performance of this test will ensure that the ~~t~~Turbine ~~t~~Trip Function is OPERABLE prior to exceeding the P-7 interlock. MIC-03-16-00007

SR 3.3.1.~~13~~12 MIC-03-16-00007

SR 3.3.1.~~13~~12 verifies that the ~~response times for all~~ RTS ~~functions are~~RESPONSE TIME is less than or equal to the maximum values assumed in the accident analysis. Accident analysis response time values are ~~defined~~specified in Reference 2. Individual component response times are not modeled in the analyses.

The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the ~~Trip Setpoint value at the sensor~~Analytical Limit to the point at which the equipment reaches the required functional state (i.e., control and shutdown rods fully inserted in the reactor core). MIC-03-16-00007

~~The PSMS dynamic transfer functions employ time constants that are installed as digital values and processed through digital algorithms. Therefore, the time response of the dynamic transfer functions has no potential for variation due to time or environmental drift or component aging. The COT confirms the integrity of the time constants and algorithms through the periodic software memory integrity check. The complete PSMS response time is determined one time by analysis and confirmed one time in the factory test. The response times of analog instruments that provide input to the dynamic transfer functions are periodically checked in Surveillance~~ MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

3.3.1.13, because they do have the potential for response time variation. RTBs and RTDs are known to have aging or wear-out mechanisms that can impact response time and require response time measurement. Response time for other components can be affected by random failures or calibration discrepancies, which can be detected by other testing and calibration methods required by other surveillances. MIC-03-16-0 0007

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. MIC-03-16-0 0007

Allocations for sensors, signal conditioning, processing and actuation logic response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. MUAP-09021-P "Response Time of safety I&C System" MIC-03-16-0 0007

The PSMS MELTAC controllers employ dynamic transfer functions with Time Constants that are installed as digital values and processed through digital algorithms. Therefore, the time response of all digital PSMS functions has no potential for variation due to time, environmental drift or component aging.

PSMS Time Constants are set at the nominal values assumed in the safety analysis. The combination of continuous automatic self-testing and MIC confirms the integrity of the dynamic transfer functions, Time Constants and actuation logic functions.

The response time for the digital portion of the PSMS is determined one time by analysis and confirmed one time in the factory test. Therefore, for PSMS digital functions, including Functions with Time Constants, response time tests are not required; instead, a response time allocation may be applied.

Response time for PSMS MELTAC input signal conditioning, can be affected by random failures or degradation, which can be detected by CHANNEL CALIBRATION. Section 4.6 of MUAP-07005, "Safety System Digital Platform -MELTAC-" (Ref. 7) describes the basis for crediting CHANNEL CALIBRATION for detecting PSMS signal conditioning response time degradation. Therefore, for PSMS input signal conditioning, response time tests are not required; instead, a response time allocation may be applied.

BASES

SURVEILLANCE REQUIREMENTS (continued)

MUAP-09021-P, "Response Time of Safety I&C System" (Ref. 11), provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the report. Response time verification for other sensor types must be demonstrated by test. MUAP-09021-P also provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. Section 4.4 of MUAP-07005, "Safety System Digital Platform -MELTAC-" describes how response times of each individual MELTAC module are combined to determine the total digital system response time. MIC-03-16-00007 MIC-03-16-00007

In addition, MUAP-09021-P identifies the acceptance criteria for RTS components that require response time measurement (such as RTBs and RTDs which are known to have aging or wear-out mechanisms that can impact response time), taking into consideration the total RTS RESPONSE TIME requirement and the allocations for other components that do not require testing.

The allocations for sensor, signal conditioning and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. One example where response time could be affected is replacing the sensing assembly of a transmitter.

BASES

SURVEILLANCE REQUIREMENTS (continued)

[As appropriate, each channel's response must be verified every 24 months on a STAGGERED TEST BASIS. Testing of the final actuation devices (i.e., RTBs) is included in the testing. Response times cannot be determined during unit operation because equipment operation is required to measure response times. Experience has shown that these components usually pass this surveillanceSR when performed at the 24 months Surveillance Frequency. Therefore, the Surveillance Frequency was concluded to be acceptable from a reliability standpoint. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-0 0007 MIC-03-16-0 0007

SR 3.3.1.1312 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response. MIC-03-16-0 0007

REFERENCES

1. Regulatory Guide 1.105, Revision 3, "Setpoints for Safety Related Instrumentation."
2. FSAR Section 7.2.
3. FSAR Chapter 15.
4. IEEE-603-1991.
5. 10 CFR 50.49.
6. MUAP-07004-P (Proprietary) and MUAP-07004-NP (Non-Proprietary), Revision 7, “Safety I&C System Description and Design Process.” MIC-03-16-0 0007
7. MUAP-07005-P (Proprietary) and MUAP-07005-NP (Non-Proprietary), Revision 8, “Safety System Digital Platform – -MELTAC-.” MIC-03-16-0 0007
8. 10 CFR 50.36.
9. FSAR Section 6.2.1.
10. FSAR Chapter 19. MIC-03-16-0 0007
11. MUAP-09021-P, Revision 2, “Response Time of Safety I&C System.”
12. MUAP-09022-P, Revision 2, “US-APWR Instrument Setpoint Methodology.”
13. FSAR Section 7.1

B 3.3 INSTRUMENTATION

B 3.3.2 Engineered Safety Features Actuation System (ESFAS) Instrumentation MIC-03-1600 007

BASES

BACKGROUND

The ESFAS initiates necessary safety systems, based on the values of selected unit parameters, to protect against violating core design limits and the Reactor Coolant System (RCS) pressure boundary, and to mitigate accidents.

The ESFAS instrumentation is segmented into ~~three~~four distinct but interconnected modules as identified below: MIC-03-1600 007

- Field transmitters or process sensors and instrumentation: provide a measurable electronic signal based on the physical characteristics of the parameter being measured,

- The Reactor Protection System (RPS) provides signal conditioning, analog to digital conversion, ~~bistable~~digital bistables for setpoint comparison, process algorithm actuation, ~~compatible electrical signal~~digital output to ~~plant process components~~the ESFAS, and digital output to control board/~~m~~Main ~~c~~Control ~~r~~Room (MCR)/miscellaneous VDUs,~~ and~~ MIC-03-1600 007

- The ESFAS and Safety Logic System (SLS) provides Actuation Logic, and Actuation Outputs to initiate the proper unit shutdown or ~~e~~Engineered ~~s~~Safety ~~f~~Features (ESF) actuation in accordance with the defined logic~~ and~~, based on the partial actuation inputs from the RPS~~.~~, and MIC-03-1600 007

- The Safety VDUs (S-VDU) and Communication Subsystems (COM) provide Manual Control of ESF Components and backup manual initiation of Reactor Trip and ESFAS Functions.

The Nominal Trip Setpoint, recorded and maintained in a document established by the Setpoint Control Program (SCP), is a predetermined setting for a protective device chosen to ensure automatic actuation prior to the process variable reaching the Analytical Limit and thus ensuring that the SL would not be exceeded. As such, the Nominal Trip Setpoint accounts for uncertainties in setting the device (e.g., calibration), uncertainties in how the device might actually perform (e.g., repeatability), changes in the point of action of the device over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident environments). In this manner, the Nominal Trip Setpoint plays an important role in ensuring that SLs are not exceeded. As such, the Nominal Trip Setpoint meets the definition of an LSSS (Ref. 13) and is used to meet the requirement that they be contained in the Technical Specifications. This is an acceptable approach for digital systems because the digital setpoints do

BACKGROUND (continued)

not drift as in analog systems. The Nominal Trip Setpoint is applicable to automatic protection instrumentation functions for Reactor Trip, ESFAS actuation and permissive interlocks. MIC-03-1600 007

Technical Specifications contain Allowable Values related to the OPERABILITY of equipment required for safe operation of the facility. The Allowable Value accommodates expected drift in the analog components of the channel that would have been specifically accounted for in the setpoint methodology for calculating the Nominal Trip Setpoint and thus the automatic protective action would still have ensured that the SL would not be exceeded with the "as-found" setting of the protective device. Therefore, the device would still be OPERABLE since it would have performed its safety function and the only corrective action required would be to recalibrate the device to account for further drift during the next surveillance interval.

However, there is also some point beyond which the device would have not been able to perform its function due, for example, to greater than expected drift. This value needs to be specified in the Technical Specifications in order to define OPERABILITY of the devices and is designated as the Allowable Value.

The Allowable Value, in conjunction with the Nominal Trip Setpoint and LCO, establishes the threshold for ESFAS action to prevent exceeding acceptable limits such that the consequences of Postulated Accidents (PAs) will be acceptable. The Allowable Value, recorded and maintained in a document established by the Setpoint Control Program (SCP), is considered a limiting value such that a channel is OPERABLE if the ~~measured accuracy is as-~~found value does not ~~to~~ exceed the Allowable Value during ~~the~~ CHANNEL CALIBRATION.~~-~~ The Allowable Value is applicable to automatic protection instrumentation functions for Reactor Trip, ESFAS actuation and permissive interlocks. MIC-03-1600 007

For analog measurements, the CHANNEL CALIBRATION verifies the ~~instrument~~channel accuracy at five calibration ~~setpoints~~settings corresponding to 0%, 25%, 50%, 75% and 100% of the instrument range. For binary measurements, the CHANNEL CALIBRATION verifies the accuracy of the channel's state change at the required setpoint. As such, the Allowable Value accounts for the expected instrument loop uncertainties, such as drift, during the surveillance interval. In this manner, the actual setting of the device will still meet the LSSS definition and ensure that a SL is not exceeded at any given point of time as long as the device has not drifted beyond that expected during the surveillance interval. MIC-03-1600 007

BASES

BACKGROUND (continued)

Note that, although athe channel is "OPERABLE" under these circumstances, the channel mustshall be left adjusted to a value within the established channel cCalibration tTolerance (CT) band in accordance with the uncertainty assumptions stated in the referenced setpoint methodology, (as-left criteria), and confirmed to be operating within the statistical allowances of the uncertainty terms assigned. The Calibration Tolerance, recorded and maintained in a document established by the SCP, is applicable to automatic protection instrumentation functions for Reactor Trip, ESFAS actuation and permissive interlocks. MIC-03-1600 007

If the as-found value of the device is found to have exceeded the Allowable Value, or the as-left value of the device cannot be adjusted to a value within the Calibration Tolerance, the device would be considered inoperable from a technical specification perspective. This requires corrective action including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required.

In the Protection and Safety Monitoring System (PSMS), setpoints associated with analog measurements are stored as digital values that have no potential for variation due to time, environmental drift or component aging. For analog measurements, the only factors that can result in variation in the trip functions reside in the uncertainties that are pertinent to the analog portion of the system. Therefore, for analog measurements in the PSMS, it is appropriate for the Allowable Value to be expressed in terms of values that are measured during periodic testing of the analog portion of the system (i.e., CHANNEL CALIBRATION).

For PSMS analog measurements, the as-found and as-left values are measured from sensor to digital Visual Display Unit (VDU) readout during CHANNEL CALIBRATION. The US-APWR enhances human performance by establishing a standard CHANNEL CALIBRATION method for all analog measurements, whereby the as-found and as-left values read at the VDU are measured at the same five calibration settings, regardless of the PSMS trip setpoint(s).

Since the PSMS trip logic and setpoints for analog measurements are stored as digital values with no drift potential, and those digital values are confirmed through the MEMORY INTEGRITY CHECK (MIC), the only untested area required to confirm channel operability pertains to the accuracy of the analog input signal. When the analog input accuracy is confirmed, by reading the digital values of the five point CHANNEL CALIBRATION settings on any VDU driven by the same digital value used in the controller that executes the trip functions, the operability of the complete channel is confirmed, including the accuracy of all trip setpoints associated with that channel.

BACKGROUND (continued)

In the PSMS, setpoints associated with binary measurements are stored within the binary device itself. These setpoints have potential for variation due to time, environmental drift or component aging. However, these sensors are interfaced to the digital portion of the PSMS, which has no potential for variation due to time, environmental drift or component aging. For binary measurements, the only factors that can result in variation in the trip functions reside in the uncertainties that are pertinent to the binary sensor itself. Therefore, for binary measurements in the PSMS, it is appropriate for the Allowable Value to be expressed in terms of values that are measured during periodic testing of the binary device (i.e., CHANNEL CALIBRATION). MIC-03-1600 007

For PSMS binary measurements, the as-found and as-left state change values are measured from sensor to VDU readout during CHANNEL CALIBRATION. The US-APWR enhances human performance by establishing a standard CHANNEL CALIBRATION method for all binary measurements, whereby the as-found and as-left values read at the VDU are measured at the channel's required state change.

Since the PSMS trip logic for binary sensors is stored as digital values with no drift potential, and those digital values are confirmed through the MIC, the only untested area required to confirm channel operability pertains to the accuracy of the binary input signal. When the binary input accuracy is confirmed, by reading the channel's state change on any VDU driven by the same digital value used in the controller that executes the trip functions, the operability of the complete channel is confirmed, including the accuracy of the trip setpoint associated with that channel.

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. In many cases, field transmitters or sensors that input to the ESFAS are shared with the Reactor Trip System (RTS). In some cases, the same channels also provide control system inputs. To account for calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the Nominal Trip Setpoint and Allowable Values. The OPERABILITY of each transmitter or sensor is determined by ~~either~~ "as-found" calibration data evaluated during the CHANNEL CALIBRATION ~~or~~and by qualitative assessment of field transmitter or sensor, as related to the channel behavior observed during performance of the CHANNEL CHECK. MIC-03-1600 007 MIC-03-1600 007

BASES

BACKGROUND (continued)

Signal Processing EquipmentProtection and Safety Monitoring System MIC-03-1600 007

Generally, four channels of process control equipment are used for the signal processing of unit parameters measured by the field instruments. The process control equipment provides signal conditioning, analog to digital conversion, comparable digital output signals for VDUs located on the main control board, and comparison of measured input signals with setpoints established by safety analyses. These setpoints are definedrecorded and maintained in Chapter 7 (Ref. 2) and Chapter 8 (Ref. 8)a document established by the Setpoint Control Program (SCP). If the measured value of a unit parameter exceeds the predetermined setpoint, a digital output from a digital bistable output is forwarded to the ESFAS for decision evaluation. Channel separation is maintained throughout the PSMS. Some unit parameters provide input only to the PSMS, while others are used by the PSMS and are retransmitted to the Plant Control and Monitoring System (PCMS) for use in one or more control systems. MIC-03-1600 007 MIC-03-1600 007

Generally, if a parameter is used only for input to the protection circuits, three channels with a two-out-of-three logic are sufficient to provide the required reliability and redundancy. If one channel fails in a direction that would not result in a partial Function trip, the Function is still OPERABLE with a two-out-of-two logic. If one channel fails such that a partial Function trip occurs, a trip will not occur and the Function is still OPERABLE with a one-out-of--two logic. MIC-03-1600 007

Generally, if a parameter is used for input to the protection circuits and a control function, three channels with a two-out-of-three logic are also sufficient to provide the required reliability and redundancy. TheWhen three or more channels are OPERABLE, the Signal Selection Algorithm (SSA) within the PCMS ensures the control systems can withstand an input failure to the control system without causing erroneous control system operation which would otherwise require the protection function actuation. Since the input failure does not cause an erroneous control system action that challenges the protection function, the input failure is considered a single failure in the ESFAS and the ESFAS remains capable of providing its protective function with the remaining two operableOPERABLE channels. Again, a single failure will neither cause nor prevent the protection function actuation. When there are less than three OPERABLE channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared channels, when there are only three required channels. MIC-03-1600 007 MIC-03-1600 007 MIC-03-1600 007

These requirements are described in IEEE-603-1991 (Ref. 4). The actual number of channels required for each unit parameter is specified in Reference 2.

BASES

BACKGROUND (continued)

Allowable Values and ESFAS Setpoints

The Nominal Trip Setpoints used in the digital bistables or binary sensors are based on the Analytical Limits defined in the accident analysis and the channel uncertainty. The selection of these Nominal Trip Setpoints is such that adequate protection is provided when all sensor and processing ~~t~~Time ~~d~~Delays are taken into account. MIC-03-1600 007 MIC-03-1600 007

To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those ESFAS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Allowable Values and Nominal Trip Setpoints ~~recorded and maintained in a document established by the SCP in the accompanying LCO~~ are conservative ~~with respect~~ to protect the Analytical Limits. The ~~SCP~~ methodology identified in the SCP, used to calculate the Allowable Values and ~~ESFAS~~Nominal Trip setpoints, incorporates all of the known uncertainties applicable to each channel (Ref. ~~7~~12). The magnitudes of these uncertainties are factored into the determination of each ~~ESFAS~~Nominal Trip Setpoint and ~~corresponding~~ Allowable Value. MIC-03-1600 007

The ~~ESFAS~~Nominal Trip Setpoint entered into the bistable or binary sensor is more conservative than that specified by the Analytical Limit ~~to account~~. The Nominal Trip Setpoint accounts for measurement errors detectable by the CHANNEL CALIBRATION and other unmeasurable errors (such as the effects of anticipated environmental conditions), which are both considered in the Allowable Value for CHANNEL CALIBRATION. The Allowable Value serves as the Technical Specification OPERABILITY limit for the purpose of the CHANNEL CALIBRATION. One example of such a change in measurement error is drift during the surveillance interval. If the ~~measured accuracy~~as-found value does not exceed the Allowable Value, the channel is considered OPERABLE. MIC-03-1600 007 MIC-03-1600 007

The ~~ESFAS~~ Nominal Trip Setpoint~~s are~~ (i.e., LSSS) is the value~~s~~ at which the ~~bistables are~~digital bistable or binary sensor is set. The ~~ESFAS~~Nominal Trip Setpoint value ensures the safety analysis limits are met for the surveillance interval selected when a channel is adjusted based on stated channel uncertainties. Any channel is considered to be properly adjusted when the "as-left" value is within the established Calibration Tolerance (CT) band in accordance with the methods and assumptions ~~in~~of the SCP. The ~~ESFAS~~Nominal Trip Setpoint value (i.e., expressed as a value without inequalities) ~~is used~~ for digital bistables, is confirmed during the ~~purposes of the COT~~MIC. The Nominal Trip Setpoint value (i.e., expressed as a value with inequalities) for binary sensors is confirmed during the CHANNEL CALIBRATION. MIC-03-1600 007 MIC-03-1600 007

BACKGROUND (continued)

ESFAS Nominal Trip Setpoints and Allowable Values, consistent with the requirements of the Allowable ValueSCP, ensure that SLs are not violated during AOOs and that the consequences of Postulated Accidents (PAs) will be acceptable, providingprovided the unit is operated from within the LCOs at the onset of the PA and the equipment functions as designed. MIC-03-1600 007

DigitalWithin the PSMS controllers, Nominal Trip Setpoints, Time Constants and Time Delays are digital settings maintained in non-volatile software memory within each RPS train. -Digital settings have no potential for variation due to time, environmental drift or component aging; therefore, these digital settings have no surveillance tolerance. Each train isPSMS controller has continuous automatic self-tested continuously on line to verifytesting, which verifies that the digital Nominal Trip Setpoint and Time Constant settings are correct. ESFAS Trip SetpointsNominal Trip Setpoints and Time Constants are also verified periodically through a diverse software memory integrity test, which isthe MIC which must be conducted with the RPS trainaffected PSMS controller out of service. A designated instrument channel is taken out of service for periodic calibrationCHANNEL CALIBRATION. SRs for the channels and trains are specified in the SR section. MIC-03-1600 007

The Allowable Value is the maximum deviation that can be measured during CHANNEL CALIBRATION, whereby the channel is considered OPERABLE. This value includes the deviations that are included in the calculations that determined the Nominal Trip Setpoint. The “expected as-found value” shall be as specified in the plant-specific setpoint analysis. The expected as-found value reflects the expected normal drift of actual plant equipment, so that a degraded device can be identified before the Allowable Value limit is reached. The expected as-found value is also referred to as the Performance Test Acceptance Criteria (PTAC). The PTAC, recorded and maintained in a document established by the SCP, is applicable to automatic protection instrumentation functions for Reactor Trip, ESFAS actuation and permissive interlocks. MIC-03-1600 007

ESFAS and SLS

The ESFAS and SLS equipment isare used for the decision logic processing of outputs from the RPS. The SLS is also used for manual control of ESF components for accident mitigation and to achieve safe shutdown. To meet the redundancy requirementssingle failure criteria and accomodate on-line maintenance for four train ESF systems, four trains of ESFAS-SLS, each performing the same functions, are provided. If one train is taken out of service for maintenance or test purposes, the remaining trains will provide ESF actuation for the unit. Two train ESF systems are actuated by Trains A and D, or B and C of the ESFAS-SLS. MIC-03-1600 007 MIC-03-1600 007

BASES

BACKGROUND (continued)

Each train is packaged in its own cabinet for physical and electrical separation to satisfy separation and independence requirements. ~~In addition, each train provides qualified features, such as separate function processors and communication processors, to ensure communications independence.~~ MIC-03-1600 007

The ESFAS~~-~~ and SLS perform~~s~~ the decision logic for most ESF equipment actuation; generates the electrical output signals that initiate the required actuation; and provides the status, permissive, and annunciator output signals to the ~~main control room~~MCR of the unit. MIC-03-1600 007

The ~~bistable outputs~~digital output signals from all trains of the RPS are sensed by each ESFAS train and combined into logic that represent combinations indicative of various transients. If a required logic combination is completed, the ESFAS train will send actuation signals via the Safety Bus to its respective SLS train. The SLS actuates those components whose aggregate Function best serves to alleviate the condition and restore the unit to a safe condition. Examples are given in the Applicable Safety Analyses, LCO, and Applicability sections of ~~this~~these Bases. The SLS also actuates ESF components based on manual control signals received from non-safety Operational VDUs, and based on signals from Safety VDUs for the Manual Control of ESF Components Function. MIC-03-1600 007

The ESFAS and SLS ~~are continuously automatically~~have continuous automatic self-~~tested while the unit is at power~~testing. When any one train is taken out of service for manual testing, the remaining trains are capable of providing unit monitoring and protection until the testing has been completed.

The automatic or manual actuation of ESF components is accomplished through solid state Actuation Outputs. The SLS energizes the Actuation Outputs appropriate for the condition of the unit. Each Actuation Output energizes one plant component. Actuation Outputs are tested in conjunction with their respective plant components. This test overlaps with the continuous automatic self-testing. MIC-03-1600 007

S-VDU and COM MIC-03-1600 007

The Safety VDUs (S-VDU) and Communication Subsystems (COM) provide backup controls for manual initiation of Reactor Trip and ESFAS Functions, and credited controls and indications for the Manual Control of ESF Components.

The S-VDU in each train consists of a VDU and S-VDU processor. There are two COM Subsystems in each train, COM-1 and COM-2.

BASES

BACKGROUND (continued)

The S-VDU provides backup controls for Manual Initiation of Reactor Trip (LCO 3.3.1) and ESFAS functions. Manual initiation signals are interfaced from the S-VDU to the RPS and ESFAS through COM-2, where they are combined with corresponding signals from non-safety Operational VDUs (O-VDU), through logic that prioritizes the S-VDU signal. The combined and prioritized S-VDU and O-VDU signals are then interfaced to the RPS or ESFAS where it is combined with the Manual Initiation pushbuttons, which are required by this LCO. These backup S-VDU controls are not credited in determining when the Manual Initiation Function is OPERABLE or in determining the number of required trains. However, these backup controls are considered in the Manual Initiation Function Completion Times for the Required Actions. MIC-03-1600 007

The S-VDU provides credited safety related displays and controls for the Manual Control of ESF Components Function. This Function supports the ESFAS and is used to achieve and maintain safe shutdown (e.g., LCO 3.5.2 for Safety Injection). Component control signals are interfaced from the S-VDU to the SLS through COM-2, where they are combined with corresponding signals from non-safety Operational VDUs (O-VDU), through logic that prioritizes the S-VDU signal. The combined and prioritized S-VDU and O-VDU signals are then interfaced to the SLS. Component position feedback signals for status displays are interfaced from the SLS to the S-VDU.

To meet the single failure criteria and accommodate on-line maintenance, for four train ESF systems, four trains of S-VDU and COM-2 are provided, each performing the same functions. If one train is taken out of service for maintenance or test purposes, the remaining trains will provide displays and manual controls for the unit. The S-VDU and COM-2 for Trains A and D, or Trains B and C support ESF systems with only two trains.

The S-VDU and COM-2 for each train are packaged in their own cabinet for physical and electrical separation to satisfy separation and independence requirements.

The S-VDU and COM-2 have continuous automatic self-testing while in service. When any one train is taken out of service for manual testing, the remaining trains are capable of providing unit monitoring and protection until the testing has been completed.

COM-1 provides signal interfaces from the ESFAS and SLS to the PCMS for non-safety functions only, such as the display of ESF component position on non-safety Operational VDUs (O-VDU). Therefore, there are no operability requirements for COM-1.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

Each of the analyzed accidents can be detected by one or more ESFAS Functions. One of the ESFAS Functions is the primary actuation signal for that accident. An ESFAS Function may be the primary actuation signal for more than one type of accident. An ESFAS Function may also be a secondary, or backup, actuation signal for one or more other accidents. For example, Low Pressurizer Pressure is a primary actuation signal for small loss of coolant accidents (LOCAs) and a backup actuation signal for steam line breaks (SLBs) outside containment. Functions such as ~~m~~Manual ~~i~~Initiation, not specifically credited in the accident safety analysis, are qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the unit. These Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. These Functions may also serve as backups to Functions that were credited in the accident analysis (Ref. 3). MIC-03-16-00007

The LCO requires all instrumentation performing an ESFAS Function, listed in Table 3.3.2-1 in the accompanying LCO, to be OPERABLE. A channel is OPERABLE provided the "as-found" measured during surveillance testing, value does not exceed its associated Allowable Value~~. A trip setpoint may be set more conservative than the Trip Setpoint as necessary in response to plant conditions.~~ , and provided the “as-left” value is within the specified calibration tolerance at the completion of each CHANNEL CALIBRATION. For analog measurements, Allowable Values are defined in terms pertinent to the five channel calibration settings 0%, 25%, 50%, 75% and 100%. For binary measurements there is one Allowable Value defined in terms pertinent to the state change at the Nominal Trip Setpoint. A Nominal Trip Setpoint is set more conservative than the Allowable Value to account for channel uncertainties. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions. MIC-03-16-00007

The LCO generally requires OPERABILITY of two or three channels in each instrumentation ~~f~~Function, two or three trains of Manual Initiation, and two or three trains in each logic ~~and manual initiation function. The two-out-of-three and the two-out-of-four configurations allow~~Function. Three OPERABLE instrumentation channels in a two-out-of-three configuration are required when one ESFAS channel is also used as a control system input. When there are three or more OPERABLE channels, the SSA within the control system prevents the possibility of a shared channel failing in such a manner that it creates a transient that requires ESFAS action. The input failure is considered a single failure in the ESFAS and ESFAS remains capable of providing its protective function with the remaining two OPERABLE channels. The SSA ensures there is no potential for control system and protection system interaction that could simultaneously create a need for ESFAS initiation and disable one ESFAS channel. When there are less than three OPERABLE channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared channels, when there are only three required channels. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The two-out-of-three configuration allows one channel to be tripped during maintenance or testing without causing an ESFAS initiation. Two or three trains of logic ~~or manual initiation channels are required~~and Manual Initiation functions are required to ensure no single random failure disables the ESFAS. The required channels of ESFAS instrumentation provide unit protection in the event of any of the analyzed accidents. MIC-03-16-00007 MIC-03-16-00007

Due to redundant components within the PSMS, such as controllers, communication links and power supplies, an inoperable component may or may not result in an inoperable channel or train. Where an inoperable component results in an inoperable required channel or train, LCOs are entered. For inoperable components that do not result in inoperable channels or trains, LCOs are not entered. MIC-03-16-00007

ESFAS protection functions are as follows:

1. ECCS Actuation

ECCS Actuation (ECCS) provides two primary functions:

1. Primary side water addition to ensure maintenance or recovery of ~~r~~Reactor ~~v~~Vessel ~~w~~Water ~~l~~Level (coverage of the active fuel for heat removal, clad integrity, and for limiting peak clad temperature to < 2200°F), and MIC-03-16-00007

2. Boration to ensure recovery and maintenance of SDM (k_{eff}< 1.0).

These functions are necessary to mitigate the effects of high energy line breaks (HELBs) both inside and outside of containment. The ECCS signal is also used to initiate other Functions such as:

- Phase A Isolation,
- Containment Purge Isolation,
- Reactor Trip,
- Feedwater Isolation,
- Start of Emergency Feedwater (EFW) pumps,
- ~~Main Control Room~~MCR Isolation, and MIC-03-16-00007
- Reactor Coolant Pump Trip.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

These other functions ensure:

- Isolation of nonessential systems through containment penetrations,
- Trip of the reactor to limit power generation,
- Isolation of main feedwater (MFW) to limit secondary side mass losses,
- Start of EFW to ensure secondary side cooling capability,
- Isolation of the ~~main control room~~MCR to ensure habitability, and MIC-03-16-00007
- Trip of the Reactor Coolant Pump to prevent the unexpected Reactor Coolant Pump Trip after a small break LOCA.

a. ECCS Actuation - Manual Initiation

The LCO requires three trains to be OPERABLE. The operator can initiate ECCS at any time by using any two-~~-~~out~~-~~-of~~-~~four ECCS - Manual Initiation switches in the ~~main control room~~MCR. This action will cause actuation of all components in the same manner as any of the automatic actuation signals. MIC-03-16-00007

The LCO for the Manual Initiation Function ensures the proper amount of redundancy is maintained in the manual ESFAS actuation circuitry to ensure the operator has manual ESFAS initiation capability.

Each train consists of one push button and the interconnecting wiring to the actuation logic cabinet. Each push button actuates its own train directly. A signal from each pushbutton is also interfaced to all other trains via internal PSMS communication links. In addition to direct actuation by its own train pushbutton, each train is also actuated by two out of three Manual Initiation signals received from the other trains. The signals from the other trains are not credited in determining when the Manual Initiation Function is OPERABLE or in determining the number of required trains. However, these additional signals are considered in the Completion Times for the Required Actions. MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. ECCS Actuation - Actuation Logic and Actuation Outputs

This LCO requires three trains to be OPERABLE. Actuation logic consists of all circuitry housed within the actuation subsystems, including the actuation output devices responsible for actuating the ESF equipment.

Manual and automatic initiation of ECCS must be OPERABLE in MODES 1, 2, and 3. In these MODES, there is sufficient energy in the primary and secondary systems to warrant automatic initiation of ESF systems. Manual Initiation is also required in MODE 4 even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a PA, but because of the large number of components actuated on an ECCS, actuation is simplified by the use of the manual actuation push buttons. Actuation Logic and aActuation oOutputs must be OPERABLE in MODE 4 to support system level mManual iInitiation. MIC-03-16-00007

These Functions are not required to be OPERABLE in MODES 5 and 6 because there is adequate time for the operator to evaluate unit conditions and respond by manually starting individual systems, pumps, and other equipment to mitigate the consequences of an abnormal condition or accident. Unit pressure and temperature are very low and many ESF components are administratively locked out or otherwise prevented from actuating to prevent inadvertent over-pressurization of unit systems. MIC-03-16-00007

c. ECCS Actuation - High Containment Pressure

This signal provides protection against the following accidents:

- SLB inside containment,
- LOCA, and
- Feed line break inside containment.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

High Containment Pressure provides no input to any control functions. There are four High Containment Pressure channels in a two-out-of-four logic configuration. Three OPERABLE channels are sufficient to satisfy protective requirements with a two-out-of-three logic. The transmitters (d/p cells) and electronics are located outside of containment with the sensing line (high pressure side of the transmitter) located inside containment.

Thus, the high pressure Function will not experience any adverse environmental conditions and the Nominal Trip Setpoint reflects only steady state instrument uncertainties. MIC-03-16-00007

High Containment Pressure must be OPERABLE in MODES 1, 2, and 3 ~~when~~. In these MODES, there is sufficient energy in the primary and secondary systems to pressurize the containment following a pipe break. In MODES 4, 5, and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment. MIC-03-16-00007

d. ECCS Actuation - Low Pressurizer Pressure

This signal provides protection against the following accidents:

- Inadvertent opening of a steam generator (SG) relief or safety valve,
- SLB,
- A spectrum of rod cluster control assembly ejection accidents (rod ejection),
- Inadvertent opening of a pressurizer relief or safety valve,
- LOCAs, and
- SG Tube Rupture.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

There are four Low Pressurizer Pressure channels in a two-out-of-four logic configuration. Pressurizer Pressure provides both control and protection functions: input to the Pressurizer Pressure Control System, ~~r~~Reactor ~~t~~Trip, and ECCS. The interface from the safety channels in the PSMS to the PCMS is through the Signal ~~Selector~~Selection Algorithm (SSA). ~~The~~When three or more Low Pressurizer Pressure channels are OPERABLE, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE Low Pressurizer Pressure channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared Low Pressurizer Pressure channels.

MIC-03-16-00007
MIC-03-16-00007
MIC-03-16-00007

The transmitters are located inside containment, with the taps in the vapor space region of the pressurizer, and thus possibly experiencing adverse environmental conditions (LOCA, SLB inside containment, rod ejection). Therefore, the Nominal Trip Setpoint reflects the inclusion of both steady state and adverse environmental instrument uncertainties.

MIC-03-16-00007

This Function must be OPERABLE in MODES 1~~,~~ and 2, and in MODE 3 ~~(~~above the P-11~~)~~ setpoint to mitigate the consequences of an HELB inside containment. This signal may be manually ~~blocked~~bypassed by the operator in MODE 3 below the P-11 setpoint. Automatic ECCS ~~a~~Actuation below this pressure setpoint is then performed by the High Containment Pressure signal.

MIC-03-16-00007
MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

This Function is not required to be OPERABLE in MODE 3 below the P-11 setpoint, because the plant is in hot standby in preparation for a startup or shutdown process. Under hot standby conditions, reactor power is limited to decay heat so LOCA is not a critical condition in this situation. For SLB, the RCS boron concentration is higher (larger shutdown margin) and the moderator density coefficient is smaller due to the higher boron concentration compared to the FSAR Chapter 15 analysis. Thus, there is no need for automatic ECCS Actuation under these less limiting conditions. Therefore, when shutting down, the Low Pressurizer Pressure ECCS signal can be bypassed in MODE 3 below the P-11 setpoint. There is sufficient time margin for manual ECCS Actuation, if necessary. When starting up, the Low Pressurizer Pressure ECCS signal is automatically enabled above the P-11 setpoint. MIC-03-16-0 0007

Other ESF functions are used to detect accident conditions and actuate the ESF systems in this MODE. In MODES 4, 5, and 6, this Function is not needed for accident detection and mitigation.

e. ECCS Actuation - Low Main Steam Line Pressure

Low Main Steam Line Pressure provides protection against the following accidents:

- SLB,
- Feed line break, and
- Inadvertent opening of an SG relief or an SG safety valve.

~~Low Main Steam Line Pressure provides no input to any control functions.~~ There are four Low Main Steam Line Pressure channels on each steam line in a two-out-of-four logic configuration. Main Steam Line Pressure provides control inputs to the Steam Generator Pressure Control System, and protection inputs to ECCS and Main Steam Line Isolation protective functions. The interface from the safety channels in the PSMS to the PCMS is through the Signal Selection Algorithm (SSA). When three or more Main Steam Line Pressure channels are OPERABLE, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection MIC-03-16-0 0007 MIC-03-16-0 0007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three OPERABLE channels on each steam line are sufficient to satisfy the protective requirements with a two-out-of-three logic on each steam line. When there are less than three OPERABLE Main Steam Line Pressure channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared Main Steam Line Pressure channels. MIC-03-16-00007 MIC-03-16-00007

This Function is anticipatory and has a typical lead/lag ratio of 50/5dynamic transfer function. The Time Constants for this Function are recorded and maintained in a document established by the Setpoint Control Program (SCP).

Low Main Steam Line Pressure must be OPERABLE in MODES 1, and 2, and MODE 3 (above the P-11) when setpoint. In these MODES, a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines. This signal may be manually blockedbypassed by the operator in MODE 3 below the P-11 setpoint. Below P-11, feed line break is not a concern. Inside containment SLB will be terminated by automatic ECCS actuation via High Containment Pressure, and outside containment SLB will be terminated by the High Main Steam Line Pressure Negative Rate signal for main steam line isolation. MIC-03-16-00007 MIC-03-16-00007

This Function is not required to be OPERABLE in MODE 3 below the P-11 setpoint because the plant is in hot standby in preparation for a startup or shutdown process. Under hot standby conditions, the RCS boron concentration is higher (larger shutdown margin) and the moderate density coefficient is smaller due to the higher boron concentration compared to the FSAR Chapter 15 analysis. Thus, there is no need for automatic ECCS Actuation under these less limiting conditions. Therefore, when shutting down, the Low Main Steam Line Pressure ECCS signal can be bypassed in MODE 3 below the P-11 setpoint. There is sufficient time margin for manual ECCS Actuation, if necessary. However, considering the potential impact to containment integrity due to pressure increase from a SLB, the High Main Steam Line Pressure Negative Rate signal is required to be OPERABLE in MODE 3 below the P-11 setpoint to provide automatic Main Steam Line Isolation. The High Main Steam Line Pressure Negative Rate signal is automatically enabled when the Low Main Steam

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Line Pressure ECCS signal is bypassed. When starting up, the Low Main Steam Line Pressure ECCS signal is automatically enabled above the P-11 setpoint, and the High Main Steam Line Pressure Negative Rate signal is automatically disabled. MIC-03-16-00007

This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to cause an accident.

2. Containment Spray

Containment Spray provides two primary functions:

1. Lowers containment pressure and temperature after an HELB in containment, and

2. Reduces the amount of radioactive iodine in the containment atmosphere.

These functions are necessary to:

- Ensure the pressure boundary integrity of the containment structure,
- Limit the release of radioactive iodine to the environment in the event of a failure of the containment structure, and
- Minimize corrosion of the components and systems inside containment following a LOCA.

The ~~c~~Containment ~~s~~Spray actuation signal starts the containment spray pumps and aligns the discharge of the pumps to the containment spray nozzle headers in the upper levels of containment. Containment spray is actuated manually or by High 3 Containment Pressure. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a. Containment Spray - Manual Initiation

MIC-03-16-00007

The operator can initiate ~~c~~Containment ~~s~~Spray at any time from the ~~main control room~~MCR by simultaneously actuating two ~~c~~Containment ~~s~~Spray actuation switches per train for any two~~-~~-out~~-~~-of~~-~~-four trains. Because an inadvertent actuation of ~~c~~Containment ~~s~~Spray could have such serious consequences, two switches must be actuated ~~simultaneously~~concurrently to initiate ~~c~~Containment ~~s~~Spray for each train. There are four sets of two switches each in the ~~main control room~~MCR. ~~Simultaneously~~Concurrently actuating the two switches will actuate ~~c~~Containment ~~s~~Spray in each train in the same manner as the automatic actuation signal. ~~Two~~Therefore, two Manual Initiation switches in ~~each of three trains~~a train are required to be OPERABLE for a train to ~~ensure no single failure disables the Manual Initiation Function.~~be OPERABLE. Note that Manual Initiation of ~~c~~Containment ~~s~~Spray also actuates Phase B ~~c~~Containment ~~i~~Isolation.

MIC-03-16-00007

Each train consists of two push buttons and the interconnecting wiring to the actuation logic cabinet. Each push button actuates its own train directly through two out of two logic. A signal from the output of this two out of two logic is also interfaced to all other trains via internal PSMS communication links. In addition to direct actuation by its own train pushbuttons, each train is also actuated by two out of three Manual Initiation signals received from the other trains. The signals from the other trains are not credited in the determining when the Manual Initiation Function is OPERABLE or in determining the number of required trains. However, these additional signals are considered in the Completion Times for the Required Actions.

For Containment Spray only two 50% trains are needed to achieve 100% capacity; therefore, only three of four trains of manual initiation are needed to meet the single failure criteria. However, for Phase B Containment Isolation, although only two trains are needed to meet the single failure criteria for any single containment penetration, the containment penetrations are distributed to all four trains. Therefore, since Containment Spray - Manual Initiation is a combined Function for Containment Spray and Phase B Containment Isolation, two switches in each of all four trains are required to be OPERABLE.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. Containment Spray - Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

Manual and automatic initiation of cContainment sSpray must be OPERABLE in MODES 1, 2, and 3 when. In these MODES, there is a potential for an accident to occur, and sufficient energy in the primary or secondary systems to pose a threat to containment integrity due to overpressure conditions. Manual initiation is also required in MODE 4, even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a PA. However, because of the large number of components actuated on a cContainment sSpray, actuation is simplified by the use of the manual actuation push buttons. Actuation Logic and Actuation Outputs must be OPERABLE in MODE 4 to support system level mManual iInitiation. In MODES 5 and 6, there is insufficient energy in the primary and secondary systems to result in containment overpressure. In MODES 5 and 6, there is also adequate time for the operators to evaluate unit conditions and respond, to mitigate the consequences of abnormal conditions by manually starting individual components. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

c. Containment Spray - High-3 Containment Pressure

This signal provides protection against a LOCA or an SLB inside containment. The transmitters (d/p cells) are located outside of containment with the sensing line (high pressure side of the transmitter) located inside containment. The transmitters and electronics are located outside of containment. Thus, they will not experience any adverse environmental conditions and the Nominal Trip Setpoint reflects only steady state instrument uncertainties. MIC-03-16-00007

High-3 Containment Pressure has four channels in a two-out-of-four logic configuration. Three OPERABLE channels are sufficient to satisfy protective requirements with two-out-of-three logic.

High-3 Containment Pressure must be OPERABLE in MODES 1, 2, and 3 when. In these MODES, there is sufficient energy in the primary and secondary sides to pressurize the containment following a pipe break. In MODES 4, 5, and 6, there is insufficient energy in the primary and secondary sides to pressurize the containment and reach the High-3 Containment Pressure setpoint. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

3. Containment Isolation

Containment Isolation provides isolation of the containment atmosphere, and all process systems that penetrate containment, from the environment. This Function is necessary to prevent or limit the release of radioactivity to the environment in the event of a large break LOCA.

For any single containment penetration, isolation can be accomplished by either of two redundant trains. However, all ~~c~~Containment ~~i~~Isolation functions are distributed among all four ESFAS trains. MIC-03-16-00007

There are two separate Containment Isolation signals, Phase A and Phase B. Phase A ~~i~~Isolation isolates all automatically isolable process lines, except component cooling water (CCW), at a relatively low containment pressure indicative of primary or secondary system leaks. For these types of events, forced circulation cooling using the reactor coolant pumps (RCPs) and SGs is the preferred (but not required) method of decay heat removal. Since CCW is required to support RCP operation, not isolating CCW on the low pressure Phase A signal enhances unit safety by allowing operators to use forced RCS circulation to cool the unit. Isolating CCW on the low pressure signal may force the use of feed and bleed cooling, which could prove more difficult to control. MIC-03-16-00007

Phase A ~~c~~Containment ~~i~~Isolation is actuated automatically by ECCS Actuation, or manually via the Actuation Logic. All process lines penetrating containment, with the exception of CCW, are isolated. MIC-03-16-00007

CCW is not isolated at this time to permit continued operation of the RCPs with cooling water flow to the thermal barrier heat exchangers and air or oil coolers. All process lines not equipped with remote operated isolation valves are manually closed, or otherwise isolated, prior to reaching MODE 4.

Manual Phase A Containment Isolation is accomplished by two switches in the ~~main control room~~MCR. Each push button actuates its own train directly. ~~A signal from each pushbutton is also interfaced to all other trains via internal PSMS communication links. In addition to direct actuation by its own train pushbutton, each train is also actuated by two out of three Manual Initiation signals received from the other trains.~~ MIC-03-16-00007

Note that manual actuation of Phase A Containment Isolation also actuates Containment Purge Isolation.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Phase B signal isolates CCW. This occurs at a relatively high containment pressure that is indicative of a large break LOCA or an SLB. For these events, forced circulation using the RCPs is no longer desirable. Isolating the CCW at the higher pressure does not pose a challenge to the containment boundary because the CCW System is a closed loop inside containment. Although some system components do not meet all of the ASME Code requirements applied to the containment itself, the system is continuously pressurized to a pressure greater than the Phase B setpoint. Thus, routine operation demonstrates the integrity of the system pressure boundary for pressures exceeding the Phase B setpoint. Furthermore, because system pressure exceeds the Phase B setpoint, any system leakage prior to initiation of Phase B ~~i~~Isolation would be into containment. MIC-03-16-00007 Therefore, the combination of CCW System design and Phase B ~~i~~Isolation ensures the CCW System is not a potential path for radioactive release from containment. MIC-03-16-00007

Phase B ~~c~~Containment ~~i~~Isolation is actuated by the same signals that actuate Containment Spray including High-3 Containment Pressure, or Containment Spray - Manual Initiation, via the Actuation Logic. MIC-03-16-00007 For containment pressure to reach a value high enough to actuate High-3 Containment Pressure, a large break LOCA or SLB must have occurred, and ~~c~~Containment ~~s~~Spray must have been actuated. MIC-03-16-00007 RCP operation will no longer be required and CCW to the RCPs is, therefore, no longer necessary. The RCPs can be operated with seal injection flow alone and without CCW flow to the thermal barrier heat exchanger.

Manual Phase B Containment Isolation is accomplished by the same switches that actuate Containment Spray. When the two switches per train for two~~-~~-out~~-~~-of~~-~~-four trains ~~-~~are actuated ~~simultaneously~~concurrently, Phase B Containment Isolation and Containment Spray will be actuated in all trains. MIC-03-16-00007

a. <u>Containment Isolation - Phase A Isolation</u>

(1) <u>Phase A Isolation - Manual Initiation</u>

Manual Phase A Containment Isolation is actuated by two switches in the ~~main control room~~MCR. Each push button actuates its own train directly. MIC-03-16-00007

Note that ~~m~~Manual ~~i~~Initiation of Phase A Containment Isolation also actuates Containment Purge Isolation. MIC-03-1600007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

(2) Phase A Isolation - Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. Phase A Isolation valves are distributed to Trains A and D. Both trains must be OPERABLE.

Manual and automatic initiation of Phase A Containment Isolation must be OPERABLE in MODES 1, 2, and 3~~, when~~. In these MODES, there is a potential for an accident to occur. Manual ~~i~~Initiation is also required in MODE 4 even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a PA, but because of the large number of components actuated on a Phase A Containment Isolation, actuation is simplified by the use of the manual actuation push buttons. Actuation Logic and ~~a~~Actuation ~~o~~Outputs must be OPERABLE in MODE 4 to support system level ~~m~~Manual ~~i~~Initiation. In MODES 5 and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment to require Phase A Containment Isolation. There also is adequate time for the operator to evaluate unit conditions and manually actuate individual isolation valves in response to abnormal or accident conditions. MIC-03-16-00007 MIC-03-16-00007

(3) Phase A Isolation - ECCS Actuation

Phase A Containment Isolation is also initiated by all Functions that initiate ECCS Actuation. The Phase A Containment Isolation requirements for these Functions are the same as the requirements for their ECCS Actuation function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, ECCS Actuation, is referenced for all initiating Functions and requirements. Note that all four Containment Isolation trains are actuated when any two-out-of-four ECCS Actuation - Automatic or Manual Initiation signals are actuated. MIC-03-16-00007

b. Containment Isolation - Phase B Isolation

Phase B Containment Isolation is accomplished by Manual Initiation, Actuation Logic and Actuation Outputs, and by Containment Pressure channels (the same channels that actuate Containment Spray, Function 2).

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

(1) Phase B Isolation - Manual Initiation

Phase B Containment Isolation is manually initiated by Containment Spray – Manual Initiation. The Phase B Containment Isolation requirements for these Functions are the same as the requirements for their Containment Spray function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 2, Containment Spray, is referenced for all initiating Functions and requirements.

Note that all four Phase B Containment Isolation trains are actuated when any two~~-~~-out~~-~~-of~~-~~-four Containment Spray – Manual Initiation signals are actuated. MIC-03-16-0 0007

(2) Phase B Isolation - Actuation Logic and Actuation Outputs

Manual and automatic initiation of Phase B ~~c~~Containment ~~i~~Isolation must be OPERABLE in MODES 1, 2, and 3~~, when~~. In these MODES, there is a potential for an accident to occur. Manual ~~i~~Initiation is also required in MODE 4 even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a PA. However, because of the large number of components actuated on a Phase B ~~c~~Containment ~~i~~Isolation, actuation is simplified by the use of the manual actuation push buttons. Actuation Logic and ~~a~~Actuation ~~o~~Outputs must be OPERABLE in MODE 4 to support system level ~~m~~Manual ~~i~~Initiation. In MODES 5 and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment to require Phase B ~~c~~Containment ~~i~~Isolation. There also is adequate time for the operator to evaluate unit conditions and manually actuate individual isolation valves in response to abnormal or accident conditions. MIC-03-16-0 0007 MIC-03-16-0 0007 MIC-03-16-0 0007 MIC-03-16-0 0007

Four trains of Phase B Containment Isolation - Actuation Logic and Actuation Outputs must be ~~operable~~OPERABLE due to the distribution of ~~c~~Containment ~~i~~Isolation ~~v~~Valves to all four trains. MIC-03-16-0 0007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

4. Main Steam Line Isolation

Isolation of the main steam lines provides protection in the event of an SLB inside or outside containment. Rapid isolation of the main steam lines will limit the steam break accident to the blowdown from one SG, at most. For an SLB upstream of the main steam isolation valves (MSIVs), inside or outside of containment, closure of the MSIVs limits the accident to the blowdown from only the affected SG. For an SLB downstream of the MSIVs, closure of the MSIVs terminates the accident as soon as the main steam lines depressurize. Main Steam Line Isolation also mitigates the effects of a feed line break and ensures a source of steam for the turbine driven EFW pump during a feed line break.

Main Steam Line Isolation components are distributed to Trains A and D.

a. Main Steam Line Isolation - Manual Initiation

Manual ~~i~~Initiation of Main Steam Line Isolation can be accomplished from the ~~main control room~~MCR. There are two switches in the ~~main control room~~MCR, one for each train. ~~Either~~Each MSIV is actuated from both trains. Therefore, either switch can initiate action to immediately close all MSIVs. The LCO requires two trains to be OPERABLE. MIC-03-16-00007

b. Main Steam Line Isolation - Actuation Logic and Actuation Outputs

Actuation Logic and ~~a~~Actuation ~~o~~Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. Main Steam Line Isolation valves are distributed to Trains A and D. Both trains must be OPERABLE. MIC-03-16-00007

Manual Initiation and ~~automatic initiation~~Actuation Logic and Actuation Outputs of Main Steam Line Isolation must be OPERABLE in MODES 1, 2, and 3~~ when~~. In these MODES, there is sufficient energy in the RCS and SGs to have an SLB or other accident. This could result in the release of significant quantities of energy and cause a cooldown of the primary system. ~~The Main Steam Line Isolation Function is required in MODES 2 and 3 unless all MSIVs are closed.~~ In MODES 4, 5, and 6, there is insufficient energy in the RCS and SGs to experience an SLB or other accident releasing significant quantities of energy. MIC-03-16-00007 MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

c. Main Steam Line Isolation - High-High Containment Pressure

This Function actuates closure of the MSIVs in the event of a LOCA or an SLB inside containment to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment. The transmitters (d/p cells) are located outside containment with the sensing line (high pressure side of the transmitter) located inside containment. High-High Containment Pressure provides no input to any control functions. There are four High-High Containment Pressure channels in a two-out-of-four logic configuration. Three OPERABLE channels are sufficient to satisfy protective requirements with two-out-of-three logic. The transmitters and electronics are located outside of containment. ~~Thus~~Therefore, they will not experience any adverse environmental conditions~~, and the~~. The Nominal Trip Setpoint reflects only steady state instrument uncertainties. MIC-03-16-00007

High-High Containment Pressure must be OPERABLE in MODES 1, 2, and 3~~, when~~. In these MODES, there is sufficient energy in the primary and secondary side to pressurize the containment following a pipe break. This would cause a significant increase in the containment pressure, thus allowing detection and closure of the MSIVs. ~~The Main Steam Line Isolation Function remains OPERABLE in MODES 2 and 3 unless all MSIVs are closed.~~ In MODES 4, 5, and 6, there is not enough energy in the primary and secondary sides to pressurize the containment to the High-High Containment Pressure setpoint. MIC-03-16-00007 MIC-03-16-00007

d. Main Steam Line Isolation - Main Steam Line Pressure

(1) Low Main Steam Line Pressure

Low Main Steam Line Pressure provides closure of the MSIVs in the event of an SLB to maintain at least ~~one~~two unfaulted SGs as a heat sink for the reactor, and to limit the mass and energy release to containment. This Function provides closure of the MSIVs in the event of a feed line break to ensure a supply of steam for the turbine driven EFW pump. Low Main Steam Line Pressure was discussed previously under ECCS Function 1.e. MIC-03-16-00007

Low Main Steam Line Pressure Function must be OPERABLE in MODES 1 and 2, and MODE 3 above the P-11 setpoint, in these MODES, a secondary side break, spuriously opened valve, or stuck open valve could result in the rapid MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

MIC-03-16-00007

depressurization of the steam lines. This signal may be manually bypassed by the operator in MODE 3 below the P-11 setpoint. In MODE 3 below the P-11 setpoint, an SLB inside containment will be terminated by automatic actuation via the High-High Containment Pressure signal. Stuck valve transients and SLBs outside containment will be terminated by the High Main Steam Line Pressure Negative Rate signal for Main Steam Line Isolation in MODE 3 below the P-11 setpoint when ECCS has been manually bypassed.

This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident.

This Function has a dynamic transfer function. The Time Constants for this Function are recorded and maintained in a document established by the Setpoint Control Program (SCP).

(2) High Main Steam Line Pressure Negative Rate

High Main Steam Line Pressure Negative Rate provides closure of the all MSIVs for an SLB in MODE 3 below the P-11 setpoint, to maintain at least two unfaulted SGs as a heat sink for the reactor, and to limit the mass and energy release to containment. When the operator manually bypasses the Low Main Steam Line Pressure Main Steam Line Isolation signal in MODE 3 below the P-11 setpoint, the High Main Steam Line Pressure Negative Rate signal is automatically enabled. Main Steam Line Pressure provides both control and protection functions, as described previously under ECCS Function 1.e. There are four High Main Steam Line Pressure Negative Rate signals in a two-out-of-four logic configuration. Three OPERABLE channels are sufficient to satisfy requirements with a two-out-of-three logic on each steam line.

~~Low~~High Main Steam Line Pressure ~~Function~~Negative Rate must be OPERABLE in MODE~~S 1, 2, and~~ 3 ~~(above~~below the P-11~~), with any main steam valve open, when~~ setpoint. In this MODE, a secondary side break or stuck open valve could result in the rapid depressurization of the main steam line(s). ~~This signal may be manually blocked by the operator below~~Above the P-11 setpoint, ~~. Below P-11, an inside containment SLB will be terminated by automatic actuation via High-High Containment Pressure. Stuck Valve transients~~ this signal is automatically disable and ~~outside containment SLBs~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

will be terminated by the HighLow Main Steam Line Pressure Negative Rate signal for Steam Line Isolation below P-11 when ECCS has been manually blocked.is automatically enabled. The Main Steam Line Isolation Function is required in MODES 2 and 3 unless all MSIVs are closed. This Function is not required to be OPERABLE in MODES 1, 2 and 3. In MODES 4, 5, and 6 because, there is insufficient energy in the primary and secondary sides of the unit to have an SLB or other accident that would result in a release of significant enough quantities of energy to cause a cooldown of the RCS. MIC-03-16-00007

(2) High Main Steam Line Pressure Negative Rate

High Main Steam Line Pressure Negative Rate provides closure of the MSIVs for an SLB when less than the P-11 setpoint, to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment. When the operator manually blocks the Low Main Steam Line Pressure main steam isolation signal when less than the P-11 setpoint, the High Main Steam Line Pressure Negative Rate signal is automatically enabled. High Main Steam Line Pressure Negative Rate provides no input to any control functions. There are four High Main Steam Line Pressure Negative Rate signals in a two-out-of-four logic configuration. Three OPERABLE channels are sufficient to satisfy requirements with a two-out-of-three logic on each steam line.

While the transmitters may experience elevated ambient temperatures due to an SLB, the trip function is based on rate of change, not the absolute accuracy of the indicated steam pressure. Therefore, the Nominal Trip Setpoint reflects only steady state instrument uncertainties.

This Function has a dynamic transfer function. The Time Constants for this Function are recorded and maintained in a document established by the Setpoint Control Program (SCP).

All Main Steam Isolation Functions are applicable in MODES 1, 2 and 3 as stated above, regardless of valve position, because the Functions are credited to mitigate spurious valve opening from Operational VDUs. In MODES 4, 5, and 6, these Functions are not required to be OPERABLE, as stated above.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

High Main Steam Line Pressure Negative Rate must be OPERABLE in MODE 3 when less than the P-11 setpoint, when a secondary side break or stuck open valve could result in the rapid depressurization of the main steam line(s). In MODES 1 and 2, and in MODE 3, when above the P-11 setpoint, this signal is automatically disabled and the Low Main Steam Line Pressure signal is automatically enabled. The Main Steam Line Isolation Function is required to be OPERABLE in MODES 2 and 3 unless all MSIVs are closed. In MODES 4, 5, and 6, there is insufficient energy in the primary and secondary sides to have an SLB or other accident that would result in a release of significant enough quantities of energy to cause a cooldown of the RCS. MIC-03-16-00007

While the transmitters may experience elevated ambient temperatures due to an SLB, the trip function is based on rate of change, not the absolute accuracy of the indicated steam pressure. Therefore, the Trip Setpoint reflects only steady state instrument uncertainties.

5. Main Feedwater Isolation

5A. Main Feedwater Regulation Valve Closure

The primary function of the Main Feedwater Regulation Valve Closure is to stop the excessive flow of feedwater into the SGs. This Function is necessary to mitigate the effects of a high water level in the SGs, which could result in excessive cooldown of the primary system.

This Function is actuated when T_{avg} is less than the low setpoint coincident with reactor trip, and closes all the main Feedwater Regulation valves.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a. Main Feedwater Isolation - Low T_{avg} MIC-03-16-00007

There are four Low T_{avg} channels per loop in a two out of four configuration. Three channels of T_{avg} per loop are required to be OPERABLE. The T_{avg} channels are combined in a logic such that two out of three channels tripped cause a trip for the parameter. The accidents that this Function protects against cause reduction of T_{avg} in the entire primary system. Therefore, the provision of two OPERABLE channels in a two-out-of-four configuration ensures no single random failure disables the Low T_{avg} Function. The T_{avg} channels provide control inputs interfaced from the PSMS to the PCMS through an SSA. But the control function cannot initiate events that the Function acts to mitigate. Therefore, the SSA is not required to address control protection interaction issues.

With the T_{avg} resistance temperature detectors (RTDs) located inside the containment, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Trip Setpoint reflects both steady state and adverse environmental instrumental uncertainties.

The Main Feedwater Isolation - Low T_{avg} signal is enabled by the Main Feedwater Isolation - Reactor Trip, P-4 interlock, described below.

Coincident with Reactor Trip, P-4

The Main Feedwater Isolation - Low T_{avg} signal is enabled when the reactor is tripped as indicated by the P-4 interlock. Therefore, the requirements for the P-4 interlock are not repeated in Table 3.3.2-1. Instead, Function 11, Reactor Trip P-4, is referenced for the initiating Function and requirements. Note that all four Turbine Trip actuation trains are actuated when any two out of four RTB trains are actuated.

5B. Main Feedwater Isolation

5. Main Feedwater Isolation

The primary function of the Main Feedwater Isolation is to stop the excessive flow of feedwater into the SGs. This Function is necessary to mitigate the effects of a high water level in the SGs, which could

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

result in excessive cooldown of the primary system. The High SG Water Level is due to excessive feedwater flows.

The Function on High-High SG Water Level is actuated when the level in any SG exceeds the high-high setpoint., and MIC-03-16-00007

The Main Feedwater Isolation Function performs the following functions:

- Trips the MFW pumps,
- Initiates feedwater isolation, and MIC-03-16-00007
- Shuts the MFW regulatingIsolation valves, the MFW bypass feedwater regulating valves and the SG water filling control valves.
- Shuts the MFW Regulation Valves, the MFW Bypass Regulation Valves, and the SG Water Filling Control Valves.

This Function is actuated by High-High SG Water Level or by, an ECCS Actuation signal or manually., or Manual Initiation.

The ECCS Actuation signal was discussed previously.

The Function on Low T_{avg} coincident with Reactor Trip closes all the Main Feedwater Regulation valves.

Main Feedwater Isolation componentsValves, MFW Regulation Valves, MFW Bypass Regulation Valves, and SG Water Filling Control Valves are distributed to Trains A and D.

a. Main Feedwater Isolation - Manual Initiation

Manual iInitiation of Main Feedwater Isolation can be accomplished from the main control roomMCR. There are two switches in the main control roomMCR, one for each train. EitherEach of the valves is actuated from both trains. Therefore, either switch can initiate action to immediately closeactuate all feedwater isolation valves.Main Feedwater Isolation Components. The LCO requires two trains to be OPERABLE. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. Main Feedwater Isolation - Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. All Main Feedwater ~~i~~Isolation ~~valves~~Components are distributed to Trains A and D. Both trains must be OPERABLE. MIC-03-16-00007

c. Main Feedwater Isolation - High High Steam Generator Water Level

This signal provides protection against excessive feedwater flow. There are four High High Steam Generator Water Level channels in a two-out-of-four logic configuration for each Steam Generator. The ESFAS SG ~~w~~Water ~~l~~Level instruments provide input to the SG Water Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal ~~Selector~~Selection Algorithm (SSA). ~~The~~When there are three or more OPERABLE High-High Steam Generator Water Level channels for each Steam Generator, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE High-High Steam Generator Water Level channels for each Steam Generator, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for High-High Steam Generator Water Level channels, since there are only three required channels for each Steam Generator. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the Nominal Trip Setpoint reflects only steady state instrument uncertainties. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

d. Main Feedwater Isolation - ECCS Actuation

Main Feedwater Isolation is also initiated by all Functions that initiate ECCS Actuation. The Feedwater Isolation Function requirements for these Functions are the same as the requirements for their ECCS Actuation function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead Function 1, ECCS Actuation, is referenced for all initiating functions and requirements. Note that both Main Feedwater Isolation trains are actuated when any two-out-of-four ECCS Actuation - Automatic or Manual Initiation signals are actuated. MIC-03-16-00007

e. Main Feedwater Isolation - Low T_{avg} MIC-03-16-00007

This Function is actuated when Tavg is less than the low setpoint coincident with Reactor Trip. It closes only the Main Feedwater Regulation valves.

There are four Low T_{avg} channels (one per loop) in a two-out-of-four configuration. Three channels of T_{avg} are required to be OPERABLE. The T_{avg} channels are combined in a logic such that two out of three channels cause a trip for the Function. The accidents that this Function protects against cause reduction of Tavg in the entire primary system. Therefore, the provision of three OPERABLE channels in a two-out-of-four configuration ensures no single random failure disables the Low T_{avg} Function.

T_{avg} channels provide inputs to both control and protection functions. T_{avg} channels provide control inputs to the Rod Control System, Pressurizer Water Level Control System, and Turbine Bypass Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal Selection Algorithm (SSA). When three or more T_{avg} channels are OPERABLE, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE T_{avg} channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared T_{avg} channels.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

With the T_{avg} resistance temperature detectors (RTDs) located inside the containment, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Nominal Trip Setpoint reflects both steady state and adverse environmental instrument uncertainties. MIC-03-16-00007

The Main Feedwater Isolation - Low T_{avg} signal is enabled by the Main Feedwater Isolation - Reactor Trip, P-4 interlock, described below.

Coincident with Reactor Trip, P-4

The Main Feedwater Isolation - Low T_{avg} signal is enabled when the reactor is tripped as indicated by the P-4 interlock. Therefore, the requirements for the P-4 interlock are not repeated in Table 3.3.2-1. Instead, Function 11.a, Reactor Trip, P-4, is referenced for the initiating Function and requirements. Note that both Turbine Trip actuation trains, Trains A and D, are actuated when any two-out-of-four RTB trains are actuated.

All Main Feedwater Isolation Functions, except for the sub-function of High-High Steam Generator Water Level must be OPERABLE in MODES 1 and 2 and 3 except when all, which trips the MFW pumps and closes the MFIVs, MFRVs, MFBRVs and SGWFCVs are closed when the MFW System is in operation, must be OPERABLE in MODES 1, 2 and 3. In MODES 4, 5, and 6, the MFW System is not in service and this Function isthe Isolation Functions are not required to be OPERABLE.

The sub-function of the MFW Isolation on High-High Steam Generator Water Level, which trips the MFW pumps and closes the MFIVs and SGWFCVs, must be OPERABLE in MODES 1 and 2, and in MODE 3 (above the P-11) except when all MFIVs, MFRVs, MFBRVs and SGWFCVs are closed when the MFW System is in operation. This signalsetpoint. MIC-03-16-00007

The sub-function may be manually blockedbypassed by the operator below the P-11 setpoint. This function is not required to be OPERABLE in MODE 3 below the P-11 setpoint. This manual bypass is needed to allow control of steam generator water level using the SGWFCVs under these conditions. The MFIVs and SGWFCVs are configured in series such that the feedwater flow rate is limited by the SGWFCV capacity which is a very small fraction of the nominal feedwater flow. The manual bypass is acceptable because expected feedwater flow due to open SGWFCVs is not a critical concern under

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

these conditions. Sufficient time margin exists for manual SGWFCV closure, if necessary. Therefore, manual bypass of the automatic trip of MFW pumps and automatic closure of MFIVs and SGWFCVs on High-High SG Water Level in MODE 3 below the P-11 setpoint is acceptable and necessary to maintain the Steam Generators filled with water in preparation for shutdown conditions (wet layup operation). When starting up, the automatic trip of MFW pumps and automatic closure of MFIVs and SGWFCVs on High-High SG Water Level is automatically enabled above the P-11 setpoint. MIC-03-16-00007

These Functions are applicable in MODES 1, 2 and 3 as stated above, regardless of valve position, because the Functions are credited to mitigate spurious valve opening from Operational VDUs. In MODES 4, 5, and 6, the MFW System is not in service and this Function is not required to be OPERABLE.

6. Emergency Feedwater Actuation

The EFW Actuation System is designed to provide a secondary side heat sink for the reactor in the event that the MFW System is not available. The system has four trains, with two motor driven pumps and two turbine driven pumps, making it available during normal unit operation, during a loss of AC power, a loss of MFW, and during a Feedwater System pipe break. The LCO requires three OPERABLE EFW trains. The normal source of water for the EFW System is the Emergency Feedwater pit (EFW pit). This pit has a sufficient capacity to lead the plant safe shutdown. If the water level of EFW pit reached low-low level, operators are given alarm in ~~main control room~~MCR. MIC-03-16-00007 Then the EFW pumps will be stopped or the water source will be switched to Demineralized Water Storage Tank manually to keep the sufficient EFW if necessary.

a. Emergency Feedwater Actuation - Manual Initiation

Manual ~~i~~Initiation of Emergency Feedwater Actuation can be accomplished from the ~~main control room~~MCR. There are four switches in the ~~main control room~~MCR, one for each train. Each switch actuates its own train directly. A signal from each switch is also interfaced to all other trains via internal PSMS communication links. In addition to direct actuation by its own train switch, each train is also actuated by two out of three Manual Initiation signals received from the other trains. The signals from the other trains are not credited in determining when the Manual Initiation Functions is OPERABLE or in determining the number of required trains. However, these additional signals are considered in the Completion

MIC-03-16-00007

MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Times for the Required Actions. The LCO requires three trains to be OPERABLE MIC-03-16-00007

b. Emergency Feedwater Actuation - Actuation Logic and Actuation Outputs

Actuation Logic and aActuation oOutputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. Three trains must be OPERABLE. MIC-03-16-00007

c. Emergency Feedwater Actuation - Low Steam Generator Water Level

Low SG Water Level provides protection against a loss of heat sink. A feed line break, inside or outside of containment, or a loss of MFW, would result in a loss of SG water level. There are four Low SG Water Level channels in a two-out-of-four logic configuration. Low SG Water Level provides input to the SG Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal SelectorSelection Algorithm (SSA). TheWhen three or more Low SG Water Level channels are OPERABLE for each Steam Generator, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE Low SG Water Level channels for each Steam Generator, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for Low SG Water Level channels, since there are only three required channels for each Steam Generator. MIC-03-16-00007 MIC-03-16-00007

With the transmitters (d/p cells) located inside containment and thus possibly experiencing adverse environmental conditions (feed line break), the Nominal Trip Setpoint reflects the inclusion of both steady state and adverse environmental instrument uncertainties. MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

d. Emergency Feedwater Actuation - ECCS Actuation

An ECCS Actuation signals all four EFW trains. The EFW initiation functions are the same as the requirements for their ECCS Actuation function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, ECCS Actuation, is referenced for all initiating functions and requirements.

e. Emergency Feedwater Actuation - Loss of Offsite Power

A loss of offsite power will be accompanied by a loss of reactor coolant pumping power and the subsequent need for some method of decay heat removal. The loss of offsite power is detected by a voltage drop on each Class 1E bus (4 trains). The voltage drop is detected by three undervoltage devices on each bus, in a two out of three configuration. Loss of ~~p~~Power to a Class 1E bus will actuate its respective EFW train (with either its motor or turbine driven pump). This ensures that, for a sitewide loss of offsite power, at least two SGs contain enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the ~~r~~Reactor ~~t~~Trip. MIC-03-16-00007 MIC-03-16-00007

The LCO requires three OPERABLE undervoltage devices on each Class 1E bus corresponding to each OPERABLE EFW train.

This Function has Time Delays. The Time Delays for this Function are recorded and maintained in a document established by the Setpoint Control Program (SCP). MIC-03-16-00007

Functions 6.a through 6.e must be OPERABLE in MODES 1, 2, and 3 to ensure that the SGs remain the heat sink for the reactor. Low SG Water Level in any operating SG will cause the EFW trains to actuate. The system is aligned so that upon a start of the EFW pump, water immediately begins to flow to the SGs. These Functions do not have to be OPERABLE in MODES 5 and 6 because there is not enough heat being generated in the reactor to require the SGs as a heat sink. In MODE 4, EFW actuation does not need to be OPERABLE because either EFW or residual heat removal (RHR) will already be in operation to remove decay heat or sufficient time is available to manually place either system in operation.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

f. Emergency Feedwater Actuation - Trip of All Main Feedwater Pumps

A Trip of all MFW pumps is an indication of a loss of MFW and the subsequent need for some method of decay heat and sensible heat removal to bring the reactor back to no load temperature and pressure. Each motor driven MFW pump is equipped with ~~a~~redundant breaker position sensing devices. An open supply breaker indicates that the pump is not running. Emergency Feedwater Actuation on ~~t~~Trip of ~~a~~All ~~m~~Main ~~f~~Feedwater ~~p~~Pumps is an anticipatory function that is not credited in the safety analysis. Therefore, this function does not need to meet the single failure criterion; the LCO requires one OPERABLE channel per pump (i.e., one of the redundant breaker position sensing devices on each pump). A trip of all MFW pumps actuates all EFW trains to ensure that at least two SGs are available with water to act as the heat sink for the reactor. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

This function must be OPERABLE in MODES 1 and 2. This ensures that at least two SGs ~~is~~are provided with water to serve as the heat sink to remove reactor decay heat and sensible heat in the event of an accident. In MODES 3, 4, and 5, the MFW pumps may be normally shut down, and thus ~~neither~~MFW pump trip is not indicative of a condition requiring automatic EFW initiation. MIC-03-16-00007 MIC-03-16-00007

7. Emergency Feedwater Isolation

One of the objectives of EFW Isolation is to prevent SG overfill in the event of SGTR. The Other objective of EFW Isolation is to stop the flow of EFW into the affected SG in the event of MSLB. For both objectives, the EFW ~~i~~Isolation Functions are automatically actuated by High SG Water Level signal, or by Low Main Steam Line Pressure signal. The Function may also be actuated manually. ~~EFW Isolation is distributed to Trains A and D~~The EFW Isolation Function is actuated separately for each SG, either manually or automatically. EFW Isolation valves are distributed to all four trains, with two trains of valves for each SG. MIC-03-16-00007 MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

a. Emergency Feedwater Isolation - Manual Initiation

This LCO requires 2 Manual EFW Isolation Actuation - Manual Initiation trains for each SG. This Function closes the EFW Isolation Valve for the SG associated with the switchesEach Manual Initiation train closes the EFW isolation valve for one train on one SG. Two Manual Initiation trains must be OPERABLE for each SG to ensure each SG can be isolated with a single failure. MIC-03-16-00007

b. Emergency Feedwater Isolation - Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. Emergency Feedwater isolation valves are distributed to Trains A and D. Trains AEach Actuation Logic and Actuation Outputs train closes the EFW isolation valve for one train on one SG. Two Actuation Logic and DActuation Outputs trains for each SG must be OPERABLE to ensure each SG can be isolation with a single failure. MIC-03-16-00007

Manual and automatic initiation of EFW Isolation Functions must be OPERABLE in MODES 1, 2 and 3 when. In these MODES, the SGs are in operation. In MODES 4, 5, and 6, SGs are not in service and this Function is not required to be OPERABLE. MIC-03-16-00007

c. Emergency Feedwater Isolation - High Steam Generator Water Level Coincident with P-4 signal and No Low Main Steam Line Pressure

This signal provides protection against damaged SG overfill. There are four High Steam Generator Water Level channels in a two-out-of-four logic configuration for each Steam Generator. The ESFAS SG wWater lLevel instruments provide input to the SG Water Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal SelectorSelection Algorithm (SSA). TheWhen three or more High SG Water Level channels are OPERABLE for each Steam Generator, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE High SG Water Level channels for each Steam Generator, the SSA cannot prevent erroneous control MIC-03-16-00007 MIC-03-16-00007 MIC-03-1600007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

system operation due to an input failure. This is reflected in the LCO Completion Times for High SG Water Level channels, since there are only three required channels for each Steam Generator. MIC-03-16-00007

The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the Nominal Trip Setpoint reflects only steady state instrument uncertainties. MIC-03-16-00007

High Steam Generator Water Level must be OPERABLE in MODES 1, 2 and 2, and MODE 3 (above the P-11) when setpoint. In these MODES, the SGs are in operation. This signal may be manually blockedbypassed by the operator in MODE 3 below the P-11 setpoint. This function is not required to be OPERABLE in MODE 3 below the P-11 setpoint., because the plant may be transitioning from using the SGs as a heat sink to using the RHR system. This function is bypassed in MODE 3 below the P-11 setpoint to allow the operator to control EFW during the transition to RHR cooling and to maintain the Steam Generators filled with water in preparation for shutdown conditions (wet layup operation). When starting up, the High Steam Generator Water Level signal is automatically enabled above the P-11 setpoint. MIC-03-16-00007 MIC-03-16-00007

In MODES 4, 5, and 6, SGs are not in service and this Function is not required to be OPERABLE.

d. Emergency Feedwater Isolation - Low Main Steam Line Pressure

This signal provides protection against excessive cooling from damaged SG. A steam line break or a feed line brakebreak inside of containment, would result in a low steam line pressure. MIC-03-16-00007

LowMain Steam Line Pressure provides no input to anyboth control and protection functions., as described previously under ECCS Function 1.e. There are four Low Main Steam Line Pressure channels on each steam line in a two-out-of-four logic configuration. Three OPERABLE channels on each main steam line are sufficient to satisfy the protective requirements with a two-out-of-three logic on each steam line.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Low Main Steam Line Pressure must be OPERABLE in MODES 1, and 2, and MODE 3 (above the P-11) when setpoint. In these MODES, the SGs are in operation. This signal may be manually blockedbypassed by the operator in MODE 3 below the P-11 setpoint. This function is not required to be OPERABLE in MODE 3 below the P-11 setpoint., because a secondary break is not limiting under these conditions, as described previously. There is sufficient time margin for manual Emergency Feedwater Isolation, if necessary. When starting up, the Low Main Steam Line Pressure signal is automatically enabled above the P-11 setpoint. MIC-03-16-00007

In MODES 4, 5, and 6, SGs are not in service and this Function is not required to be OPERABLE.

8. CVCS Isolation

The objective of CVCS Isolation is to prevent Pressurizer overfill in the event of a CVCS malfunction. For this objective, the CVCS Isolation is automatically actuated by High Pressurizer Water Level signal. The Function may also be actuated manually.

CVCS Isolation valves are distributed to Trains A and D. Both trains must be OPERABLE.

a. CVCS Isolation – Manual Initiation

Manual iInitiation of CVCS Isolation can be accomplished from the main control roomMCR. There are two switches in the main control roomMCR, one for each train. Each CVCS Isolation Valve is actuated from both trains. Therefore, either switch can initiate action to immediately close all CVCS Isolation Valves. This LCO requires 2 Manual CVCS Isolation Actuation switches. Operation of either switch will actuate this Function. MIC-03-16-00007

b. CVCS Isolation – Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. CVCS Isolation valves are distributed to Trains A and D. Both trains must be OPERABLE.

Manual and automatic initiation of CVCS Isolation Functions must be OPERABLE in MODES 1, 2 and 3. In MODES 4, 5, and 6, the Pressurizer may be filled with water and this Function is not required to be OPERABLE.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

c. CVCS Isolation - High Pressurizer Water Level

This signal provides protection against that the Pressurizer overfill in the event of CVCS malfunction.

There are four High Pressurizer Water Level channels in a two-out-of-four logic configuration. Pressurizer Water Level provides input to the Pressurizer Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal ~~Selector~~Selection Algorithm (SSA). When three or more High Pressurizer Water Level channels are OPERABLE, ~~T~~the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE High Pressurizer Water Level channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for High Pressurizer Water Level channels, since there are only three required channels. MIC-03-16-00007 MIC-03-16-00007

The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the Nominal Trip Setpoint reflects only steady state instrument uncertainties. MIC-03-16-00007

High Pressurizer Water Level must be OPERABLE in MODES 1~~, 2~~ and 2, and MODE 3 ~~(~~above the P-11~~).~~ setpoint. This signal may be manually ~~blocked~~bypassed by the operator in MODE 3 below the P-11 setpoint. This function is not required to be OPERABLE in MODE 3 below the P-11 setpoint~~.~~, because the Pressurizer Water Level is much lower than in higher MODES providing a larger time margin to the pressurizer becoming full. Therefore, the automatic CVCS Isolation on High Pressurizer Water Level function is not required under these conditions. When starting up, the High Pressurizer Water Level signal is automatically enabled above the P-11 setpoint. MIC-03-16-00007 MIC-03-16-00007

In MODES 4, 5, and 6, the Pressurizer may be filled with water and this Function is not required to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

9. Turbine Trip

The primary functions of the Turbine Trip are to prevent damage to the turbine due to water in the steam lines, and to stop the excessive cooldown of the primary system.

The Turbine Trip Function is actuated by High-High Steam Generator Water Level or on Reactor Trip~~(~~, P-4~~)~~. MIC-03-16-00007

a. Turbine Trip - Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. Four Turbine ~~t~~Trip solenoid valves are arranged in a ~~selective one~~two~~-~~-out~~-~~-of~~-~~-two ~~twice~~ configuration~~.~~, taken separately for Train A ~~turbine trip will occur from Turbine Trip actuation from Trains A or C,~~ and Train~~s B or~~ D. A Turbine Trip will be generated by Train A or Train D. Therefore a single train failure will not prevent a valid Turbine Trip. The LCO requires ~~all four~~two trains, Trains A and D, to be OPERABLE. MIC-03-16-00007

b. Turbine Trip - Reactor Trip, P-4

The turbine is tripped on a ~~r~~Reactor ~~t~~Trip. Turbine trip on ~~r~~Reactor ~~t~~Trip is an un-credited non-safety function in the safety analysis. However, ~~t~~Turbine ~~t~~Trip on ~~r~~Reactor ~~t~~Trip is assumed in the safety analysis in order to prevent unnecessary ECCS Actuation and to shift to the safe shutdown state by appropriate actions after AOO and PA conditions. MIC-03-16-00007

Turbine Trip is initiated when the reactor trips as indicated by the P-4 interlock. Therefore, the requirements for the P-4 interlock are not repeated in Table 3.3.2-1. Instead, Function 11, Reactor Trip P-4, is referenced for the initiating Function and requirements. Note that ~~all four~~both Turbine Trip actuation trains, Trains A and D, are actuated when any two~~-~~-out~~-~~-of~~-~~-four RTB trains are actuated. MIC-03-16-00007

c. High-High Steam Generator Water Level

The High-High Steam Generator Water Level signal prevents water in the steam lines that could lead to turbine generator damage. Turbine trip on High-High Steam Generator Water Level is an un-credited non-safety function in the safety analysis.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

There are four High-High Steam Generator Water Level channels in a two-out-of-four logic configuration for each Steam Generator. Note that both Turbine Trip actuation trains, Tains A and D, are actuated when any two-out-of-four High-High Steam Generator Water Level channels are actuated. MIC-03-16-00007

The PSMS SG wWater lLevel instruments provide input to the SG Water Level Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal SelectorSelection Algorithm (SSA). TheWhen three or more High-High SG Water Level channels are OPERABLE for each Steam Generator, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE High-High SG Water Level channels for each Steam Generator, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for High-High SG Water Level channels, since there are only three required channels for each Steam Generator. MIC-03-16-00007 MIC-03-16-00007

10. Reactor Coolant Pump Trip

TMI Action Plan Item II.K.3.5 (Ref. 1) requires automatic trip of reactor coolant pumps (RCPs) following a loss-of-coolant accident (LOCA). The requirement is based on the consideration that a delayed-trip or continuous operation of the RCPs during a small break LOCA would lead to more severe consequences than if the RCPs are tripped early following a postulated break. Tripping all the RCPs early during a small break LOCA precludes the occurrence of excessive fuel cladding temperature.

a. Reactor Coolant Pump Trip – ECCS Actuation coincident with P-4 signal

The consequence of continuous RCP operation is the extensive liquid discharge from the break beyond the time that the system would drained down to allow steam discharge from the break had the pumps been immediately tripped. Therefore pump trip following a rReactor tTrip and indication of ECCS aActuation would be effective. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

For the small break LOCA analysis, the loss of offsite power triggered by ~~r~~Reactor ~~t~~Trip signal is conservatively assumed, which would cause the earliest RCP trip. In case that the automatic RCP trip is enabled, an earlier RCP trip results in earlier flow coastdown leading to more severe consequences. MIC-03-16-00007

11. Engineered Safety Features Actuation System Interlocks MIC-03-16-00007

To allow some flexibility in unit operations, several interlocks are included as part of the ESFAS. These interlocks permit the operator to ~~block~~bypass some signals, automatically enable other signals, prevent some actions from occurring, and cause other actions to occur. The interlock Functions back up manual actions to ensure bypassable functions are in operation under the conditions assumed in the safety analyses. MIC-03-16-00007

a. Engineered Safety Features Actuation System Interlocks - Reactor Trip, P-4 MIC-03-16-00007

The P-4 ~~i~~Interlock is enabled when RTBs have opened in two~~-~~-out~~-~~-of~~-~~-four RTB trains. RTB position signals from each RTB are interfaced to all PSMS trains via internal PSMS data links so that the P-4 interlock is generated independently within each train. Therefore this LCO requires three trains to be OPERABLE. MIC-03-16-00007

This Function allows operators to take manual control of ECCS systems after the initial phase of ECCS Actuation is complete. Once ECCS is overridden, automatic actuation of ECCS cannot occur again until the RTBs have been manually closed. The functions of the P-4 interlock are:

- Trip the main turbine,
- ~~Isolate~~Close MFW ~~with~~Regulation Valves coincident ~~low~~with Low T_{avg}, MIC-03-16-00007
- Enable a manual override of ECCS Actuation and prevent ECCS reactuation,
- EFW Isolation ~~with~~ coincident with High SG Water Level and No Low Main Steam Line Pressure, and MIC-03-16-00007
- Trip the Reactor Coolant Pump ~~with~~ coincident with ECCS Actuation. MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Each of the above Functions except Reactor Coolant Pump Trip is interlocked with P-4 to avert or reduce the continued cooldown of the RCS following a ~~r~~Reactor ~~t~~Trip. An excessive cooldown of the RCS following a ~~r~~Reactor ~~t~~Trip could cause an insertion of positive reactivity with a subsequent increase in generated power. Reactor Coolant Pump Trip function is interlocked with P-4 to prevent the unexpected Reactor Coolant Pump Trip after a small break LOCA. The unexpected Reactor Coolant Pump Trip after a small break LOCA could cause the increasing of the Peak Clad Temperature (PCT). To avoid such these situations, the noted Functions have been interlocked with P-4 as part of the design of the unit control and protection system. MIC-03-16-00007

The RTB position switches that provide input to the P-4 interlock only function to energize or de-energize or open or close contacts. Therefore, this Function has no adjustable trip setpoint.

This Function must be OPERABLE in MODES 1, 2, and 3. ~~when~~ In these MODES, the reactor may be critical or approaching criticality. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because the main turbine, the MFW System, and the Turbine Bypass System are not in operation. MIC-03-16-00007

b. Engineered Safety Features Actuation System Interlocks - Pressurizer Pressure, P-11 MIC-03-16-00007

The P-11 interlock permits a normal unit cooldown and depressurization without actuation of ECCS, Main Steam Line Isolation, CVCS Isolation, EFW Isolation or Main Feedwater Isolation on High-High SG Water Level.

With two-out-of-four ~~p~~Pressurizer ~~p~~Pressure channels (discussed previously) less than the P-11 setpoint, the operator can manually ~~block~~bypass the Low Pressurizer Pressure and Low Main Steam Line Pressure ECCS Actuation signals, the Low Main Steam Line Pressure ~~m~~Main ~~s~~Steam ~~l~~Line ~~i~~Isolation signal, the CVCS Isolation signal, the EFW Isolation signals, and the High-High SG Water Level Main Feedwater Isolation signal (previously discussed). When the Low Main Steam Line Pressure ~~m~~Main ~~s~~Steam ~~l~~Line ~~i~~Isolation signal is manually ~~blocked, a main steam isolation signal~~bypassed, a Main Steam Line Isolation signal on High Main Steam Line Pressure Negative Rate is enabled. This provides protection for an SLB by closure of the MSIVs. MIC-03-16-00007 MIC-03-1600007 MIC-03-16-00007 MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

With two-out-of-three ~~p~~Pressurizer ~~p~~Pressure channels above the P-11 setpoint, the Low Pressurizer Pressure and Low Main Steam Line Pressure ECCS Actuation signals, the Low Main Steam Line Pressure ~~m~~Main ~~s~~Steam ~~l~~Line ~~i~~Isolation signal, the CVCS Isolation signal, the EFW Isolation signals, and the High-High SG Water Level Main Feedwater Isolation signal are automatically enabled. The operator can also enable these trips by use of the respective manual reset buttons. When the Low Main Steam Line Pressure ~~m~~Main ~~s~~Steam ~~l~~Line ~~i~~Isolation signal is enabled, the ~~m~~Main ~~s~~Steam ~~i~~Isolation on High Main Steam Line Pressure Negative Rate is disabled. MIC-03-16-00007

The Nominal Trip Setpoint reflects only steady state instrument uncertainties. MIC-03-16-00007

This Function must be OPERABLE in MODES 1, 2, and 3 to allow an orderly cooldown and depressurization of the unit without the actuation of ECCS, ~~m~~Main ~~s~~Steam ~~l~~Line ~~i~~Isolation, CVCS Isolation, EFW Isolation or Main Feedwater Isolation on High-High SG Water Level. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because system pressure must already be below the P-11 setpoint for the requirements of the heatup and cooldown curves to be met. MIC-03-16-00007

12. Containment Purge Isolation

Containment Purge Isolation initiates on Containment High Range Area Radiation, an ~~automatic~~ ECCS Actuation signal, by ~~m~~Manual ~~i~~Initiation of Containment Isolation Phase A, or by ~~m~~Manual ~~i~~Initiation of Containment Spray. MIC-03-16-00007

Containment Purge Isolation components are distributed to PSMS Trains A and D. Two trains are sufficient to provide the safety function. Both are required to be OPERABLE to provide the safety function with a concurrent single failure.

a. Containment Isolation Phase A - Manual Initiation

Containment Purge Isolation is manually initiated by Containment Isolation Phase A - Manual Initiation. The Containment Purge Isolation requirements for this Function are the same as the requirements for the Containment Isolation Phase A Function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 3.a, Containment Isolation Phase A- Manual Initiation, is referenced for all initiating Functions and requirements.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. Containment Spray - Manual Initiation

Containment Purge Isolation is manually initiated by Containment Spray - Manual Initiation. The Containment Purge Isolation requirements for this Function are the same as the requirements for the Containment Spray Function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 2.a, Containment Spray – Manual Initiation, is referenced for all initiating Functions and requirements.

Note that ~~all two~~both Containment Purge Isolation trains are actuated when any two-out-of-four Containment Spray - Manual Initiation signals are actuated. MIC-03-16-00007

c. Containment Purge Isolation - Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. Containment Purge Isolation valves are distributed to Trains A and D. Both trains must be OPERABLE.

d. Containment Purge Isolation - ECCS Actuation

Containment Purge Isolation is also initiated by all Functions that initiate ECCS. The Containment Purge Isolation requirements for these Functions are the same as the requirements for the ECCS function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, ECCS, is referenced for all initiating Functions and requirements.

Note that ~~all two~~both Containment Purge Isolation trains are actuated when any two-out-of-four ECCS - Automatic or Manual Initiation signals are actuated. MIC-03-16-00007

e. Containment Purge Isolation - Containment High Range Area Radiation

Containment High Range Area Radiation has four channels in a two-out-of-four logic configuration. Three OPERABLE channels are sufficient to satisfy protective requirements with two-out-of-three logic.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Containment Purge Isolation Functions are required OPERABLE in MODES 1, 2, 3, and 4. Under these conditions, the potential exists for an accident that could release significant fission product radioactivity into containment. Therefore, the Containment Purge Isolation instrumentation must be OPERABLE in these MODES.

While in MODES 5 and 6 including fuel handling in progress, the Containment Purge Isolation instrumentation ~~need~~is not required to be OPERABLE ~~since the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within acceptable limits~~. This is because the doses at the exclusion area boundary, at the low population zone outer boundary, and in the MCR are maintained within acceptable limits for the case where a fuel handling accident occurs without the containment being isolated, as described in FSAR Section 15.7.4 (Ref. 10). MIC-03-16-00007

13. Main Control Room Isolation

The ~~Main Control Room~~MCR Isolation function provides an enclosed ~~main control room~~MCR environment from which the unit can be operated following an uncontrolled release of radioactivity. MIC-03-16-00007 MCR Isolation controls the ~~main control room~~Main Control Room HVAC System (MCRVS) which includes two subsystems: Main Control Room Emergency Filtration System (MCREFS) and Main Control Room Air Temperature Control System (MCRATCS), described in the ~~DCD~~FSAR Chapter 16 Section 3.7.10. MIC-03-16-00007 MIC-03-16-00007

There are four ~~Main Control Room~~MCR Isolation trains. Trains A and D of MCR Isolation control two 100% capacity trains of subsystem MCREFS, and all four trains of MCR Isolation control four 50% capacity trains of subsystem MCRATCS. Two trains of MCR Isolation, including A or D, must actuate to properly provide the safety function (i.e., isolate and supply filtered air to the ~~main control room~~MCR), and three trains, including A and D, must be OPERABLE to provide the safety function with a concurrent single failure. MIC-03-16-00007 MIC-03-16-00007

The MCR Isolation actuation instrumentation consists of redundant radiation monitors. A high radiation signal will initiate all four MCR Isolation trains. The ~~main control room~~MCR operator can also initiate MCR Isolation trains by manual switches in the ~~main control room~~MCR. MCR Isolation is also actuated by an ECCS Actuation signal. MIC-03-16-00007

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The ~~main control room~~MCR must be kept habitable for the operators stationed there during accident recovery and post accident operations. The MCR Isolation function acts to terminate the supply of unfiltered outside air to the ~~main control room~~MCR, initiate filtration, and allows pressurization of the ~~main control room~~MCR. These actions are necessary to ensure the ~~main control room~~MCR is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of the ~~main control room~~MCR personnel. MIC-03-16-00007 MIC-03-16-00007 MIC-03-16-00007

In MODES 1, 2, 3, and 4, the radiation monitor actuation of MCR Isolation is a backup for the ECCS Actuation. This ensures initiation of the MCR Isolation during a loss of coolant accident or steam generator tube rupture.

The radiation monitor actuation of MCR Isolation during movement of irradiated fuel assemblies are the primary means to ensure ~~main control room~~MCR habitability in the event of a fuel handling accident. MIC-03-16-00007

The MCREFS and MCRATCS components (e.g., fans, dampers) can be manually controlled by the Safety VDUs (S-VDUs) of the corresponding train, and by the non-safety operational VDUs (O-VDUs). MCR Isolation signals, (either automatically or manually initiated) have priority over all manual component control signals, and therefore will block any signals from the O-VDUs, including spurious signals.

The automatic initiation of MCR Isolation is credited to ensure any spurious signals from the non-safety O-VDUs cannot prevent the MCR Isolation safety function. To accommodate various inoperable conditions, MCREFS and/or MCRATCS components are manually placed in the position they would be automatically actuated to by the MCR Isolation signal. For conditions where the automatic initiation function is inoperable, the MCRVS O-VDU Disconnect function is manually activated from the S-VDU for the affected MCREFS and/or MCRATCS train(s). The MCRVS O-VDU Disconnect function blocks signals from the O-VDUs, including spurious signals, in the same manner as the credited automatic initiation signal.

a. Main Control Room Isolation - Manual Initiation

~~The LCO requires four trains OPERABLE.~~

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The operator can initiate MCR Isolation for all four MCR Isolation trains at any time by using four Manual Initiation switches in the ~~main control room~~MCR. Each push button actuates its own train directly. A signal from each pushbutton is also interfaced to all other trains via internal PSMS communication links. In addition to direct actuation by its own train pushbutton, each train is also actuated by two-out-of-three Manual Initiation signals received from the other trains. The signals from the other trains are not credited in determining when the Manual Initation Function is OPERABLE or in determining the number of required trains. However, these additional signals are considered in the Completion Times for the Required Actions. This action will cause actuation of all components in the same manner as any of the automatic actuation signals. MIC-03-16-00007 MIC-03-16-00007

~~The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.~~The LCO requires three trains, including A and D, to be OPERABLE due to the two train configuration of MCREFS and four train configuration of MCRATCS, as described above. MIC-03-16-00007

Each ~~channel~~train consists of one push button and the interconnecting wiring to the ESFAS cabinet.

b. Main Control Room Isolation - Actuation Logic and Actuation Outputs MIC-03-16-00007

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b., ECCS Actuation. However, for MCR Isolation ~~4~~three trains, including A and D, must be ~~operable~~OPERABLE due to the ~~distribution~~two main configuration of ~~main control room isolation dampers to all~~MCREFS and four train~~s.~~ configuration of MCRATCS, as described above. MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

c. Main Control Room Isolation - Main Control Room Radiation MIC-03-16-00007

There are three kinds of Main Control Room Radiation monitor functions (gas monitor, iodine monitor, and particulate monitor). ~~One monitor~~Each monitoring function includes two detectors of Train A and D. RPS trains A and D provide separate digital bistable setpoint comparison functions for each monitor. These digital bistable output signals are distributed from RPS trains A and D to each of the four ESFAS trains. Within each of the four ESFAS trains the MCR Isolation signal is actuated on a signal from either the A or D train detectors using 1-out-of-2 logic for each type of monitor. MIC-03-16-00007 MIC-03-16-00007

The LCO specifies two required Main Control Room Radiation monitors for each function to ensure that the radiation monitoring instrumentation necessary to initiate the MCR Isolation remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, and filter motor operation, as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses.

d. Main Control Room Isolation - ECCS ACTUATION MIC-03-16-00007

~~Main Control Room~~MCR Isolation is also initiated by all Functions that initiate ECCS Actuation. The MCR Isolation requirements for these Functions are the same as the requirements for their ECCS Actuation function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, ECCS Actuation, is referenced for all initiating Functions and requirements. Note that all four MCR Isolation trains are actuated when any two-~~-~~out-~~-~~of-~~-~~four ECCS Actuation - Automatic or Manual Initiation signals are actuated. MIC-03-16-00007

The MCR Isolation Functions must be OPERABLE in MODES 1, 2, 3, and 4, and during movement of irradiated fuel assemblies. MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

14. Block Turbine Bypass and Cooldown Valves

The Block Turbine Bypass and Cooldown Valves function prevents the overcooldownovercooling of the reactor coolant system when Tavg is decreased abnormally. MIC-03-16-00007

Block turbine bypass and cooldown valves are distributed to Trains A and D. Both trains must be OPERABLE in MODES 1, 2 and 3. In MODES 4, 5, and 6, the average coolant temperature is below the Low-Low T_{avg} Signal setpoint and this function is not required to be OPERABLE. MIC-03-16-00007

a. Block Turbine Bypass and Cooldown Valves – Manual Initiation

Manual iInitiation of Block Turbine Bypass and Cooldown Valves can be accomplished from the main control roomMCR. There are two switches in the main control roomMCR, one for each train. Each Turbine Bypass and Cooldown Valve is blocked from both trains. Therefore, either switch can be initiated to immediately block the opening of all Turbine Bypass and Cooldown Valves. This LCO requires 2 Manual Block Turbine Bypass and Cooldown Valves Actuation switches. Operation of either switch will actuate this Function. to be OPERABLE. MIC-03-16-00007

b. Block Turbine Bypass and Cooldown Valves - Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for ESFAS Function 1.b. Block tTurbine bBypass and cCooldown vValves are distributed to Trains A and D. Both trains must be OPERABLE. MIC-03-16-00007

c. Block Turbine Bypass and Cooldown Valves - Low-Low T_{avg} Signal

This function must be OPERABLE in MODES 1, 2 and 3. In MODES 4, 5, and 6, the average coolant temperature is below the low-low Tavg signal setpoint and this function is notThere are four Low T_{avg} channels (one per loop) in a two-out-of-four configuration. Three channels of T_{avg} are required to be OPERABLE. The T_{avg} channels are combined in a logic such that two out of three channels cause a trip for the Function. The accidents that this Function protects against cause reduction of T_{avg} in the entire primary system. Therefore, the provision of three MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

OPERABLE channels in a two-out-of-four configuration ensures no single random failure disables the Low T_{avg} Function. MIC-03-16-00007

T_{avg} channels provide inputs to both control and protection functions. T_{avg} channels provide control inputs to the Rod Control System, Pressurizer Water Level Control System, and Turbine Bypass Control System. The interface from the safety channels in the PSMS to the PCMS is through the Signal Selection Algorithm (SSA).

When three or more T_{avg} channels are OPERABLE, the SSA ensures an input failure to the control system does not result in erroneous control system action that would require the protection function actuation. Therefore, the protection function requires only two additional channels to provide the protection function actuation (i.e., three channels total). Three channels total must be OPERABLE. When there are less than three OPERABLE T_{avg} channels, the SSA cannot prevent erroneous control system operation due to an input failure. This is reflected in the LCO Completion Times for shared T_{avg} channels.

With the T_{avg} resistance temperature detectors (RTDs) located inside the containment, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Nominal Trip Setpoint reflects both steady state and adverse environmental instrumental uncertainties.

Low-Low T_{avg} Signal - Low-Low T_{avg} Signal is enabled by the Block Turbine Bypass and Cooldown Valves.

15. Manual Control of ESF Components

The Manual Control of ESF Components Function provides credited manual controls for accidents and safe shutdown, as defined for the plant components in LCO 3.4 through 3.7.

a. Manual Control of ESF Components - S-VDU

An S-VDU train consists of a VDU and S-VDU processor. An S-VDU train must be OPERABLE for the same trains and MODES as required for the controlled ESF components. For ESF components with four trains (three required trains), three S-VDU

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

trains must be OPERABLE for the same three trains as the required OPERABLE ESF components. For ESF components with only two required trains, an S-VDU train must be OPERABLE for the same two trains as the required OPERABLE ESF components. However, for Phase B Containment Isolation, there are two-train components assigned to Trains A and D, and two-train components assigned to Trains B and C. Therefore, because all four trains are required for Phase B Containment Isolation, all four trains of S-VDU are required. Since Manual Control of ESF Components is required for some ESF systems in all MODES, S-VDU must be OPERABLE to support ESF components in MODES 1, 2, 3, 4, 5 and 6. MIC-03-16-00007

b. Manual Control of ESF Components - COM-2

COM-2 combines the manual control signals from non-safety Operational VDUs with the manual control signals from S-VDUs. The combined signal is interfaced to the Actuation Logic in the SLS for manual control of ESF components. Since COM-2 controls ESF components assigned to all four trains as explained above for the S-VDU, some of which are required in all MODES, four COM-2 trains are required in MODES 1, 2, 3, 4, 5 and 6.

c. Manual Control of ESF Components - Actuation Logic and Actuation Outputs

The Actuation Logic and Actuation Outputs for the Manual Control of ESF Components Function is implemented in the SLS. For ESFAS components, the SLS combines the automatic actuation signals from the ESFAS with the manual control signals from COM-2. For all ESF components the SLS generates Actuation Outputs, based on automatic and/or manual control signals, which control the state of the ESF components. For the Manual Control of ESF Components Function, the Actuation Logic and Actuation Outputs within any SLS controller must be OPERABLE in the same MODES and for the same trains as for the required ESF components. LCO 3.4 through 3.7 provide MODE and train requirements applicable to ESF components.

The ESFAS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 9).

BASES

ACTIONS

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.2-1.

In the event a channel's accuracy is found non-conservative with respect to the Allowable Value, or the transmitter, instrument ~~L~~loop, signal processing electronics, or digital bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected. When the Required Channels in Table 3.3.2-1 are specified (e.g., on a per steam line, per loop, per SG, etc., basis), then the Condition may be entered separately for each steam line, loop, SG, etc., as appropriate. MIC-03-16-00007

When the number of channels inoperable ~~channels~~ in a trip function exceeds those specified in one or other related Conditions associated with a trip function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 should be immediately entered if applicable in the current MODE of operation. MIC-03-16-00007

In all cases where the LCO states “Restore channel or train to OPERABLE status”, this means restore the required number of channels or trains to OPERABLE status. Therefore, restoration of an alternate channel or train, other than the failed channel or train, is also acceptable. MIC-03-16-00007

A.1

Condition A applies to all ESFAS protection functions.

Condition A addresses the situation where one or more required channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.2-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions. MIC-03-16-00007

B.1, B.2.1, and B.2.2

Condition B applies to ~~m~~Manual ~~i~~Initiation of: MIC-03-16-00007

- ECCS Actuation,
- Containment Spray, and
- Containment Phase A Isolation.

ACTIONS (continued)

This action addresses the train orientation of the PSMS for the functions listed above. If a channel orone required train is inoperable, 72 hours isare allowed to return it to an OPERABLE status. Note that for cContainment sSpray and Phase B iIsolation, failure of one or both channels in one train renders the train inoperable. Condition B, therefore, encompasses both situations. MIC-03-16-00007

The specified Completion Time is reasonable considering that the remaining OPERABLEof 72 hours is justified because (1) for ECCS two trains provide protection for each Function, and the low probability of an event occurring during this interval. The completion time also considers that are adequate to perform the safety function and there are three required automatic actuation trains and two other required Manual Initiation for all functions can also be actuated from the Safety VDU for each train. Therefore all safety related trains OPERABLE, (2) for Containment Spray three trains are adequate to perform the safety function and there are four automatic actuation trains and three other Manual Initiation functions remain operable. In addition, the trains OPERABLE, or (3) for Containment Phase A Isolation one train is adequate to perform the safety function and there are two automatic actuation trains and one other Manual Initiation function fortrain OPERABLE. The Completion Time also considers that all trains is actuatedof ECCS can be initiated by the Manual Initiation pushbuttons forFunction from the two remaining trains, and Containment Spray can be initiated by the Manual Initiation Function from any two out of the three remaining trains. MIC-03-16-00007

In addition, the Completion Time considers that each train of all Functions can be manually initiated from the Safety VDU for that train. Therefore, manual initiation through safety related equipment remains functional in all required trains.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (78 hours total time) and in MODE 5 within an additional 30 hours (108 hours total time). The allowable Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

The initial completion time of 72 hours is justified in the PSMS reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19. The MIC-03-16-00007

BASES

ACTIONS (continued)

PSMS reliability analysis credits the continued compliance to the single failure criteria, since the ESFAS manual initiation function remains fully operable from the Safety VDUs, even when one ESFAS manual initiation function is inoperable. MIC-03-16-0 0007

C.1, C.2.1, and C.2.2

Condition C applies to the Actuation Logic and Actuation Outputs for the following fFunctions: MIC-03-16-0 0007

- Containment Phase A Isolation, and
- Containment Phase B Isolation.

This action addresses the train orientation of the PSMS. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. The 24 hours allowed for restoring the inoperable train to OPERABLE status is reasonable considering that there are sufficient trains OPERABLE to ensure the capability of the required Function, and the low probability of an event occurring during this interval. MIC-03-16-0 0007

The Completion Time alsoof 24 hours is justified because the remaining OPERABLE train(s) are adequate to perform the safety function. In addition, the Completion Time considers that the remaining OPERABLE train(s) each have continuous automatic self-testing.

The Completion Time of 24 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (30 hours total time) and in MODE 5 within an additional 30 hours (60 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

The Required Actions are modified by a Note that allows placing one train to be bypassedin bypass for up to 4 hours forwhile performing surveillance testing, provided the other train(s) isare OPERABLE. This allowance is4 hour bypass time is reasonable based on the reliability analysis assumptionoperating experience that 4 hours is the average time required to perform a train surveillance. MIC-03-16-0 0007

BASES

ACTIONS (continued)

The bypassed condition for up to 4 hours and the initial completion time of 24 hours areThe Bypass Time of 4 hours is justified because the remaining OPERABLE train(s) are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE train(s) have continuous automatic self-testing. MIC-03-1600 007

The Bypass Time of 4 hours is also justified in the PSMSUS-APWR reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. Theand risk analyses, the summary and result of the PSMS reliability analysis is evaluated and confirmedwhich are documented in the US-APWR PRAFSAR Chapter 19 (Ref. 11).

D.1, D.2.1, and D.2.2

Condition D applies to:

- High Containment Pressure, and MIC-03-16-0 0007
- Low Pressurizer Pressure,
- Low Main Steam Line Pressure,
- Low T_{avg},
- High Pressurizer Water Level,
- High-High Containment Pressure,.
- High Main Steam Line Pressure Negative Rate,
- High SG Water Level,
- Low SG Water Level,
- High-High SG Water Level, and
- Low-low $T_{avg.}$

BASES

ACTIONS (continued)

If one required channel is inoperable, 72 hours are allowed to restore the channel to OPERABLE status or to place it in the trip~~ped~~ condition. ~~Generally this Condition applies to functions that operate on two-out-of-three logic. Therefore, f~~Failure of one channel places the Function in a two-out-of-two configuration~~. One~~, when the failed channel does not result in a trip channel. This configuration provides adequate plan protection, but does not meet the single failure criteria. Therefore, within 72 hours the inoperable channel must be tripped to place the Function in a one-out-of-~~three~~two configuration that satisfies ~~redundancy requirements. The 72 hours allowed to restore the channel to OPERABLE status or to place it in the tripped condition is justified because the remaining two~~the single failure criteria. MIC-03-16-0 0007

The Completion Time of 72 hours is justified because the two remaining OPERABLE channels are adequate to perform the safety function. In addition, the Completion Time considers that the two remaining OPERABLE channels have continuous automatic self-testing ~~(as described for COT),~~ and continuous automatic CHANNEL CHECKS.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

Failure to restore the channel inoperable ~~channel~~ to OPERABLE status or place it in the trip~~ped~~ condition within 72 hours requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE.

~~The initial completion time of 72 hours is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.~~The Required Actions are modified by a Note that allows placing one required channel in bypass for up to 12 hours while performing surveillance testing, provided the other required channels are OPERABLE, or one required channel is OPERABLE and the other required channel is placed in the trip condition. MIC-03-16-0 0007

~~One channel may be bypassed for up to 12 hours for surveillance testing. The 12 hours bypass limit is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report~~

BASES

ACTIONS (continued)

MUAP-07030 PRA, Attachment 6B.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19. This bypass is not allowed for the other functions because these channels are also used for control. If a failure were to occur in one of the two remaining control channels, a plant transient could occur that would require a plant trip, but a plant trip would not occur with only one remaining operable channel. MIC-03-16-00007

The Bypass Time of 12 hours is justified because the remaining OPERABLE required channels are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE required channels have continuous automatic self-testing and continuous automatic CHANNEL CHECKS.

The Bypass Time of 12 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

E.1, E.2.1, and E.2.2

Condition E applies to:

- Containment Spray - High-3 Containment Pressure, and
- Containment Phase B Isolation - High-3 Containment Pressure.

This LCO requires three operable channels. None of these signals has input to a control function. Two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. ThisIf one required channel is inoperable, 72 hours are allowed to restore the channel to OPERABLE status. Failure of one channel places the Function in a two-out-of-two configuration, when the failed channel does not result in a trip channel. This configuration provides adequate plant protection, but does not meet the single failure criteria. Therefore, within 72 hours the inoperable channel must be restored to OPERABLE status. Tripping a channel, as in Condition D, is undesirable because a single failure would then cause spurious cContainment sSpray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. MIC-03-16-00007

Restoring the channel to OPERABLE status within 72 hours is sufficient because of the low probability of an event occurring during this interval because the remaining twoThe Completion Time of 72 hours to restore the inoperable channel is justified because the two remaining OPERABLE channels are adequate to perform the safety function. In addition, the Completion Time considers that the two remaining OPERABLE channels MIC-03-16-00007

BASES

ACTIONS (continued)

have continuous automatic self-testing (as described for COT), and continuous automatic CHANNEL CHECKS. MIC-03-16-00007

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

Failure to restore the required number of channels to OPERABLE status within 72 hours, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE.

The initial completion time of 72 hours is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19. MIC-03-16-00007

The Required Actions are modified by a Note that allows placing one required channel in bypass for up to 12 hours while performing surveillance testing, provided the other required channels are OPERABLE. Bypassing with another channel in trip, as in Condition D, is undesirable because a single failure during surveillance testing would then cause spurious Containment Spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented.

Bypass Time of 12 hour is justified because the remaining OPERABLE channels are adequate to perform the safety function. In addition, the remaining OPERABLE channels have continuous automatic self-testing and continuous automatic CHANNEL CHECKS.

The Bypass Time of 12 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

F.1, F.2.1, and F.2.2

Condition F applies to: MIC-03-16-00007

- Loss of Offsite Power, and.
- P-4 Interlock.

BASES

ACTIONS (continued)

Condition F also applies to the mManual iInitiation for: MIC-03-16-0 0007

- Main Steam Line Isolation,
- Main Feedwater Isolation,
- Emergency Feedwater Actuation,
- Emergency Feedwater Isolation,
- CVCS Isolation, and
- Block Turbine Bypass and Cooldown Valves.

For all Functions, this action addresses the train orientation of the PSMS. For the Loss of Offsite Power Function, this action also recognizes the lack of manual trip provision for a failed channel. MIC-03-16-0 0007

If a train orone channel or required train is inoperable, 72 hours isare allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of these Functions, the available redundancy, and the low probability of an event occurring during this interval.

For the Loss of Offsite Power Function, the Completion Time of 72 hours is justified because the two remaining OPERABLE undervoltage devices for each train of the Emergency Feedwater Actuation Function are adequate to perform the safety function. Since the undervoltage devices are dedicated for each of the four Class 1E busses, and two undervoltage devices are adequate to perform the safety function of each bus, the Emergency Feedwater Actuation on Loss of Offsite Power continues to meet the single failure criterion (i.e., three trains of the Emergency Feedwater Actuation Function will still actuate if there is an additional undervoltage device failure on one bus).

For Manual Initiation Functions, the Completion Time of 72 hours is justified because (1) for Emergency Feedwater Actuation the remaining two trains are adequate to perform the safety function and there are three automatic actuation trains and two other Manual Initiation trains OPERABLE, or (2) for Main Steam Line Isolation, Main Feedwater Isolation, Emergency Feedwater Isolation, CVCS Isolation, and Block Turbine Bypass and Cooldown Valves the remaining train is adequate to perform the safety function and there are two automatic actuation trains and one other Manual Initiation train OPERABLE. The Completion Time also considers that Emergency Feedwater Actuation for all trains can be initiated by the Manual Initiation Function from the two remaining trains.

ACTIONS (continued)

In addition, the Completion Time for the Manual Initiation Function considers that each train can be manually initiated from the Safety VDU for that train. Therefore, manual initiation through safety related equipment remains functional in all trains. MIC-03-16-00007

For all Functions, the Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

If the Function cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

~~The initial completion time of 72 hours is justified in the PSMS reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19. For the manual initiation functions, the PSMS reliability analysis credits the continued compliance to the single failure criteria, since the ESFAS manual initiation function remains fully operable from the Safety VDUs, even when one ESFAS manual initiation function is inoperable.~~For the Loss of Offsite Power Function a Note is added to allow placing one channel in bypass for up to 4 hours while performing surveillance testing, provided the other channels on the same bus are OPERABLE, or one channel is OPERABLE and the other is placed in the trip condition. MIC-03-16-00007

The Bypass Time of 4 hours is justified because the Function remains fully OPERABLE on every bus. In addition, the Bypass Time considers that each OPERABLE train has continuous automatic self-testing.

The 4 hour bypass time is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 5).

G.1, G.2.1, and G.2.2

Condition G applies to the Actuation Logic and Actuation Outputs for the;

- Emergency Feedwater Isolation,
- CVCS Isolation, and
- Turbine Trip Functions.

BASES

ACTIONS (continued)

The action addresses the train orientation of the PSMS for these ~~f~~Functions. If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. ~~The 24 hours allowed for restoring the inoperable train to OPERABLE status is reasonable considering that the safety function can be performed by the remaining OPERABLE trains, and the low probability of an event occurring during this interval. The Completion Time also~~ MIC-03-16-00007 MIC-03-16-00007

The Completion Time of 24 hours is justified because the remaining OPERABLE train is adequate to perform the safety function. In addition, the Completion Time considers that the remaining OPERABLE ~~trains each have~~train has continuous automatic self-testing.

The Completion Time of 24 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

If the train cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows placing one train ~~to be bypassed~~in bypass for up to 4 hours ~~for~~while performing surveillance testing, provided the other train~~s are~~is OPERABLE. ~~This allowance is based on the assumption that 4 hours is the average time required to perform channel surveillance.~~ MIC-03-16-00007

~~The bypassed condition for up to 4 hours and the initial completion time of 24 hours are~~The Bypass Time of 4 hours is justified because the remaining OPERABLE train is adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE train has continuous automatic self-testing.

The Bypass Time of 4 hours is also justified in the ~~PSMS~~US-APWR reliability ~~analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The~~and risk analyses, the summary and result of ~~the PSMS reliability analysis is evaluated and confirmed~~which are documented in ~~the US-APWR PRA~~FSAR Chapter 19 (Ref. 11).

BASES

ACTIONS (continued)

H.1 and H.2

Condition H applies to the ~~EFW pump start~~Emergency Feedwater Actuation on ~~t~~Trip of all MFW ~~p~~Pumps. MIC-03-16-00007

This action addresses the train orientation of the PSMS for the auto start function of the EFW System on loss of all MFW pumps. The OPERABILITY of the EFW System must be assured by allowing automatic start of the EFW System pumps. MIC-03-16-00007

If a required channel is inoperable, 48 hours are allowed to return it to an OPERABLE status.

The allowance of 48 hours to return the train to an OPERABLE status is justified because Trip of all Main Feedwater Pumps is an anticipatory function that is not credited in the safety analysis.

If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the unit in MODE 3. MIC-03-16-00007

The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above. ~~The allowance of 48 hours to return the train to an OPERABLE status is justified because trip of all main feedwater pumps is an anticipatory function that is not credited in the safety analysis.~~ MIC-03-16-00007

I.1, I.2.1, and I.2.2

Condition I applies to the P-11 interlock.

With one or more required channels inoperable, the operator must verify that the interlock is in the required state for the existing unit condition. This action manually accomplishes the function of the interlock. Determination must be made within 1 hour. The 1 hour Completion Time is equal to the time allowed by LCO 3.0.3 to initiate shutdown actions in the event of a complete loss of ESFAS function. MIC-03-16-00007 MIC-03-16-00007

If the interlock is not in the required state (or placed in the required state) for the existing unit condition, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. MIC-03-16-00007

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in

ACTIONS (continued)

an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of this interlocks.

J.1 [and J.2]

Condition J applies to the Actuation Logic and Actuation Outputs for the Emergency Feedwater Actuation.

The action addresses the train orientation of the PSMS for ~~these~~this ~~f~~Functions. MIC-03-16-0 0007

If one required train is inoperable, 72 hours are allowed to restore the train to OPERABLE status. ~~The 72 hours allowed for restoring the inoperable train to OPERABLE status is reasonable considering that the safety function can be performed by the remaining OPERABLE trains, and the low probability of an event occurring during this interval. The Completion Time also~~

The Completion Time of 72 hours is justified because the two remaining OPERABLE trains are adequate to perform the safety function. In addition, the Completion Time considers that the two remaining OPERABLE trains each have continuous automatic self-testing.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

[Required Action J.2 allows the option to apply the requirements of Specification 5.5.18 to determine a Risk Informed Completion Time.]

The Required Actions are modified by a Note that allows placing one ~~train to be bypassed~~required train in bypass for up to 4 hours ~~for~~while performing surveillance testing, provided the other required trains are OPERABLE. ~~This allowance is based on the assumption that 4 hours is the average time required to perform channel surveillance.~~ MIC-03-16-0 0007

~~The bypassed condition for up to 4 hours and the initial completion time of 72 hours are~~The Bypass Time of 4 hours is justified because the remaining OPERABLE trains are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE trains have continuous automatic self-testing.

The Bypass Time of 4 hours is also justified in the ~~PSMS~~US-APWR reliability ~~analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The~~and risk analyses, the summary and result of ~~the PSMS reliability analysis is evaluated and confirmed~~which are documented in ~~the US-APWR PRA~~FSAR Chapter 19 (Ref. 11).

BASES

ACTIONS (continued)

K.1

Condition K applies to the failure of one Containment High Range Area Radiation monitor channel. Since the three Containment High Range Area Radiation monitorschannels measure the same parameters, failure of a single channel does not result in loss of the radiation monitoring Function for any events. MIC-03-16-00007

If one required channel is inoperable, 72 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. Generally this Condition applies to functions that operate on two-out-of-three logic. Therefore, f. Failure of one channel places the Function in a two-out-of-two configuration. One channel must be tripped to place the Function in a one-out-of-three configuration that satisfies redundancy requirements. MIC-03-16-00007

The Completion Time of 72 hours allowed to restore the inoperable channel to OPERABLE status or to place it in the tripped condition is justified because the two remaining OPERABLE channels are adequate to perform the safety function. In addition, the Completion Time considers that the two remaining OPERABLE channels have continuous automatic self-testing (as described for COT), and continuous automatic CHANNEL CHECKS.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19. (Ref. 11).

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 72 hours requires the unit be placed in MODE 3 within the following 6 hours and MODE 5 within the next 30 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 5, these Functions are no longer required OPERABLE.

The initial completion time of 72 hours is justified in the PSMS reliability analysis, considering that the remaining operable channels have continuous self-testing. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.

BASES

ACTIONS (continued)

L.1

Condition L applies to the Containment Purge Isolation - Actuation Logic and Actuation Outputs Function and addresses the train orientation of the Engineered Safety Features Actuation System (ESFAS). ~~It~~Condition L also addresses the failure of multiple Containment Purge Isolation - Containment High Range Area Radiation ~~Monitoring~~ channels, or the ~~inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action K.1~~Required Action and associated Completion Time of Condition K not met. MIC-03-16-00007 MIC-03-16-00007

If a~~n~~ train of Actuation Logic and Actuation Outputs ~~train~~ is inoperable, multiple required channels of Containment High Range Area Radiation ~~Monitoring channels~~ are inoperable, or the Required Action and associated Completion Time of Condition K are not met, operation may continue as long as the Required Action for the applicable Conditions of LCO 3.6.3 is met for each valve made inoperable by failure of isolation instrumentation.

M.1 and M.2 MIC-03-16-00007

Condition M applies to: ~~the Actuation Logic and Actuation Outputs Function of the MCR Isolation, the Main Control Air monitor Functions, and the Manual Initiation Functions.~~

~~If one Actuation Logic and Actuation Outputs train is inoperable, one Main Control Room Radiation channel is inoperable in one or more Functions, or one Manual Initiation train is inoperable, 7 days are permitted to restore it to OPERABLE status. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10. If the channel/train cannot be restored to OPERABLE status, one train of the affected subsystem(s) must be placed in the emergency mode of operation. This accomplishes the actuation instrumentation Function and places the unit in a conservative mode of operation.~~

~~Affected subsystems depend on inoperable train, as follows.~~

- Low Pressurizer Pressure,~~If train A or D is inoperable, MCREFS doesn't satisfy the single failure criterion. Therefore, one train MCREFS is placed on emergency mode. MCRATCS is unaffected, since three required trains remain operable.~~

- Low Main Steam Line Pressure,~~If train B or C is inoperable, MCREFS is unaffected and three required trains of MCRATCS remain operable. Therefore, no action is required.~~

ACTIONS (continued)

MIC-03-16-00007

- Low T_{avg},
- Low-Low T_{avg},
- High Pressurizer Water Level,
- High Main steam Line Pressure Negative Rate,
- High SG Water Level,
- Low SG Water Level, and
- High-High SG Water Level.

N.1.1, N.1.2, and N.2

Condition N applies to the failure of two MCR Isolation Actuation Logic and Actuation Outputs trains, two Main Control Room Radiation channels, or two Manual Initiation trains for one or more Functions. The first Required Action is to place the affected subsystem(s) in the emergency mode of operation immediately. For MCREFS this requires one train, since each is 100% capacity. Two trains of MCRATCS are required since each is 50% capacity. This accomplishes the actuation instrumentation Function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.10 must also be entered for the MCRVS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed upon train inoperability as discussed in the Bases for LCO 3.7.10.

Alternatively, all trains of the affected subsystem(s) may be placed in the emergency mode. This ensures the MCR Isolation function is performed even in the presence of a single failure.

Affected subsystems depend on inoperable train, as follows.

- If trains A and D are inoperable, MCREFS is completely inoperable. Therefore, one train of MCREFS is placed on emergency mode and the required action of MCRVS is applied (to restore in 7 days). Or two trains of MCREFS are placed on emergency mode. And one train of MCRATCS is placed on emergency mode, since MCRATCS does not satisfy the single failure criterion.

BASES

ACTIONS (continued)

- ~~If trains A and B, or A and C, or B and D, or C and D are inoperable, one train of MCREFS and one train of MCRATCS is placed on emergency mode since both subsystems don't satisfy the single failure criterion.~~ MIC-03-16-00007

- ~~If trains B and C are inoperable, MCREFS is unaffected. One train of MCRATCS is placed on emergency mode since MCRATCS does not satisfy the single failure criterion.~~

With one required channel inoperable the inoperable channel must be placed in the trip condition within 1 hour and restored to OPERABLE status in 72 hours.

This Condition applies to functions that operate on two-out-of-three logic and have channels that are shared with the control systems. Failure of one channel places the Function in a two-out-of-two configuration, when the failed channel does not result in a trip channel. Normally the SSA can prevent erroneous control system operations. However, when there are less than three OPERABLE channels, the SSA cannot prevent erroneous control system operation due to an input failure. With two OPERABLE channels and one channel in the trip condition, if a channel failure occurs in an OPERABLE channel and results in erroneous control system operation, the remaining OPERABLE channel can provide a plant trip. However, the channel that causes the erroneous control system operation cannot be credited as the single failure; therefore, this configuration does not satisfy the single failure criteria. To satisfy the single failure criteria, three channels must be restored to OPERABLE status within 72 hours.

The Completion Time of 1 hour to place the failed channel in the trip condition is based on operating experience and the minimum amount of time allowed for manual operator actions.

The Completion Time of 72 hours to restore the inoperable channel is justified because the two remaining OPERABLE channels are adequate to perform the safety function. In addition, the Completion Time considers that the two remaining OPERABLE channels have continuous automatic self-testing and continuous automatic CHANNEL CHECKS.

The Completion Time of 72 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19. (Ref.11).

Bypass of a required channel is not allowed because there are only three required channels and these channels are also used for control. If a failure were to occur in one of the two remaining control channels, a plant transient

ACTIONS (continued)

could occur that would require a plant trip, but a plant transient would not occur with only one remaining OPERABLE channel. MIC-03-16-00007

N.1 and N.2

If the Required Action and associated Completion Time of Condition M are not met, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

O.1 and O.2

Condition O applies when the Required Action and associated Completion Time for Condition M or N have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systemsCondition O applies to the S-VDU trains for the Manual Control of ESF Components Function. MIC-03-16-00007

If one train is inoperable, 72 hours are allowed to restore the train to OPERABLE status. If the inoperable S-VDU train cannot be restored to OPERABLE status, the applicable Conditions and Required Actions must be entered for ESF components made inoperable by the inoperable S-VDU train. This ensures appropriate limits are placed upon train inoperability. LCO 3.4 through 3.7 provide MODE and train requirements applicable to ESF components.

P.1

Condition P applies when the Required Action and associated Completion Time for Condition M or N have not been met when irradiated fuel assemblies are being moved. Movement of irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require MCR Isolation actuation.

BASES

ACTIONS (continued)

The Required Actions are modified by a Note that allows placing one train in bypass for up to 4 hours while performing surveillance testing, provided the other trains are OPERABLE. This 4 hour Bypass Time is reasonable based on operating experience that 4 hours is the average time required to perform a train surveillance. MIC-03-16-00007

The Bypass Time of 4 hours is justified because the remaining OPERABLE trains are adequate to perform the safety function. In addition the Bypass Time considers that the remaining OPERABLE trains have continuous automatic self-testing.

P.1 and P.2

Condition P applies to the COM-2 trains for the Manual Control of ESF Components Function.

If one train is inoperable, 12 hours are allowed to restore the train to OPERABLE status. If the inoperable COM-2 train cannot be restored to OPERABLE status, the applicable Conditions and Required Actions must be entered for the affected train of all ESF components made inoperable by the inoperable COM-2 train. This ensures appropriate limits are placed upon train inoperability. LCO 3.4 through 3.7 provide MODE and train requirements applicable to ESF components.

The Required Actions are modified by a Note that allows placing one train in bypass for up to 4 hours while performing surveillance testing, provided the other trains are OPERABLE. This 4 hour Bypass Time is reasonable based on operating experience that 4 hours is the average time required to perform a train surveillance.

The Bypass Time of 4 hours is justified because the remaining OPERABLE trains are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE trains have continuous automatic self-testing.

Q.1 [and Q.2]

Condition Q applies to the Actuation Logic and Actuation Outputs for the following functions:

- ECCS Actuation, and
- Containment Spray.

This action addresses the train orientation of the PSMS.

BASES

ACTIONS (continued)

If one required train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. ~~The 24 hours allowed for restoring the inoperable train to OPERABLE status is reasonable considering that there are sufficient trains OPERABLE to ensure the capability of the required Function, and the low probability of an event occurring during this interval.~~ MIC-03-16-00007

The Completion Time ~~also~~of 24 hours is justified because the remaining OPERABLE trains are adequate to perform the safety function. In addition, the Completion Time considers that the remaining OPERABLE trains each have continuous automatic self-testing.

The Completion Time of 24 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

[Required Action Q.2 allows the option to apply the requirements of Specification 5.5.18 to determine a Risk Informed Completion Time. This Required Action is not applicable in MODE 4, because Risk Informed Completion Times are only applicable to MODES 1, 2 and 3.] MIC-03-16-00007

The Required Actions are modified by a Note that allows placing one ~~train to be bypassed~~required train in bypass for up to 4 hours ~~for~~while performing surveillance testing, provided the other ~~train(s) is~~required trains are OPERABLE. This ~~allowance is~~4 hour Bypass Time is reasonable based on ~~the reliability analysis assumption~~operating experience that 4 hours is the average time required to perform a train surveillance.

~~The bypassed condition for up to 4 hours and the initial completion time of 24 hours are~~The Bypass Time of 4 hours is justified because the remaining OPERABLE trains are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE trains have continuous automatic self-testing.

The Bypass Time of 4 hours is also justified in the ~~PSMS~~US-APWR reliability ~~analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The~~and risk analyses, the summary and result of ~~the PSMS reliability analysis is evaluated and confirmed~~which are documented in ~~the US-APWR PRA~~FSAR Chapter 19 (Ref. 11).

ACTIONS (continued)

R.1 and R.2

Condition R applies to the Actuation Logic and Actuation Outputs for the following functions:

- ECCS Actuation, and
- Containment Spray,

If the ~~train cannot be restored to OPERABLE status~~Required Action and associated Completion Time of Condition Q are not met, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within 6 hours and in MODE 5 within an additional 30 hours (36 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. MIC-03-16-00007

S.1 [and S.2]

Condition S applies to the Actuation Logic and Actuation Outputs for the;

- Main Steam Line Isolation,
- Main Feedwater Isolation, and
- Block Turbine Bypass and Cooldown Valves.

The action addresses the train orientation of the PSMS for these ~~f~~Functions. MIC-03-16-00007

If one train is inoperable, 24 hours are allowed to restore the train to OPERABLE status. ~~The 24 hours allowed for restoring the inoperable train to OPERABLE status is reasonable considering that the safety function can be performed by the remaining OPERABLE trains, and the low probability of an event occurring during this interval. The Completion Time also~~

The Completion Time of 24 hours is justified because the remaining OPERABLE train is adequate to perform the safety function. In addition, the Completion Time considers that the remaining OPERABLE train~~s each have~~ has continuous automatic self-testing.

The Completion Time of 24 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

BASES

ACTIONS (continued)

[Required Action S.2 allows the option to apply the requirements of Specification 5.5.18 to determine a Risk Informed Completion Time.]

The Required Actions are modified by a Note that allows placing one train to be bypassedin bypass for up to 4 hours forwhile performing surveillance testing, provided the other trains are is OPERABLE. This allowance is based on the assumption that 4 hours is the average time required to perform channel surveillance. MIC-03-16-0 0007

The bypassed condition for up to 4 hours and the initial completion time of 24 hours areThe Bypass Time of 4 hours is justified because the remaining OPERABLE train is adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE train has continuous automatic self-testing.

The Bypass Time of 4 hours is also justified in the PSMSUS-APWR reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. Theand risk analyses, the summary and result of the PSMS reliability analysis is evaluated and confirmedwhich are documented in the US-APWR PRAFSAR Chapter 19 (Ref. 11).

T.1 and T.2

Condition T applies to the Actuation Logic and Actuation Outputs for the following functions:

- Main Steam Line Isolation,
- Main Feedwater Isolation,
- Emergency Feedwater Actuation, and
- Block Turbine Bypass and Cooldown Valves.

Condition T applies when the Required Action and associated Completion Time for Condition J or S have not been met. If the train cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours (12 hours total time). The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions. MIC-03-16-0 0007

ACTIONS (continued)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. MIC-03-16-00007

U.1

Condition U applies when one MCR Outside Air Intake Radiation monitoring channel is inoperable in one or more Functions. There are two 100% capacity MCREFS Trains A and D, with two trains required, and four 50% capacity MCRATCS Trains A, B, C and D, with three trains required. There are two channels, A and D, for each of three MCR Outside Air Intake Radiation monitoring Functions, with two channels required for each function. An inoperable MCR Outside Air Intake Radiation monitoring channel affects all MCREFS and MCRATCS trains.

If one channel for any of the MCR Outside Air Intake Radiation monitoring Functions is inoperable, the instrumentation Function of MCREFS and MCRATCS can provide 100% capacity but doesn't satisfy the single failure criterion. Therefore, within 7 days one MCREFS train and two MCRATCS trains are placed in the emergency mode. With these trains in the emergency mode, 100% capacity is provided for MCR Outside Air Intake Radiation monitoring Functions. In addition, with one OPERABLE MCR Outside Air Intake Radiation monitoring channel remaining for all Functions, an additional MCREFS train and MCRATCS train are capable of automatic initiation, therefore all MCR Outside Air Intake Radiation monitoring Functions meet the single failure criterion.

The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10 for the mechanical systems.

The emergency mode of operation requires components of the specified trains to be manually placed in the position that they would be automatically actuated to by the MCR Isolation signal. In addition, the controlled components must be configured to prevent erroneous component repositioning from spurious signals from Operational VDUs by manually activating the MCRVS O-VDU Disconnect function. This action is needed because the automatic initiation signals are credited to override any spurious Operational VDU signals, but those signals are affected in this Condition. These two actions accomplish the actuation instrumentation Function and place the unit in a conservative mode of operation.

The "emergency mode" for this Condition, is defined as the pressurization mode specified in LCO 3.7.10. Automatic transfer to the isolation mode for protection against smoke ingress [or toxic gas] is not affected by this condition.

ACTIONS (continued)

V.1, V.2.1, and V.2.2

MIC-03-16-00007

Condition V applies when two MCR Outside Air Intake Radiation monitoring channels are inoperable in one or more Functions. There are two 100% capacity MCREFS trains, A and D, with two trains required, and four 50% capacity MCRATCS trains, A, B, C and D, with three trains required. There are two channels, A and D, for each of three MCR Outside Air Intake Radiation monitoring Functions, with two channels required for each function. Two inoperable MCR Outside Air Intake Radiation monitoring channels affect all MCREFS and MCRATCS trains.

If two MCR Outside Air Intake Radiation monitoring channels for the same Function are inoperable in one or more Functions, the MCREFS and MCRATCS instrumentation Functions are completely inoperable. Therefore, one MCREFS train and two MCRATCS trains are immediately placed in the emergency mode. With these trains in the emergency mode, 100% capacity is provided for all MCR Outside Air Intake Radiation monitoring Functions, but the system does not meet the single failure criterion.

Action must be taken within 7 days to restore compliance to the single failure criteria by either restoring one channel of each MCR Outside Air Intake Radiation monitoring Function to OPERABLE status (V.2.1), or placing two trains of MCREFS and three trains of MCRATCS in the emergency mode (V.2.2).

For V.2.1, with one MCREFS train and two MCRATCS trains in the emergency mode, and one additional train of each Function capable of automatic initiation, the system provides 100% capacity and satisfies the single failure criterion.

For V.2.2, with two trains of MCREFS and three trains of MCRATCS in the emergency mode, the system provides 100% capacity and satisfies the single failure criterion.

The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10 for the mechanical systems.

The emergency mode of operation requires components of the specified trains to be manually placed in the position that they would be automatically actuated to by the MCR Isolation signal. In addition, the controlled components must be configured to prevent erroneous component repositioning from spurious signals from Operational VDUs by manually activating the MCRVS O-VDU Disconnect function. This action is needed because the automatic initiation signals are credited to override any spurious Operational VDU signals, but those signals are affected in this

ACTIONS (continued)

Condition. These two actions accomplish the actuation instrumentation Function and place the unit in a conservative mode of operation. MIC-03-16-00007

The “emergency mode” for this Condition, is defined as the pressurization mode specified in LCO 3.7.10. Automatic transfer to the isolation mode for protection against smoke ingress [or toxic gas] is not affected by this condition.

W.1

Condition W applies when one train, A or D, of the MCR Isolation Actuation Logic and Actuation Outputs Function is inoperable, or one train, A or D, of the MCR Isolation Manual Initiation Function is inoperable. There are two 100% capacity MCREFS trains, A and D, with two trains required, and four 50% capacity MCRATCS trains, A, B, C and D, with three trains required. There are four Manual Initiation trains, with three trains required, including Trains A and D.

If Train A or D of the MCR Isolation Actuation Logic and Actuation Outputs Function or the MCR Isolation Manual Initiation Function is inoperable, the instrumentation of MCREFS provides 100% capacity but doesn't satisfy the single failure criterion. Therefore, within 7 days the affected train of MCREFS is placed in the emergency mode. With one train in the emergency mode the system provides 100% capacity, and with the remaining OPERABLE MCREFS train capable of automatic actuation, the system satisfies the single failure criterion for automatic actuation. In addition, with the remaining OPERABLE MCREFS train capable of Manual Initiation, the system satisfies the single failure criterion for Manual Initiation.

The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10 for the mechanical systems.

Although one instrumentation train of MCRATCS is inoperable due to inoperable Train A or D, there is no Required Action to place any train of MCRATCS in the emergency mode, since three required instrumentation trains of MCRATCS are unaffected and remain OPERABLE.

If Train B or C is inoperable, the instrumentation of MCREFS is unaffected. Although one instrumentation train of MCRATCS is inoperable, there is no Required Action to place any train of MCRATCS in the emergency mode, since three required instrumentation trains of MCRATCS are unaffected and remain OPERABLE.

The emergency mode of operation requires components of the specified train to be manually placed in the position that they would be automatically

BASES

ACTIONS (continued)

actuated by the MCR Isolation signal. In addition, when the ESFAS is inoperable (which affects automatic actuation and manual initiation), but the SLS remains OPERABLE, the controlled components must be configured to prevent erroneous component repositioning from spurious signals from Operational VDUs by manually activating the MCRVS O-VDU Disconnect function. This action is needed because the automatic actuation signals are credited to override any spurious Operational VDU signals, but those signals are affected in this Condition. These two actions accomplish the actuation instrumentation Function and place the unit in a conservative mode of operation. MIC-03-16-00007

[The “emergency mode” for this Condition, is defined as the pressurization mode specified in LCO 3.7.10. While operating in the pressurization mode, smoke ingress must be manually monitored and may require prompt manual transfer to the emergency isolation mode. This is because when the MCR Isolation Actuation Logic and Actuation Outputs Function is inoperable, manual transfer from the MCR to the isolation mode for smoke protection and automatic transfer to the isolation mode for smoke protection, are affected.

OR The “emergency mode” for this Condition, is defined as the isolation mode specified in LCO 3.7.10, to accommodate toxic gas protection.]

X.1, X.2.1, X.2.2, X.3.1 and X.3.2

Condition X applies when Trains A and D of the MCR Isolation Actuation Logic and Actuation Outputs Function are inoperable, or Trains A and D of the MCR Isolation Manual Initiation Function are inoperable. There are two 100% capacity MCREFS trains, A and D, with two trains required, and four 50% capacity MCRATCS trains, A, B, C and D, with three trains required. There are four Manual Initiation trains, with three trains required, including Trains A and D. Other inoperable two-train combinations are addressed in Condition Y.

Inoperable Trains A and D affect MCREFS and MCRATCS. The effects and required actions are as follows:

MCREFS

If two Actuation Logic and Actuation Outputs trains (A and D) are inoperable, or two MCR Isolation Manual Initiation trains (A and D) are inoperable, the MCREFS Function is completely inoperable. Therefore, one train of MCREFS is immediately placed in the emergency mode. With one train in the emergency mode MCREFS provides 100% capacity, but does not meet the single failure criterion.

BASES

ACTIONS (continued)

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Action must be taken within 7 days to restore compliance to the single failure criteria by either restoring one train of MCREFS instrumentation to OPERABLE status with the other train in the emergency mode (X.2.1), or placing two trains of MCREFS in the emergency mode (X.2.2).

For X.2.1, with one train of MCREFS in the emergency mode and one train capable of automatic actuation and manual initiation, MCREFS provides 100% capacity and satisfies the single failure criterion for automatic actuation and manual initiation.

For X.2.2, with two trains of MCREFS in the emergency mode, the MCREFS provides 100% capacity and satisfies the single failure criterion.

MCRATCS

If two Actuation Logic and Actuation Outputs trains (A and D) are inoperable, or if two MCR Isolation Manual Initiation trains (A and D) are inoperable, the two remaining OPERABLE instrumentation trains (B and C) of MCRATCS provide 100% capacity, but do not meet the single failure criterion.

Action must be taken within 7 days to restore compliance to the single failure criteria by either restoring one affected train of MCRATCS to OPERABLE status (X.3.1), or placing one affected train of MCRATCS in the emergency mode (X.3.2).

For X.3.1, with three trains of MCRATCS capable of automatic actuation and manual initiation, MCRATCS provides 100% capacity and satisfies the single failure criterion for automatic actuation and manual initiation.

For X.3.2 with one train in the emergency mode and two trains capable of automatic actuation and manual initiation, MCRATCS provides 100% capacity and satisfies the single failure criterion for automatic actuation and manual initiation.

The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10 for the mechanical systems.

The emergency mode of operation requires components of the specified train(s) to be manually placed in the position that they would be automatically actuated to by the MCR Isolation signal. In addition, when the ESFAS is inoperable (which affects automatic and manual initiation), but the SLS

ACTIONS (continued)

remains OPERABLE, the controlled components must be configured to prevent erroneous component repositioning from spurious signals from Operational VDUs by manually activating the MCRVS O-VDU Disconnect function. This action is needed because the automatic actuation signals are credited to override any spurious Operational VDU signals, but those signals are affected in this Condition. These two actions accomplish the actuation instrumentation Function and place the unit in a conservative mode of operation. MIC-03-16-00007

[The "emergency mode" for this Condition, is defined as the pressurization mode specified in LCO 3.7.10. While operating in the pressurization mode, smoke ingress must be manually monitored and may require prompt manual transfer to the emergency isolation mode. This is because when the MCR Isolation Actuation Logic and Actuation Outputs Function is inoperable, manual transfer from the MCR to the isolation mode for smoke protection and automatic transfer to the isolation mode for smoke protection, are affected.

OR the "emergency mode" for this Condition, is defined as the isolation mode specified in LCO 3.7.10, to accommodate toxic gas protection.]

Y.1 and Y.2

Condition Y applies when two MCR Isolation Actuation Logic and Actuation Outputs trains or two MCR Isolation Manual Initiation trains are inoperable, except for inoperable Trains A and D, which are addressed in Condition X. There are two 100% capacity MCREFS trains, A and D, with two trains required, and four 50% capacity MCRATCS trains, A, B, C and D, with three trains required. There are four Manual Initiation trains, with three trains required, including Trains A and D.

The affected Functions and Required Actions depend on the inoperable trains, as follows:

- If Trains A and B, or A and C, or B and D, or C and D are inoperable, the one remaining OPERABLE instrumentation train of MCREFS and the two remaining OPERABLE instrumentation trains of MCRATCS provide 100% capacity, but they don't meet the single failure criterion. Action must be taken within 7 days to restore compliance to the single failure criteria by either restoring the affected instrumentation train of MCREFS and one affected instrumentation train of MCRATCS to OPERABLE status (Y.1), or placing the affected train of MCREFS and one affected train of MCRATCS in the emergency mode (Y.2).

  For Y.1, with two trains of MCREFS and three trains of MCRATCS capable of automatic actuation and manual initiation, MCREFS and

ACTIONS (continued)

MCRATCS provide 100% capacity and satisfy the single failure criterion for automatic actuation and manual initiation. MIC-03-16-00007

For Y.2, with one train of MCREFS in the emergency mode and one train capable of automatic actuation and manual initiation, MCREFS provides 100% capacity and satisfies the single failure criterion for automatic actuation and manual initiation. With one train of MCRATCS in the emergency mode and two trains capable of automatic actuation and manual initiation, MCRATCS provides 100% capacity and satisfies the single failure criterion for automatic actuation and manual initiation.

- If trains B and C are inoperable, the instrumentation of MCREFS is unaffected. The two remaining OPERABLE instrumentation trains of MCRATCS provide 100% capacity, but do not meet the single failure criterion.

  Action must be taken within 7 days to restore compliance to the single failure criteria by either restoring one affected instrumentation train of MCRATCS to OPERABLE status (Y.1) or placing one affected train of MCRATCS in the emergency mode (Y.2).

  For Y.1, with three trains of MCRATCS capable of automatic actuation or manual initiation, MCRATCS provides 100% capacity and satisfies the single failure criterion for automatic actuation and manual initiation.

  For Y.2, with one train of MCRATCS in the emergency mode and two trains capable of automatic actuation and manual initiation, MCRATCS provides 100% capacity and satisfies the single failure criterion for automatic actuation and manual initiation.

The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10 for the mechanical systems.

The emergency mode of operation requires components of the specified train(s) to be manually placed in the position that they would be automatically actuated to by the MCR Isolation signal. In addition, when the ESFAS is inoperable (which affects automatic actuation and manual initiation), but the SLS remains OPERABLE, the controlled components must be configured to prevent erroneous component repositioning from spurious signals from Operational VDUs by manually activating the MCRVS O-VDU Disconnect function. This action is needed because the automatic actuation signals are credited to override any spurious Operational VDU signals, but those signals are affected in this Condition. These two actions accomplish the actuation

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ACTIONS (continued)

instrumentation Function and place the unit in a conservative mode of operation. MIC-03-16-00007

[The “emergency mode” for this Condition, is defined as the pressurization mode specified in LCO 3.7.10. While operating in the pressurization mode, smoke ingress must be manually monitored and may require prompt manual transfer to the emergency isolation mode. This is because when the MCR Isolation Actuation Logic and Actuation Outputs Function is inoperable, manual transfer from the MCR to the isolation mode for smoke protection and automatic transfer to the isolation mode for smoke protection, are affected.

OR the “emergency mode” for this Condition, is defined as the isolation mode specified in LCO 3.7.10, to accommodate toxic gas protection.]

Z.1 and Z.2

Condition Z applies when the Required Action and associated Completion Time for Condition U, V, W, X or Y have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

AA.1

Condition AA applies when the Required Action and associated Completion Time for Condition U, V, W, X or Y have not been met when irradiated fuel assemblies are being moved. Movement of irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require MCR Isolation actuation.

BB.1, BB.2.1 and BB.2.2

Condition BB applies to the P-4 Interlock.

This action addresses the train orientation of the PSMS.

If a required train is inoperable, 48 hours are allowed to restore the train to OPERABLE status.

ACTIONS (continued)

The Completion Time of 48 hours is justified because the two remaining OPERABLE trains are adequate to perform the safety function. In addition, the Completion Time considers that the two remaining OPERABLE trains each have continuous automatic self-testing. MIC-03-16-00007

The Completion Time of 48 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 11).

If the train cannot be restored to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the interlock function noted above.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1.

A Note has been added to the SR Table to clarify that Table 3.3.2-1 determines which SRs apply to which ESFAS Functions.

Note that each channel of process protection supplies all trains of the ESFAS. However, when testing a channel, it is only necessary to manually verify that the channel is OPERABLE in its respective division. This is because the interface to other divisions is automatically verified through continuous automatic self-testing. ~~Self~~Continuous automatic self-testing is confirmed through periodic ~~COT and ACTUATION LOGIC TEST~~MIC. The CHANNEL CALIBRATION is performed in a manner that is consistent with the methods and assumptions of ~~Section~~Specification 5.5.21, Setpoint Control Program (SCP). MIC-03-16-00007 MIC-03-16-00007

SR 3.3.2.1

Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between ~~the two~~ instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. MIC-03-16-00007

Agreement criteria are determined based on a combination of the channel instrument uncertainties. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE. MIC-03-16-00007

[The Surveillance Frequency of 12 hours is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-00007

A CHANNEL CHECK may be conducted manually or automatically. For the US-APWR an automated CHANNEL CHECK is normally conducted continuously, which satisfies the 12 hour Surveillance Frequency requirement. Where the CHANNEL CHECK is conducted automatically, an alarm shall be generated when the agreement criteria is not met. If the automated CHANNEL CHECK function is unavailable, a manual CHANNEL CHECK shall be conducted at the minimum 12 hour Surveillance Frequency. MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

The equipment that performs the automated CHANNEL CHECK, and automatic self-testing described for COT and ACTUATION LOGIC TEST, shall be confirmed OPERABLE including the capability to generate fault alarms.

SR 3.3.2.2

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST.a MIC for the ESFAS Instrumentation. This includes the Safety VDU processors, the RPS, the ESFAS, the SLS, and the COM-2. MIC-03-16-00007

The PSMS is self-tested automatically on a continuous basis from the digital side of all input modules to the digital side of all output modules. SelfContinuous automatic self-testing encompasses all PSMS safety-related functions including digital Nominal Trip Setpoints, Time Constants, Time Delays and actuation logic functions. The continuous automatic self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS.- The continuous automatic self-testing is described in Reference 6 and Reference 7. MIC-03-16-00007 MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

MIC-03-16-00007

The ~~ACTUATION LOGIC TEST~~MIC is a diverse check of the ~~ESFAS~~PSMS software memory integrity, consistent with the Setpoint Control Program (SCP), to ensure there is no change to the internal ~~ESFAS~~PSMS software that would impact its functional operation, including digital Nominal Trip Setpoints, Time Constants, Time Delays, actuation logic functions or the continuous automatic self-testing~~self-test function~~. The ~~software memory integrity test~~MIC is described in Reference 6 and Reference 7. ~~[The Frequency of every 24 months is justified based on the reliability of the PSMS. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]~~

The capability to generate continuous automatic self-testing fault alarms shall be confirmed OPERABLE during the MIC.

The complete ~~continuity~~OPERABILITY check from the measurement channel input device to the SLS output device is performed by the combination of the continuous ~~CHANNEL CHECK, and the 24 month CHANNEL CALIBRATION~~automatic self-testing for the ~~non-~~digital ~~side of~~devices (the ~~input module~~RPS, ESFAS, SLS, and data communication interfaces), the continuous ~~self-testing for~~automatic CHANNEL CHECK (SR 3.3.2.1), the ~~digital side~~CHANNEL CALIBRATION (SR 3.3.2.6), the ~~24 month COT, the 24 month ACTUATION LOGIC TEST~~MIC (SR 3.3.2.2), and the ~~24 month ESFAS and SLS~~ TADOT ~~for the non-digital side of the output module.~~(SR 3.3.2.3, SR3.3.2.4, SR 3.3.2.5 and SR 3.3.2.8). The ~~Channel~~CHANNEL CALIBRATION, ~~COT, ACTUATION LOGIC TEST~~the MIC, and the TADOT, which are manual tests, overlap with the ~~CHANNEL CHECK and~~continuous automatic self-testing and confirm the functioning of the continuous automatic self-testing.

~~The ACTUATION LOGIC TEST interval~~The complete OPERABILITY check from the Safety VDU (S-VDU) input device to the SLS output device is performed by the combination of the continuous automatic self-testing for the digital devices (Safety VDU processors, COM-2, SLS and data communication interfaces), the SAFETY VDU TEST (SR 3.3.2.9), MIC for the Safety VDU processors, COM-2 and SLS (SR 3.3.2.2) and TADOT for SLS outputs (SR 3.3.2.3). The SAFETY VDU TEST, MIC, and TADOT, which are manual tests, overlap with the automatic self-testing and confirm the functioning of the automatic tests.

[The Surveillance Frequency of 24 months is justified because the software memory integrity is checked by the continuous automatic self-testing.

SURVEILLANCE REQUIREMENTS (continued)

The Surveillance Frequency of 24 months with the self test capability is also justified in the PSMS reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. Thereliability and risk analyses, the summary and result of the PSMS reliability analysis is evaluated and confirmedwhich are documented in the US-APWR PRAFSAR Chapter 19 (Ref. 11). MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.2.3

SR 3.3.2.3 is the performance of a COTTADOT for the Actuation Outputs of all ESFAS Functions, and the Actuation Outputs of the Manual Control of ESF Components Function. This surveillance test actuates the outputs of the SLS. MIC-03-16-00007

The PSMS is self-tested on an automatic basis from the digital side of all input modules to the digital side of all output modules. Self-testing encompasses all Trip Setpoints and trip functions. The self-testing is described in Reference 6 and Reference 7. ESFAS setpoint and bistable functions are implemented within the RPS. Therefore, the COT is a check of the RPS software memory integrity to ensure there is no change to the internal RPS software that would impact its functional operation, including digital Trip Setpoint values or the continuous self-test function. The software memory integrity test is described in Reference 6 and Reference 7Therefore, this test is typically conducted in conjunction with testing the plant process components. Since this test is conducted in conjunction with testing for plant process components, this test may be conducted more frequently, as may be required for the plant process components.

A COT ensures the entire channel will perform the intended Function.[The Surveillance Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability and operating history data of solid state Actuation Output devices.

[The Frequency of 24 months is justified based on the reliability of the PSMS.
OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SURVEILLANCE REQUIREMENTS (continued)

The complete continuity check from the input device to the output device is performed by the combination of the continuous CHANNEL CHECK, the 24 month CHANNEL CALIBRATION for the non digital sided of the input module, the continuous self-testing for the digital side, the 24 month COT and the 24 month TADOT for the non-digital side of the output module. The Channel CALIBRATION, COT and TADOT, which are manual tests, overlap with the CHANNEL CHECK and self-testing and confirm the functioning of the self-testing. MIC-03-16-00007

The COT interval of 24 months with the self test capability is justified in the PSMS reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6B.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.

SR 3.3.2.4

SR 3.3.2.4 is the performance of a TADOT for the Loss of Offsite Power, Function. The LOP inputs to the ESFAS are tested up to, and including, the signal status readout on a VDU.

Verification of the undervoltage relay Nominal Trip Setpoint is not performed during the TADOT; the undervoltage relay Nominal Trip Setpoint is verified during CHANNEL CALIBRATION.

[The Surveillance Frequency of 92 days is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.2.5

SR 3.3.2.5 is the performance of a TADOT for all Manual Initiation Functions and for the EFW Actuation - Trip of all MFW Pumps Function. Each Function is tested up to, and including, the signal status readout on a VDU. These Functions have no associated setpoints.

[The Surveillance Frequency of 24 months is adequate, based on industry operating experience and is consistent with the typical refueling cycle.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

BASES

SURVEILLANCE REQUIREMENTS (continued)

~~SR 3.3.2.4~~

~~SR 3.3.2.4 is the performance of a TADOT for the Actuation Outputs of all ESFAS functions. This function actuates the outputs of the SLS.~~

~~Therefore, this test is typically conducted in conjunction with testing the plant process components. [The Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability and operating history data. The Actuation Outputs are solid state devices. Since this test is conducted in conjunction with testing for plant process components, this test may be conducted more frequently, as may be required for the plant process components. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]~~ MIC-03-16-00007

~~SR 3.3.2.5~~

~~SR 3.3.2.5 is the performance of a TADOT for the Loss of Offsite Power, Function. The LOP inputs to the ESFAS are tested up to, and including, the signal status readout on a digital display.~~

~~The SR is modified by a Note that excludes verification of setpoints for relays. Relay setpoints require elaborate bench calibration and are verified during CHANNEL CALIBRATION. [The Frequency of 92 days is adequate. It is based on industry operating experience, considering instrument reliability and operating history data. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]~~

SR 3.3.2.6

SR 3.3.2.6 is the performance of a ~~TADOT for all Manual Initiation Functions and EFW pump start on trip of all MFW pumps. Each Manual Initiation Function is tested up to, and including, the signal status readout on a digital display. [The Frequency of 24 months is adequate, based on industry operating experience and is consistent with the typical refueling cycle.~~CHANNEL CALIBRATION. MIC-03-16-00007

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test must be performed consistent with the methods and assumptions of Specification 5.5.21, SCP, to verify that the channel responds to a measured parameter within the necessary range and accuracy.

The CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to digital VDU readout, as described in Reference 6.

SURVEILLANCE REQUIREMENTS (continued)

For analog measurements, the CHANNEL CALIBRATION confirms the calibration settings are within the Allowable Value at multiple points over the entire measurement channel span, encompassing all ESF actuation and interlock Nominal Trip Setpoint values. Digital ESF actuation and interlock Nominal Trip Setpoint values are confirmed through MIC. MIC-03-16-00007

For binary measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel's state change. The state change must occur within the Allowable Value of the Nominal Trip Setpoint.

The equipment that performs the automated CHANNEL CHECK shall be confirmed OPERABLE, including the capability to generate fault alarms during the CHANNEL CALIBRATION.

[The Surveillance Frequency of 24 months is based on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in accordance with Specification 5.5.21, Setpoint Control Program (SCP).

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] ~~The SR is modified by a Note that excludes verification of setpoints during the TADOT for manual initiation Functions. The manual initiation Functions have no associated setpoints.~~ MIC-03-16-00007

SR 3.3.2.7

~~SR 3.3.2.7 is the performance of a CHANNEL CALIBRATION.~~ MIC-03-16-00007

~~CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy, as described in Section 5.5.21, SCP.~~

~~For analog measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to VDU as described in Reference 6. CHANNEL CALIBRATION confirms the analog measurement accuracy conforms to the Allowable Value at multiple points over the entire measurement channel span, encompassing all reactor trip and interlock Trip Setpoint values. Digital reactor trip and interlock Trip Setpoint values are confirmed through COT.~~

~~For binary measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel's state change, as described in Reference 6. The state change must occur within the Allowable Value of the Trip Setpoint.~~

SURVEILLANCE REQUIREMENTS (continued)

CHANNEL CALIBRATIONS must be performed consistent with the methods and assumptions in Section 5.5.21, SCP. MIC-03-16-00007

[The Frequency of 24 months is based on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in accordance with Section 5.5.21, Setpoint Control Program (SCP). OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable.

SR 3.3.2.8

This SR ensures the response times for all ESFAS functions areESF RESPONSE TIME is less than or equal to the maximum values assumed in the accident analysis. Accident analysis response time values are definedspecified in Reference 2. Individual component response times are not modeled in the analyses. MIC-03-16-00007

The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the Trip Setpoint value at the sensor,Analytical Limit to the point at which the equipment in all trainsthe minimum credited train(s) reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position). MIC-03-16-00007

The PSMS dynamic transfer functions employ time constants that are installed as digital values and processed through digital algorithms. Therefore, the time response of the dynamic transfer functions has no potential for variation due to time or environmental drift or component aging. The COT confirms the integrity of the time constants and algorithms through the periodic software memory integrity check. The complete PSMS response time is determined one time by analysis and confirmed one time in the factory test. The response times of analog instruments that provide input to the dynamic transfer functions are periodically checked in Surveillance 3.3.2.8, because they do have the potential for response time variation. Electro-mechanical components in the ESFAS have aging or wear-out mechanisms that can impact response time. Response time for other components may be affected by random failures or calibration discrepancies, which are detectable by other testing and calibration methods required by other surveillances. MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel.

MIC-03-16-00007

Allocations for sensors, signal conditioning and actuation logic response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications.

MIC-03-16-00007

The PSMS MELTAC controllers employ dynamic transfer functions with Time Constants and actuation logic functions with Time Delays that are installed as digital values and processed through digital algorithms. Therefore, the time response of all digital PSMS functions has no potential for variation due to time, environmental drift or component aging. PSMS Time Constants and Time Delays are set at the nominal values assumed in the safety analysis. The combination of continuous automatic self-testing and MIC confirms the integrity of the dynamic transfer functions, Time Constants, Time Delays and actuation logic functions.

The response time for the digital portion of the PSMS is determined one time by analysis and confirmed one time in the factory test. Therefore, for PSMS digital functions, including Functions with Time Constants and Time Delays, response time tests are not required; instead, a response time allocation may be applied.

Response time for PSMS MELTAC input signal conditioning, can be affected by random failures or degradation, which can be detected by CHANNEL CALIBRATION. Section 4.6 of MUAP-07005, “Safety System Digital Platform -MELTAC-” (Ref. 7) describes the basis for crediting CHANNEL CALIBRATION for detecting PSMS signal conditioning response time degradation. Therefore, for PSMS input signal conditioning, response time tests are not required; instead, a response time allocation may be applied.

SURVEILLANCE REQUIREMENTS (continued)

MUAP-09021-P, "Response Time of Safety I&C System" (Ref. 8), provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the report. Response time verification for other sensor types must be demonstrated by test. MUAP-09021-P also provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. Section 4.4 of MUAP-07005, "Safety System Digital Platform -MELTAC-" describes how response times of each individual MELTAC module are combined to determine the total digital system response timeIn addition, MUAP-09021-P identifies the acceptance criteria for ESFAS components that require response time measurement (such as LOOP undervoltage relays which are known to have aging or wear-out mechanisms that can impact response time), taking into consideration the total ESF RESPONSE TIME requirement and the allocations for other components that do not require testing. MIC-03-16-0 0007 MIC-03-16-0 0007

The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. One example where response time could be affected is replacing the sensing assembly of a transmitter.

[ESF RESPONSE TIME tests are conducted on a 24 month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel. Therefore, staggered testing results in response time verification of these devices every 24 months. The 24 month Surveillance Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences. MIC-03-16-0 0007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-0 0007

BASES

SURVEILLANCE REQUIREMENTS (continued)

This SR is modified by a Note that clarifies that the tests for the turbine driven EFW pumps are conducted within 24 hours after reaching 1000 psig in the SGs.

SR 3.3.2.98 MIC-03-16-00007

SR 3.3.2.98 is the performance of a TADOT for the P-4 Reactor Trip Interlock, and the. The Surveillance Frequency is once per RTB cycle, as required by SR 3.3.1.4. Each RTB status contact is tested up to, and including, the signal status readout on a digital displayVDU. This Surveillance Frequency is based on operating experience demonstrating that undetected failure of the P-4 interlock sometimes occurs when the RTB is cycled.

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Function testedP-4 Interlock has no associated setpoint. MIC-03-16-00007

SR 3.3.2.9

SR 3.3.2.9 is the performance of a SAFETY VDU TEST for the Safety VDUs in the MCR. The SAFETY VDU TEST is explained in Reference 6.

This SR confirms the Safety VDU is capable of providing all display and control functions for the MCR. This SR overlaps with the MIC (SR 3.3.2.2), to ensure the S-VDU is OPERABLE.

[The Surveillance Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability and operating history data. In addition, the Surveillance Frequency considers that all indications and controls for each safety train and channel are available in the MCR on non-safety Operational VDUs.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

BASES

SURVEILLANCE REQUIREMENTS (continued)

REFERENCES

1. NUREG-0737, "Clarification of TMI Action Plan Requirements."
2. FSAR Section 7.3.~~1.~~ MIC-03-16-00007
3. FSAR Chapter 15.
4. IEEE-603-1991.
5. 10 CFR 50.49.
6. MUAP-07004-P ~~(Proprietary) and MUAP-07004-NP (Non-Proprietary)~~, Revision 7, "Safety I&C System Description and Design Process." MIC-03-16-00007
7. MUAP-07005-P ~~(Proprietary) and MUAP-07005-NP (Non-Proprietary)~~, Revision 8, "Safety System Digital Platform~~—~~ -MELTAC-." MIC-03-16-00007
8. ~~FSAR Section 8.3.1.~~MUAP-09021-P, Revision 2, "Response Time of Safety I&C System."
9. 10 CFR 50.36.
10. FSAR Section 15.7.4.
11. FSAR Chapter 19.
12. MUAP-09022-P, Revision 2, "US-APWR Instrument Setpoint Methodology."
13. Regulatory Guide 1.105, Revision 3, "Setpoints for Safety Related Instrumentation."
14. FSAR Chapter 9.4.1.2.2.

B 3.3 INSTRUMENTATION

B 3.3.3 Post Accident Monitoring (PAM) Instrumentation

BASES

BACKGROUND

The purpose of displaying PAM parameters is to assist Main Control Room (MCR) personnel in evaluating the safety status of the plant. PAM parameters are direct measurements or derived variables representative of the safety status of the plant. The primary function of the PAM parameters is to aid the operator in the rapid detection of abnormal operating conditions. As an operator aid, the PAM variables represent a minimum set of plant parameters from which the plant safety status can be assessed. MIC-03-16-00007

The OPERABILITY of the accident monitoring instrumentation ensures that there is sufficient information available on selected unit parameters to monitor and to assess unit status and behavior following an accident.

The availability of accident monitoring instrumentation is important so that responses to corrective actions can be observed and the need for, and magnitude of, further actions can be determined. These essential instruments are identified by ~~Chapter~~FSAR Section 7.5 (Ref. 4) addressing the recommendations of Regulatory Guide 1.97 (Ref. 1) as required by Supplement 1 to NUREG-0737 (Ref. 2). MIC-03-16-00007

The instrument channels required to be OPERABLE by this LCO include parameters based on IEEE 497-2002 (Ref. 5), which is endorsed by Regulatory Guide 1.97 (Ref. 1), identified as Type A, B and C variables.

FSAR Section 7.5 (Ref. 4) describes the PAM Instrumentation, and in particular, the process that was used for determining the bounding list of PAM variables in Table 3.3.3-1. MIC-03-16-00007

Type A, B, and C variables are the key variables deemed risk significant because they are needed to:

Type A

Take planned manually controlled actions for accomplishment of safety-related functions for which there is no automatic control.

Type B

Assess the process of accomplishing or maintaining plant critical safety functions.

Type C

Indicate potential for a breach of fission product barriers.

BASES

BACKGROUND (continued)

Indicate an actual breach of fission product barriers.

The specific instrument Functions listed in Table 3.3.3-1 are discussed in the LCO section.

APPLICABLE SAFETY ANALYSES

The PAM iInstrumentation ensures the operability of Type A, B and C variables so that the control room operating staff can: MIC-03-16-00007

- Perform the diagnosis specified in the emergency operating procedures (these variables are restricted to preplanned actions for the primary success path of PAsPostulated Accidents), e.g., loss of coolant accident (LOCA), MIC-03-16-00007
- Take the specified, pre-planned, manually controlled actions, for which no automatic control is provided, and that are required for safety systems to accomplish their safety function,
- Determine whether systems important to safety are performing their intended functions,
- Determine the likelihood of a gross breach of the barriers to radioactivity release,
- Determine if a gross breach of a barrier has occurred, and
- Initiate action necessary to protect the public and to estimate the magnitude of any impending threat.

The PAM Instrumentation is interfaced to the Protection and Safety Monitoring System (PSMS) through the Reactor Protection System (RPS), with the exception of Containment Isolation Valve (CIV) position, which is interfaced via the Safety Logic System (SLS). The RPS, including Nuclear Instrumentation System (NIS), and SLS provide signal conditioning, analog to digital conversion, and digital signals for display of the PAM Instrumentation measurements on MCR VDUs. MIC-03-16-00007

The PAM Instrumentation is displayed in the MCR via Safety VDUs and non-safety Operational VDUs. Only the Safety VDUs are credited for the PAM Display Function. The S-VDU in each train consists of a VDU and S-VDU processor.

To meet the single failure criteria and accommodate on-line maintenance, four trains of S-VDU, RPS and SLS are provided, each performing the same functions. If one train is taken out of service for maintenance or test purposes, the remaining trains will provide PAM displays for the unit.

BASES

APPLICABLE SAFETY ANALYSES (continued)

The S-VDU, RPS and SLS for each train are packaged in their own cabinet for physical and electrical separation to satisfy separation and independence requirements. MIC-03-16-00007

The S-VDU, RPS and SLS have continuous automatic self-testing while in service. When any one train is taken out of service for manual testing, the remaining trains are capable of providing unit monitoring and protection until the testing has been completed.

LCO

The LCO requires all instrumentation performing the PAM Instrumentation Function, listed in Table 3.3.3-1 in the accompanying LCO, to be OPERABLE. A channel is OPERABLE provided the "as-found" value, measured during surveillance testing, does not exceed its associated Allowable Value, and provided the “as-left” value is within the specified calibration tolerance at the completion of each CHANNEL CALIBRATION. MIC-03-16-00007

The PAM iInstrumentation LCO provides OPERABILITY requirements for Type A variables, which provide information required by the control room operators to perform certain manual actions specified in the unit Emergency Operating Procedures. These manual actions ensure that a system can accomplish its safety function, and are credited in the safety analyses. Additionally, this LCO addresses instruments that have been designated Type B and C.

The OPERABILITY of the PAM iInstrumentation ensures there is sufficient information available on selected unit parameters to monitor and assess unit status following an accident. MIC-03-16-00007

LCO 3.3.3 requires two OPERABLEThe number of channels available for mostPAM Instrumentation Functions. Two is shown in FSAR Chapter 7 Table 7.5-3. For PAM Instrumentation Functions with two channels, the channels are assigned to Trains A and D; both channels are required. For PAM Instrumentation Functions with four channels, the channels are assigned to Trains A, B, C and D; the required number of which is two, three, or four depending on the variable. MIC-03-16-00007

LCO 3.3.3 requires two, three or four OPERABLE channels. The specified number of OPERABLE channels ensures no single failure prevents operators from getting the information necessary for them to determine the safety status of the unit, and to bring the unit to and maintain it in a safe condition following an accident.

BASES

LCO (continued)

Furthermore, OPERABILITY of at least two channels allows a CHANNEL CHECK during the post accident phase to confirm the validity of displayed information. MIC-03-16-00007

The exception to the minimum two channel requirement is Penetration Flow Path Containment Isolation Valve (CIV) Position. In this case, the important information is the status of the containment penetrations. The LCO requires one position indication for each active CIV. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve and prior knowledge of a passive valve, or via system boundary status. If a normally active CIV is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE. MIC-03-16-00007

Due to redundant components within the PSMS, such as controllers, communication links and power supplies, an inoperable component may or may not result in an inoperable channel. Where an inoperable component results in an inoperable required channel, LCOs are entered. For inoperable components that do not result in inoperable channels, LCOs are not entered. MIC-03-16-00007

Table 3.3.3-1 provides a list of the PAM variables.

Type A, B, C and DC variables are required to meet requirements defined in IEEE 497-2002 (Ref. 5) for seismic and environmental qualification, and testability. Type A, B and C variables must also meet requirements for single failure criterion, separation and independence, quality, utilization of emergency standby power, information ambiguity and recording of display. In addition, Type A and B variables require continuously visible displays. These design features are described in Chapter 7 (Ref. 4). MIC-03-16-00007

Listed below are discussions of the specified instrument Functions listed in Table 3.3.3-1. ~~These discussions are intended as examples of what should be provided for each Function when the unit specific list is prepared.~~ MIC-03-16-00007

1. Wide Range Neutron Flux

Wide Range Neutron Flux indication is provided to verify reactor shutdown. ~~The~~A single wide range instrument for each channel covers the full range of flux that may occur post accident. MIC-03-16-00007

Neutron flux is used for accident diagnosis, verification of subcriticality, and diagnosis of positive reactivity insertion.

BASES

LCO (continued)

2, 3. Reactor Coolant System (RCS) Hot and Cold Leg Temperatures (Wide Range) MIC-03-16-00007

~~RCS Hot and Cold Leg Temperatures are provided for verification of core cooling and long term surveillance.~~Verification of core cooling can be determined by RCS Hot or Cold Leg Temperature in any one RCS loop. The Emergency Operating Procedure (EOP) operator action threshold points, for events such as steam generator tube rupture, can only be determined by RCS Hot Leg Temperature in any one RCS loop.

~~In addition, RCS cold leg temperature is used in conjunction with RCS hot leg temperature to verify the unit conditions necessary to establish natural circulation in the RCS.~~

~~The PAM function~~There is one channel each of RCS Hot Leg ~~and Cold Leg~~ Temperature (Wide Range ~~is to monitor the core cooling condition. There will be little temperature deviation between the Hot Leg~~) and ~~Cold Leg after an accident and reactor shutdown. Thus, Hot Leg and Cold Leg Temperatures can be defined as equivalent parameters to monitor the trend of core cooling. Thus, Hot Leg and~~RCS Cold Leg Temperature ~~of the same~~(Wide Range) per loop ~~are pair PAM functions credited for compliance with the single failure criteria. Therefore, only one of each channel of Hot Leg Temperature and Cold Leg Temperature~~and a minimum of any three loops are required ~~in~~for each ~~loop, since with a failure of either channel adequate core cooling can still be monitored.~~parameter. Therefore, in any one loop both instruments may be OPERABLE (i.e., RCS Hot Leg and Cold Leg Temperature) or only one instrument may be OPERABLE (i.e., RCS Hot Leg or Cold Leg Temperature).

Only three channels are required for each parameter because if the break is in one of the instrumented loops, the instrumentation in either remaining instrumented loop (i.e., RCS Hot Leg Temperature or RCS Cold Leg Temperature) provides sufficient indication of core cooling, and the EOP operator action threshold points can be confirmed by the RCS Hot Leg Temperature instrumentation in either remaining instrumented loop. Therefore, with only 3 required channels for each parameter (each monitoring any three loops), a single failure affecting one or both instruments (i.e., RCS Hot leg Temperature/RCS Cold Leg Temperature) in any intact loop can be accommodated.

BASES

LCO (continued)

4. Reactor Coolant System Pressure (Wide Range)

RCS ~~wide range pressure~~Pressure (Wide Range) is provided for verification of core cooling and RCS integrity long term surveillance. MIC-03-16-00007

5. Reactor Vessel Water Level

Reactor Vessel Water Level is provided for verification and long term surveillance of core cooling. It is also used for accident diagnosis and to determine reactor coolant inventory adequacy. There are two channels and two channels are required. A channel consists of three sections with two sensors per section. A channel is OPERABLE if at least one sensor is OPERABLE in all three sections. MIC-03-16-00007

6. Containment Pressure

Containment Pressure is provided for verification of RCS and containment OPERABILITY and is used to verify closure of main steam isolation valves (MSIVs)~~,~~ and ~~containment spray~~ Phase B ~~isolation~~Containment Isolation when High-3 ~~c~~Containment ~~p~~Pressure is reached. Additionally, Containment Pressure is provided for indication of maintaining RCS integrity and containment integrity. MIC-03-16-00007

7. Containment Isolation Valve Position

Penetration Flow Path CIV Position is provided for verification of Containment OPERABILITY, and Phase A and Phase B ~~i~~Isolation. MIC-03-16-00007

When used to verify Phase A and Phase B ~~i~~Isolation, the important information is the isolation status of the containment penetrations. The LCO requires one channel of valve position indication in the control room to be OPERABLE for each active CIV in a containment penetration flow path, i.e. two total channels of CIV position indication for a penetration flow path with two active valves.

For containment penetrations with only one active CIV having control room indication, Note (b) in Table 3.3.3-1 requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve, as applicable, and prior knowledge of a passive valve, or via system boundary status. If a normally active CIV is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE. MIC-03-16-00007

LCO (continued)

Note (a) ~~to the Required Channels~~in Table 3.3.3-1 states that the Function is not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. MIC-03-16-0 0007

MIC-03-16-0 0007

Each penetration is treated separately and each penetration flow path is considered a separate function. Therefore, separate Condition entry is allowed for each inoperable penetration flow path.

8. Containment High Range Area Radiation

Containment Area Radiation is provided to monitor for the potential of significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans. Containment radiation level is used to determine if a high energy line break (HELB) has occurred, and whether the event is inside or outside of containment.

9. Pressurizer Water Level

Pressurizer Water Level is used to determine whether to terminate ~~SI~~ECCS Actuation, if still in progress, or to reinitiate ~~SI~~ECCS Actuation if it has been stopped. ~~Knowledge of pressurizer water level~~Pressurizer Water Level is also used to verify the unit conditions necessary to establish natural circulation in the RCS and to verify that the unit is maintained in a safe shutdown condition. MIC-03-16-0 0007

10,11. Steam Generator Water Level (Wide Range and Narrow Range)

SG Water Level is provided to monitor operation of decay heat removal via the SGs. ~~The indication of SG level is the extended startup range level instrumentation. The extended startup range level covers a span above the lower tubesheet.~~ MIC-03-16-0 0007

SG Water Level (~~Wide~~Narrow Range) is used to:

- identify the faulted SG following a tube rupture,

- verify that the intact SGs are an adequate heat sink for decay heat removal from the reactor, MIC-03-16-0 0007

BASES

LCO (continued)

- determine the nature of the accident in progress (e.g., verify an SGTR), and
- verify unit conditions for termination of SIECCS Actuation during secondary unit HELBs outside containment. MIC-03-16-00007

Operator action is based on the control room indication of SG level. The RCS response during a design basis small break LOCA depends on the break size. For a certain range of break sizes, the boiler condenser mode of heat transfer is SGs are necessary to remove decay heat. Extended startup range level is a Type A variable because the operator must manually raise and control SG level to establish boiler condenser heat transfer. Operator action is initiated on a loss of subcooled margin. Feedwater flow is increased until the indicated extended startup range level reaches the boiler condenser setpoint. This function is an alternate mean with EFW Flow.SG Water Level (Narrow Range) can be used to manually control SG level to remove decay heat via the SGs. MIC-03-16-00007

The PAM function of Steam Generator Water Level Wide Range and Emergency Feedwater Flow is to monitor heat removal capability of the Steam Generators. Since during accident or shutdown conditions, SG water level is directly attributed to emergency feedwater flow, either provides an indication of SG heat removal capability. Thus the SG Water Level Wide Range and EFW Flow can be defined as equivalent parameters to monitor the heat removal capability of the secondary. Thus, theSG Water Level (Wide Range), which covers the span above the lower tubesheet, is used to verify that the intact SGs are an adequate heat sink for decay heat removal from the reactor.

There is one SG Water Level and EFW Flow of same loop are pair PAM functions credited for compliance with the single failure criteria. Therefore, only one of each(Wide Range) channel of SG Water Level and EFW Flow are required in each loop, since with a failure of either channel adequate heat removal capability can still be monitored.per loop. All four loops are required because if the break is in one of the instrumented SGs and there is a single failure affecting the instrumentation in another SG, the instrumentation in the remaining two SGs provide sufficient indication of heat sink availability; two SGs are required for sensible heat removal.

BASES

LCO (continued)

12, 13, 14, 15. Core Exit Temperature

Core Exit Temperature is provided for verification and long term surveillance of core cooling.

~~Twenty~~For Post Accident Monitoring, twenty six core exit thermocouple~~s~~ channels are provided for measuring core cooling~~ as the post accident monitors. These thermocouples~~. The thermocouple channels are arranged in two safety trains, A and ~~a~~D, with each train ~~consists~~consisting of thirteen ~~thermocouples. These thermocouples in each train are distributed at the exit of the core nearly uniformly and a minimum of 2 thermocouples are provided for each core quadrant. These distributed thermocouples provide adequate information of temperature distribution of core exit fluid.~~thermocouple channels. A minimum of 2 thermocouple channels from each of two trains (4 total) are required for each core quadrant. For each train and each core quadrant, one thermocouple channel is required near the center of the core and one thermocouple channel is required near the core perimeter. The two thermocouple channels indicate the radial temperature gradient across their core quadrant. The uniform ~~distributions of two train thermocouples ensure the~~distribution of thermocouple channels from both trains ensures adequate information of radial temperature distribution ~~in~~even with a single train failure condition. MIC-03-16-00007

16. Emergency Feedwater Flow

Emergency Feedwater (EFW) Flow is provided to monitor operation of decay heat removal via the SGs. MIC-03-16-00007

EFW flow is used three ways:

- to verify delivery of EFW flow to the SGs,
- to determine whether to terminate ~~SI~~ECCS Actuation if still in progress, in conjunction with SG ~~w~~Water ~~l~~Level (~~n~~Narrow ~~r~~Range), and MIC-03-16-00007
- ~~to regulate EFW flow so that the SG tubes remain covered.~~to verify that the intact SGs are an adequate heat sink for decay heat removal from the reactor.

~~This function is an alternate mean with SG Water Level.~~

BASES

LCO (continued)

There is one channel of EFW Flow per loop. All four loops are required, because if the break is in one of the instrumented SGs and there is a single failure affecting the instrumentation in another SG, the instrumentation in the remaining two SGs provide sufficient indication of heat sink availability; two SGs are required for sensible heat removal. MIC-03-16-00007

17. Degrees of Subcooling

~~The~~ Degrees of Subcooling is provided for verification of core cooling. Degrees of Subcooling utilizes sensors for RCS ~~c~~Cold and ~~h~~Hot ~~l~~Leg ~~t~~Temperatures, ~~c~~Core ~~e~~Exit ~~t~~Temperature and RCS ~~p~~Pressure. The saturation temperature is calculated from ~~minimum temperature~~the pressure input. The temperature subcooled ~~or superheated~~ margin is the difference between the calculated saturation temperature and the sensor temperature input. Two temperature~~s~~ subcooled ~~or superheated~~ margin presentations are available as follows: MIC-03-16-00007

- RCS saturation margin – ~~t~~The temperature saturation margin is based on the difference between the saturation temperature and the maximum temperature from the RTDs in the hot and cold legs.

- Upper head saturation margin – The temperature saturation margin is based on the difference between the saturation temperature and the ~~c~~Core ~~e~~Exit ~~t~~Temperature. MIC-03-16-00007

18. Main Steam Line Pressure

Steam Generator Pressure is provided to monitor ~~operation of~~ decay heat removal via the SGs. MIC-03-16-00007

19. Emergency Feedwater Pit Level

EFW Pit Level is provided to ensure water supply for ~~e~~Emergency ~~f~~Feedwater (EFW). The EFW Pits provide the ensured safety grade water supply for the EFW System. There are two identical EFW Pits, each of which supplies one motor driven and one turbine driven EFW pump. Redundant level indication for each EFW Pit is displayed in the ~~m~~Main ~~c~~Control ~~r~~Room. MIC-03-16-00007

~~The PAs that required EFW are the loss of electric power, steam line break (SLB), and small break LOCA.~~ MIC-03-16-00007

BASES

LCO (continued)

20,21. Refueling Water Storage Pit (RWSP) Level (Wide Range, Narrow Range)

RWSP Level is provided for verification and long term surveillance of RCS integrity and is used to determine:

- RWSP level accident diagnosis, and
- Whether to terminate ~~SI~~ECCS Actuation, if still in progress. MIC-03-16-0 0007

PAM Display Function

The PAM Display Function is provided by four trains of Safety VDUs (S-VDU). A Safety VDU train consists of a VDU and S-VDU processor. An S-VDU train must be OPERABLE for the corresponding channels of the required PAM Instrumentation Functions, and in the same MODES. For PAM Instrumentation Functions with four channels (two or three required channels), two or three corresponding S-VDU trains must be OPERABLE. For PAM Instrumentation Functions with only two required channels, two corresponding S-VDU trains must be OPERABLE. For CIV position, there are two-train components assigned to Trains A and D, and two-train components assigned to Trains B and C. Therefore, because all four trains are required for CIV position, all four trains of S-VDU are required to be OPERABLE.

APPLICABILITY

The PAM ~~i~~Instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and pre-planned actions required to mitigate PAs. The applicable PAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event that would require PAM ~~i~~Instrumentation is low; therefore, the PAM ~~i~~Instrumentation is not required to be OPERABLE in these MODES. MIC-03-16-0 0007 MIC-03-16-0 0007

ACTIONS

The ACTIONS Table has been modified by ~~two Notes~~a Note~~.~~ MIC-03-16-0 0007

~~The first Note excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a plant shutdown. This exception is acceptable due to the passive function of the instruments, the operator's ability to respond to an accident using alternate instruments and methods, and low probability of an event requiring these instruments.~~

~~The second note has been added in the ACTIONS~~ to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.3-1 and the PAM Display Function. The Completion Time(s) of the inoperable channel(s) of a Function MIC-03-16-0 0007

ACTIONS (Continued)

will be tracked separately for each Function starting from the time the Condition was entered for that Function.

In all cases where the LCO states “Restore channel or train to OPERABLE status”, this means restore the required number of channels or trains to OPERABLE status. Therefore, restoration of an alternate channel or train, other than the failed channel or train, is also acceptable. MIC-03-16-00007

A.1

Condition A applies when one or more PAM Instrumentation Functions have one required channel thatinoperable, or one train of the PAM Display Function is inoperable. MIC-03-16-00007

Required Action A.1 requires restoring the inoperable channel or train to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channel(s) or trains (or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function), the passive nature of the instrument (operability for automatic actions that may occur from these instruments is covered by LCOs in other sections), and the low probability of an event requiring PAM iInstrumentation during this interval. MIC-03-16-00007 MIC-03-16-00007

B.1

Condition B applies when the Required Action and associated Completion Time for Condition A are not met. This Required Action specifies initiation of actions in Specification 5.6.5, which requires a written report to be submitted to the NRC immediately. This report discusses the results of the root cause evaluation of the inoperability and identifies proposed restorative actions. This action is appropriate in lieu of a shutdown requirement since alternative actions are identified before loss of functional capability, and given the likelihood of unit conditions that would require information provided by this instrumentation.

C.1 [and C.2]

Condition C applies when one or more PAM Instrumentation Functions have two inoperable required channels (i.e.inoperable, or two channelstrains of the PAM Display Function are inoperable in the same Function). MIC-03-16-00007

BASES

ACTIONS (Continued)

Required Action C.1 requires restoring one channel in the Function(s) to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Continuous operation with two trains or two required channels inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements applied to the PAM iInstrumentation. Therefore, requiring restoration of one inoperable channel or train of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur. MIC-03-16-00007 MIC-03-16-00007

[Required Action C.2 allows the option to apply the requirements of Specification 5.5.18 to determine a Risk Informed Completion Time.

Required Action C.2 is modified by a Note that indicates C.2 ismay only required to be performed when the Emergency Feedwater Pit Level is inoperable.] MIC-03-16-00007

D.1 and D.2 MIC-03-16-00007

~~Condition D applies when the Required Action and associated Completion Time of Condition C is not met. Required Action D.1 requires entering the appropriate Condition referenced in Table 3.3.3-1 for the channel immediately. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met the Required Action of Condition C, and the associated Completion Time has expired, Condition D is entered for that channel and provides for transfer to the appropriate subsequent Condition.~~

~~E.1 and E.2~~

If the Required Action and associated Completion Time of Condition C isare not met and Table 3.3.3-1 directs entry into Condition E, the unit must be brought to a MODE where the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 4 within 12 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

BASES

ACTIONS (Continued)

F.1

At this unit, alternate means of monitoring Reactor Vessel Water Level and Containment High Area Radiation have been developed and tested. These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the unit but rather to follow the directions of Specification 5.6.5, in the Administrative Control section of the TS. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels. MIC-03-16-00007

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM iInstrumentation Function in Table 3.3.3-1. MIC-03-16-00007

SR 3.3.3.1

Performance of the CHANNEL CHECK ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The high radiation instrumentation should be compared to similar unit instruments located throughout the unit. MIC-03-16-00007

Agreement criteria are determined based on a combination of the channel instrument uncertainties. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized. MIC-03-16-00007

[The Surveillance Frequency of 31 days is based on operating experience that demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

BASES

SURVEILLANCE REQUIREMENTS (continued)

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-00007

A CHANNEL CHECK may be conducted manually or automatically. For the US-APWR an automated CHANNEL CHECK is normally conducted continuously, which satisfies the 31 day Surveillance Frequency requirement. Where the CHANNEL CHECK is conducted automatically, an alarm shall be generated when the agreement criteria is not met. If the automated CHANNEL CHECK function is unavailable, a manual CHANNEL CHECK shall be conducted at the minimum 31 day Surveillance Frequency. MIC-03-16-00007 MIC-03-16-00007

The equipment that performs the automated CHANNEL CHECK shall be confirmed OPERABLE including the capability to generate fault alarms.OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.3.2

CHANNEL CALIBRATION is a complete check of the instrument loop, from sensor to VDU as described in Reference 3. The test verifiesincluding the sensor. The test must be performed consistent with the methods and assumptions of MUAP-09022, "US-APWR Instrument Setpoint Methodology" (Ref. 6), to verify that the channel responds to a measured parameter with the necessary range and accuracy. MIC-03-16-00007

The CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to digital VDU read out as described in Reference 3.

For analog measurements, except Core Exit Temperature Channels, CHANNEL CALIBRATION confirms the channel accuracy at five calibration settings corresponding to 0%, 25%, 50%, 75% and 100% of the instrument range.

For binary measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel's state change at the required setpoint.

This SR includes the RCS Hot Leg and Cold Leg Temperature channels. The CHANNEL CALIBRATION of the RCS Hot Leg and Cold Leg Temperature channels is accomplished by a cross calibration that compares the signals from the installed channels to a channel with a reference RTD, in accordance with FSAR Section 7.1.3.14 (Ref. 8).

SURVEILLANCE REQUIREMENTS (continued)

This SR includes the Core Exit Temperature channels. The CHANNEL CALIBRATION of the Core Exit Temperature channels is accomplished by a cross calibration that compares the signals from the installed channels to the signals from the RCS Hot Leg and Cold Leg Temperature channels, after they have been calibrated as described above. MIC-03-16-00007

This SR is modified by a Note that excludes the neutron detectors from the CHANNEL CALIBRATION for the Wide Range Neutron Flux channels; the remaining channel devices are included. The calibration method for neutron detectors is specified in the Bases for SR 3.3.1.9 of LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation." Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the Core Exit thermocouple sensors is accomplished by an in situ cross calibration that compares the other sensing elements with the recently installed sensing element. [

The equipment that performs the automated CHANNEL CHECK shall be confirmed OPERABLE, including the capability to generate fault alarms during the CHANNEL CALIBRATION.

[The Surveillance Frequency of 24 months is based on operating experience and consistency, and on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in accordance with MUAP-09022, "US-APWR Instrument Setpoint Methodology", and is consistent with the typical industry refueling cycle.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.3.3 MIC-03-16-00007

SR 3.3.3.3 is the performance of a MEMORY INTEGRITY CHECK (MIC) for the PAM Instrumentation. This includes the Safety VDU processors, RPS and SLS.

The PSMS is self-tested automatically on a continuous basis from the digital side of all input modules to the digital side of all visual display units. Continuous automatic self-testing encompasses all PSMS safety-related functions. The continuous automatic self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. The continuous automatic self-testing is described in Reference 3 and Reference 7.

BASES

SURVEILLANCE REQUIREMENTS (continued)

The MIC is a diverse check of the PSMS software memory integrity to ensure there is no change to the internal PSMS software that would impact its functional operation, including the continuous automatic self-testing. The MIC is described in Reference 3 and Reference 7. MIC-03-16-00007

The capability to generate continuous automatic self-testing fault alarms shall be confirmed OPERABLE during the MIC.

The complete OPERABILITY check from the measurement channel input device to the Safety VDU is performed by the combination of the continuous automatic self-testing for the digital devices (the Safety VDU processors, RPS, SLS and data communication interfaces), the continuous automatic CHANNEL CHECK (SR 3.3.3.1), the CHANNEL CALIBRATION (SR 3.3.3.2) and the MIC (SR 3.3.3.3). The CHANNEL CALIBRATION, the MIC, and the TADOT, which are manual tests, overlap with the continuous automatic self-testing and confirm the functioning of the continuous automatic self-testing.

[The Surveillance Frequency of 24 months is justified because the software memory integrity is checked by the continuous automatic self-testing.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.3.4

SR 3.3.3.4 is the performance of a SAFETY VDU TEST for the Safety VDUs in the MCR. The SAFETY VDU TEST is explained in Reference 3.

This SR confirms the Safety VDU is capable of providing all display functions for the MCR. This test overlaps with the MIC (SR 3.3.3.3), to ensure the S-VDU is OPERABLE.

[The Surveillance Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability and operating history data.

In addition, the Surveillance Frequency considers that all indications and controls for each safety train and channel are available in the MCR on six other non-safety Operational VDUs.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

BASES

REFERENCES

1. Regulatory Guide 1.97, Rev. 4.
2. NUREG-0737, “Clarification of TMI Action Plan Requirements.”
3. MUAP-07004-P (Proprietary) and MUAP-07004-NP (Non-Proprietary), Revision 7, “Safety I&C System Description and Design Process.” MIC-03-16-00007
4. FSAR Section 7.5.
5. IEEE 497-2002.
6. MUAP-09022-P, Revision 2, “US-APWR Instrument Setpoint Methodology.” MIC-03-16-00007
7. MUAP-07005-P, Revision 8, “Safety System Digital Platform -MELTAC-.”
8. FSAR Section 7.1.3.14.

B 3.3 INSTRUMENTATION

B 3.3.4 Remote Shutdown Console (RSC)

BASES

BACKGROUND

The RSC provides sufficient displays and controls for the ~~control room~~Main Control Room (MCR) operator to place and maintain the unit in a ~~safe shutdown~~hot standby condition (MODE 3), to place and maintain the unit in a hot shutdown condition (MODE 4), and to place and maintain the unit in a cold shutdown condition (MODE 5), from a location outside the ~~Main Control Room~~MCR if the ~~control room~~MCR becomes inaccessible. In accordance with Section 7.4 (Ref. 4), MODES 3, 4 or 5 are referred to as safe shutdown. MIC-03-16-0 0007

With the unit in MODE 3, the Emergency Feedwater (EFW) System and the steam generator (SG) safety valves or the main steam depressurization valves (MSDVs) can be used to remove core decay heat and meet all safety requirements. The long term supply of water for the EFW System and the ability to borate the Reactor Coolant System (RCS) from outside the ~~control room~~MCR allows extended operation in MODE 3. MIC-03-16-0 0007

If the ~~control room~~MCR becomes inaccessible, the operators can establish control at the RSC, and place and maintain the unit in MODE 3 for an extended period of time. The RSC also provides the capability to transition and maintain the unit in MODE 5, using the Residual Heat Removal System. MIC-03-16-0 0007

APPLICABLE SAFETY ANALYSES

The RSC is located outside the ~~control room~~MCR with ~~a~~the capability to promptly shutdown, cooldown and maintain the unit in a safe condition in MODE 3, and the capability to transition and maintain the unit in a safe condition in MODE 4 or 5, in accordance with the design described in FSAR Section 7.4 (Ref. 4). MIC-03-16-0 0007 MIC-03-16-0 0007

The criteria governing the design and specific system requirements for remote shutdown are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 1). These criteria are applied to the RSC of the US-APWR.

The RSC satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii) (Ref. 2).

The RSC LCO provides the OPERABILITY requirements for the RSC, which includes the displays and controls necessary to place and maintain the unit in MODE 3, with the capability to transition to MODES 4 or 5 and the ability to transfer control from the MCR to the RSC. MIC-03-16-0 0007

LCO

Due to redundant components within the PSMS, such as controllers, communication links and power supplies, an inoperable component may or may not result in an inoperable channel or train. Where an inoperable component results in an inoperable required channel or train, LCOs are entered. For inoperable components that do not result in inoperable channels or trains, LCOs are not entered. The instrumentation required are listed in Table B 3.3.4-1. MIC-03-16-0 0007

LCO (continued)

Display and Control Function MIC-03-16-00007

The displays and controls at the RSC are functionally the same as the displays and controls used by the operator to achieve and maintain MODE 3, 4 or 5 from the main control roomMCR. These displays and controls are provided by four trains of Safety VDUs, and non-safety Operational VDUs. MODE 3, 4 or 5 can be achieved and maintained using only safety related plant equipment which is controlled and monitored from Safety VDUs or Operational VDUs. MIC-03-16-00007 MIC-03-16-00007

The Display and Control Function of the RSC encompasses the measurement channels and component controls required for safe shutdown, and the subsystems of the PSMS that support that equipment. The measurement channels and component controls available to achieve normal and safe shutdown are identified in Table 7.4-1 and Table 7.4-2 of FSAR Section 7.4 (Ref. 4). MIC-03-16-00007

The measurement channels for safe shutdown, that are required to be OPERABLE for this LCO, are listed in Table B 3.3.4-1, including the required number of channels. These measurement channels are interfaced to the Reactor Protection System (RPS) and then provided to the RSC. Each item listed in Table B 3.3.4-1 is referred to as an RSC Instrumentation Function.

The component controls for safe shutdown, that are required to be OPERABLE for this LCO, are listed in Table B 3.3.4-2, including the required number of trains. The Safety Logic System (SLS) provides the Actuation Logic and Actuation Outputs for these components. Safe shutdown can be achieved by only one train of plant equipment for two train ESF systems and by two trains of plant equipment for four train ESF systems. One additional train is required to meet the single failure criteria. Each item listed in Table B 3.3.4-2 is referred to as an RSC Control Function.

The Display and Control Function also encompasses the Safety VDUs (S-VDU) and Communication Subsystem (COM-2). The S-VDU is required for the display of safe shutdown measurement channels. The S-VDU and COM-2 are required for manual control of safe shutdown components. Since for all required safe shutdown systems, the required OPERABLE safety plant components may be distributed to all four trains, all four trains of Safety VDUs and COM-2 are required. The Safety VDU in each train consists of a VDU and Safety VDU processor.

NonAll plant equipment, including non-safety plant equipment is controlled and monitored from the Operational VDUs at the RSC. This equipment is provided for convenience and is not necessary to achieve or maintain MODE 3, 4 or 5. Therefore the Operational VDUs are not covered by this LCO. MIC-03-16-00007

LCO (continued)

~~Transfer of Control~~ MIC-03-16-00007

~~The controls in the MCR are normally enabled, while the controls at the RSC are normally disabled. Actuation of Transfer Switches disables the controls in the MCR and enables the controls at the RSC. There are two Transfer Switches for each safety train of the PSMS and two transfer switches for the PCMS. Activating both transfer switches for a train, transfers the controls for that train.~~

The RSC equipment covered by this LCO does not need to be continuously energized to be considered OPERABLE. However, it is necessary to energize this equipment for surveillance testing.

Transfer of Control Function MIC-03-16-00007

The controls in the MCR are normally enabled, while the controls at the RSC are normally disabled. Actuation of Transfer Switches disables the controls in the MCR and enables the controls at the RSC. There are two Transfer Switches for each safety train of the Protection and Safety Monitoring System (PSMS) (8 switches) and two Transfer Switches for the Plant Control and Monitoring System (PCMS) (which has only one train). Activating both Transfer Switches for a train, transfers the controls for that train. Transferring control also blocks signals from the disabled location that could otherwise interfere with safe shutdown operations. Since all trains must be capable of control transfer and signal blocking, both Transfer Switches for all four PSMS trains and the PCMS are required to be OPERABLE.

The Transfer of Control Function also encompasses the COM-2. The COM-2 is required for transfer of control from the MCR to the RSC. Since for all required safe shutdown systems, the required OPERABLE safety plant components may be distributed to all four trains, all four trains of COM-2 are required.

APPLICABILITY

The RSC LCO is applicable in MODES 1, 2 and 3. This applicability recognizes the need for being able to place and maintain the unit in a safe shutdown condition (MODE 3, with the capability to transition to MODES 4 or 5) from a location outside the ~~main control room~~MCR if the MCR becomes inaccessible while the RCS contains a large amount of energy. MIC-03-16-00007

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the facility is already subcritical and in a condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control functions if ~~control room~~MCR instruments or controls become unavailable. MIC-03-16-00007

ACTIONS

In all cases where the LCO states "Restore channel or train to OPERABLE status", this means restore the required number of channels or trains to OPERABLE status. Therefore, restoration of an alternate channel or train, other than the failed channel or train, is also acceptable. MIC-03-16-00007

A.1

Condition A addresses the situation where ~~the Remote Shutdown Console is inoperable. This includes~~one required channel or train for the Display and Control Function ~~and~~is inoperable, or one train for the Transfer of Control Function~~.~~ is inoperable. MIC-03-16-00007

The Required Action is to restore the ~~required Function~~channel or train to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the ~~control room~~MCR. MIC-03-16-00007

B.1 and B.2

Condition B applies when the Required Action and associated Completion Time of Condition A are not met. In this condition, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1

SR 3.3.4.1 is the performance of a TADOT for the ~~-~~Transfer of Control Function from the ~~main control room~~MCR to the RSC, which verifies the RSC Transfer Switches perform their required functions for each PSMS train and the PCMS. Each Transfer Switch is tested up to, and including, the signal status readout on a digital display. MIC-03-16-00007

This ~~Surveillance~~SR verifies that the controls and interfaces for the Transfer of Control Function are OPERABLE. MIC-03-16-00007

[The 24 month Surveillance Frequency is adequate, based on industry operating experience, considering instrument reliability and operating history data. Allowing this test during unit outage conditions is reasonable given the robustness of the ~~t~~Transfer ~~s~~Switches and the potential for unplanned transients if performed at power. MIC-03-16-00007 MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.2

SR 3.3.4.2 is the performance of ~~an ACTUATION LOGIC~~a SAFETY VDU TEST for all Safety VDUs on the RSC. The ~~PSMS are self-tested on a continuous basis from the digital side of all input modules to the digital side of all output modules. Self-testing also encompasses all data communications within a PSMS train, between PSMS trains. The self-testing is described~~SAFETY VDU Test is explained in Reference 3~~and 5. The ACTUATION LOGIC TEST is a check of the PSMS software memory integrity to ensure there is no change to the internal software that would impact its functional operation or the continuous self-test function. The software memory integrity test is described in Reference 3 and 5~~. MIC-03-16-00007

~~This Surveillance verifies that all logic and communications with the PSMS for the Transfer of Control Function is OPERABLE. It also verifies that all logic functions within the PSMS associated with controls and indications at the RSC are OPERABLE.~~This SR confirms the Safety VDU is capable of providing all Display and Control Functions for the RSC. This test overlaps with the MEMORY INTEGRITY CHECK (MIC) for the Safety VDU processor (SR 3.3.4.5), to ensure the Display and Control Function is OPERABLE.

[The Surveillance Frequency of ~~every~~ 24 months is ~~justified~~adequate, based on ~~the~~industry operating experience, considering instrument reliability ~~of~~and operating history data. In addition, the ~~PSMS. The 24 month~~Surveillance Frequency ~~supports conduct of this test during outage conditions.~~considers that all indications and controls for each safety train and channel are available on two other non-safety Operational VDUs.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.4.3

SR 3.3.4.3 is the performance of a CHANNEL CHECK for each RSC Instrumentation Function in Table 3.3.4-1.~~Safety VDU test for all Safety VDUs on the RSC. The Safety VDU Test is explained in Reference 3.~~ MIC-03-16-00007

~~This Surveillance confirms the Safety VDU is capable of providing all display and control functions for the RSC. This test overlaps with the Actuation Logic Test of SR 3.3.4.2 to ensure the Display and Control Function is OPERABLE.~~

SURVEILLANCE REQUIREMENTS (continued)

[The Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability and operating history data. In addition, the frequency considers that all indications and controls for each safety train and channel are available on two other non-safety Operational VDUs. Performance of the CHANNEL CHECK ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. Agreement criteria are determined based on a combination of the channel instrument uncertainties. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE. MIC-03-16-00007

[The Surveillance Frequency of 31 days is based on operating experience that demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.

A CHANNEL CHECK may be conducted manually or automatically. For the US-APWR an automated CHANNEL CHECK is normally conducted continuously, which satisfies the 31 day Surveillance Frequency requirement. Where the CHANNEL CHECK is conducted automatically, an alarm shall be generated when the agreement criteria is not met. If the automated CHANNEL CHECK function is unavailable, a manual CHANNEL CHECK shall be conducted at the minimum 31 day Surveillance Frequency.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.4.4 MIC-03-16-00007

SR 3.3.4.4 is the performance of a CHANNEL CALIBRATION for each RSC Instrumentation Function in Table B 3.3.4-1.

The CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to digital VDU readout, as described in Reference 3.

SURVEILLANCE REQUIREMENTS (continued)

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test must be performed consistent with the methods and assumptions of MUAP-09022, "US-APWR Instrument Setpoint Methodology" (Ref. 6), to verify that the channel responds to a measured parameter with the necessary range and accuracy. MIC-03-16-00007

For analog measurements, CHANNEL CALIBRATION confirms the channel accuracy at five calibration settings corresponding to 0%, 25%, 50%, 75% and 100% of the instrument range. For binary measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel's state change at the required setpoint.

This SR is applicable to all channels, including the Wide Range Neutron Flux channels. However, this SR is modified by a Note that excludes neutron detectors. The calibration method for neutron detectors is specified in the Bases for SR 3.3.1.9 of LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation."

This SR includes the RCS Hot Leg and Cold Leg Temperature channels. The calibration of the channels is accomplished by a cross calibration that compares the signals from the installed channels to a channel with a reference RTD, in accordance with FSAR Section 7.1.3.14 (Ref. 7).

The equipment that performs the automated CHANNEL CHECK shall be confirmed OPERABLE, including the capability to generate fault alarms during the CHANNEL CALIBRATION.

[The Surveillance Frequency of 24 months is based on operating experience, and on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in accordance with MUAP-09022, "US-APWR Instrument Setpoint Methodology", and is consistent with the typical industry refueling cycle.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.4.5

SR 3.3.4.5 is the performance of a MIC for the RSC. This includes the Safety VDU processors, RPS, SLS and COM-2.

SURVEILLANCE REQUIREMENTS (continued)

The PSMS is self-tested automatically on a continuous basis from the digital side of all input modules to the digital side of all output modules. Continuous automatic self-testing encompasses all PSMS safety-related functions including actuation logic functions. The continuous automatic self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. The continuous automatic self-testing is described in Reference 3 and Reference 5. MIC-03-16-00007

The MIC is a diverse check of the PSMS software memory integrity to ensure there is no change to the internal PSMS software that would impact its functional operation, including actuation logic functions or the continuous automatic self-testing. The MIC is described in Reference 3 and Reference 5.

The capability to generate continuous automatic self-testing fault alarms shall be confirmed OPERABLE during the MIC.

The complete operability check from the Safety VDUs (S-VDU) input device to the Safety Logic System (SLS) output device is performed by the combination of the continuous automatic self-testing for the digital devices (Safety VDU processors, COM-2, SLS and digital communication interfaces), the SAFETY VDU TEST (SR 3.3.4.2), MIC for the Safety VDU processors, COM-2 and SLS (SR 3.3.4.5) and TADOT for SLS outputs (SR 3.3.4.6). The SAFETY VDU TEST, MIC, and TADOT, which are manual tests, overlap with the continuous automatic self-testing and confirm the functioning of the continuous automatic self-testing.

The complete operability check from the measurement channel sensing device to the S-VDU is performed by the combination of the continuous automatic self-testing for the digital devices (Safety VDU processors and RPS, and digital communication interfaces), the SAFETY VDU TEST (SR 3.3.4.2), MIC for the Safety VDU processors and RPS (SR 3.3.4.5), the continuous automatic CHANNEL CHECK (SR 3.3.4.3) and the CHANNEL CALIBRATION (SR 3.3.4.4). The CHANNEL CALIBRATION, MIC and Safety VDU TEST, which are manual tests, overlap with the continuous automatic self-testing and confirm the functioning of the continuous automatic self-testing.

[The Surveillance Frequency of 24 months is justified because the software memory integrity is checked by the continuous automatic selftesting.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.4.6 MIC-03-16-00007

SR 3.3.4.6 is the performance of a TADOT for the Actuation Outputs of each required train for each RSC Control Function. This test actuates the outputs of the SLS for all components required to achieve and maintain safe shutdown. Therefore, this test is typically conducted in conjunction with testing the plant process components. Since this test is conducted in conjunction with testing for plant process components, this test may be conducted more frequently, as may be required for the plant process components.

[The Surveillance Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability and operating history data of solid state Actuation Output devices.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

REFERENCES

1. 10 CFR 50, Appendix A, GDC 19.

2. 10 CFR 50.36.

3. MUAP-07004-P (Proprietary) and MUAP-07004-NP (Non-Proprietary), Revision 7, "Safety I&C System Description and Design Process." MIC-03-16-00007

4. FSAR Section 7.4.1. MIC-03-16-00007

5. MUAP-07005-P (Proprietary) and MUAP-07005-NP (Non-Proprietary), Revision 8, "Safety System Digital Platform – MELTAC."

6. MUAP-09022-P, Revision 2, "US-APWR Instrument Setpoint Methodology."

7. FSAR Section 7.1.3.14.

MIC-03-16-00007

Table B 3.3.4-1 (Sheet 1 of 2)
Remote Shutdown Console Instrumentation

FUNCTION	REQUIRED NUMBER OF CHANNELS
1. Reactor Coolant System	
a. Pressurizer Water Level	2
b. Pressurizer Pressure	2
c. Reactor Coolant Hot Leg Temperature (Wide Range)	3
d. Reactor Coolant Cold Leg Temperature (Wide Range)	3
e. Reactor Coolant Pressure	2
2. Safety Injection System	
a. Safety Injection Pump Discharge Flow	1 per Required Pump
b. Safety Injection Pump Minimum Flow	1 per Required Pump
c. Safety Injection Pump Discharge Pressure	1 per Required Pump
d. Safety Injection Pump Suction Pressure	1 per Required Pump
e. Accumulator Pressure	1 per Tank
3. Residual Heat Removal System	
a. CS/RHR Hx Outlet Temperature	1 per Required Pump
b. CS/RHR Pump Discharge Flow	1 per Required Pump
c. CS/RHR Pump Minimum Flow	1 per Required Pump
d. CS/RHR Pump Discharge Pressure	1 per Required Pump
e. CS/RHR Pump Suction Pressure	1 per Required Pump
4. EFW Pit Water Level	
a. EFW Pit Water Level	2 per Pit
b. EFW Flow	1 per SG
c. EFW Pump Discharge Pressure	1 per Required Pump
5. Condensate and Feedwater System	
SG Water Level (Wide Range)	1 per SG

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Table B 3.3.4-1 (Sheet 2 of 2)
Remote Shutdown Console Instrumentation

FUNCTION	REQUIRED NUMBER OF CHANNELS
6. Main Steam Supply System	
a. Main Steam Line Pressure	2 per Line
7. Component Cooling Water System	
a. CCW Surge Tank Water Level	1 per Required Tank Compartment
b. CCW Header Pressure	1 per Required Pump
c. CCW Header Flow	1 per Required Pump
d. CCW Supply Temperature	1 per Required Pump
8. Essential Service Water System	
a. CCW Hx ESW Flow	1 per Required Pump
b. ESW Header Pressure	1 per Required Pump
9. Refueling Water Storage System	
a. RWSP Water Level (Wide Range)	2
10. Nuclear Instrumentation	
a. Source Range Neutron Flux	2
[11. UHS Instrumentation	1 per Required Pump]

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Table B 3.3.4-2 (Sheet 1 of 3)
Remote Shutdown Console Control

FUNCTION	REQUIRED NUMBER OF TRAINS
1. Reactor Trip System	
a. Reactor Trip Breaker	3 (2 Breakers per Train)
2. Reactor Coolant System	
a. Safety Depressurization Valve	2
b. Safety Depressurization Valve Block Valve	2
c. Pressurizer Heater Backup Group	3
d. Reactor Vessel (RV) Vent Valve	2 per Line
3. Chemical Volume Control System	
a. Seal Water Return Line Isolation Valve	2 per Line
4. Safety Injection System	
a. Safety Injection Pump (SIP)	3
b. SIPs Suction Isolation Valve	1 per Required Pump
c. SIPs Discharge Containment Isolation Valve	1 per Required Pump
d. Direct Vessel Safety Injection Line Valve	1 per Required Pump
e. Emergency Letdown Line Isolation Valve	2 per Line
f. Accumulator Discharge Valve	1 per Tank
g. ACC Nitrogen Supply Line Isolation Valve	1 per Tank
h. ACC Nitrogen Discharge Valve	2 per Tank
5. Residual Heat Removal System	
a. CS/RHR Pump	3
b. CS/RHR Pump Hot Leg Isolation Valve	1 per Required Pump (2 Valves per train)
c. CS/RHR Pumps RWSP Suction Isolation Valve	1 per Required Pump
d. RHR Discharge Line Containment Isolation Valve	1 per Required Pump
e. RHR Flow Control Valve	1 per Required Pump
f. CS/RHR Pump Full-Flow Test Line Stop Valve	1 per Required Pump

Table B 3.3.4-2 (Sheet 2 of 3)
Remote Shutdown Console Control

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FUNCTION	REQUIRED NUMBER OF TRAINS
6. Emergency Feedwater System	
a. EFW Pump (Motor-Driven or Turbine Driven)	3
b. EFW Control Valve	1 per SG
c. EFW Isolation Valve	1 per SG
d. T/D-EFW Pump MS Line Steam Isolation Valve	1 per Required Pump
e. T/D-EFW Pump Actuation Valve	1 per Required Pump
7. Main Steam Supply System	
a. Main Steam Depressurization Valve	1 per SG
b. Main Steam Relief Valve Block Valve	1 per SG
c. Main Steam Isolation Valve	1 per SG
d. Main Steam Bypass Isolation Valve	1 per SG
8. Component Cooling Water System	
a. CCW Pump	3
b. CS/RHR Hx CCW Outlet Valve	1 per Required Pump
9. Essential Service Water System	
a. ESW Pump	3
b. ESW Pump Discharge Valve	1 per Required Pump
10. Steam Generator Blowdown System	
a. SGBD Line Containment Isolation Valve	1 per SG
b. SGBD Line Isolation Valve	1 per SG
c. SGBD Sampling Line Containment Isolation Valve	1 per SG
11. Heating, Ventilation, and Air Conditioning	
a. MCR Air Handling Unit & Damper	3
b. Class 1E Electrical Room Air Handling Unit & Damper	3
c. Class 1E Electrical Room Return Air Fan	3

Table B 3.3.4-2 (Sheet 3 of 3)
Remote Shutdown Console Control

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FUNCTION	REQUIRED NUMBER OF TRAINS
d. Class 1E Battery Room Exhaust Fan & Damper	3
e. Class 1E Electrical Room In-duct heater	3
f. CCW Pump Area Air Handling Unit	3
g. Essential Chiller Unit Area Air Handling Unit	3
h. EFW Pump Area Air Handling Unit	3
i. Essential Chiller Unit	3
j. Essential Chilled Water Pump & Valves	3
[12. UHS Components	3]

B 3.3 INSTRUMENTATION

B 3.3.5 Loss of Power (LOP) Class 1E Gas Turbine Generator (GTG) Start Instrumentation

BASES

BACKGROUND

The Class 1E GTGs provide a source of emergency power when offsite power is either unavailable or is insufficiently stable to allow safe unit operation. Undervoltage protection will generate an LOP start if a loss of voltage or degraded voltage condition occurs in the switchyard. There are four LOP start signals, one for each 6.9 kV Class 1E bus. MIC-03-16-00007

Field Sensors MIC-03-16-00007

Three undervoltage relays with inverse time characteristics are provided on each 6.9 kV Class 1E bus for detecting a sustained degraded voltage condition or a loss of bus voltage. ~~The~~Signals from the undervoltage relays are interfaced to the ESFAS. MIC-03-16-00007

ESFAS and SLS

Signals from the undervoltage relays are combined in a two-out-of-three actuation logic within the ESFAS to generate an LOP signal when the voltage is dropped before reaching the loss of voltage limit for a short time or before reaching the degraded voltage limit for a long time. The LOP signal is interfaced from the ESFAS via internal digital data communication to the SLS controllers of the PSMS, which provide the GTG actuation logic, GTG control system and GTG control output. The GTG actuation logic combines manual and automatic start demands, with other GTG control interlocks; the GTG control system provides continuous closed loop control of the GTG via the GTG control output. The LOP start actuation is described in Reference 1. MIC-03-16-00007

~~The Allowable Value in conjunction with the Trip Setpoint and LCO establishes the threshold for Engineered Safety Features Actuation System (ESFAS) action to prevent exceeding acceptable limits such that the consequences of Postulated Accidents (PAs) will be acceptable. The Allowable Value is considered a limiting value such that a channel is OPERABLE if the setpoint is found not to exceed the Allowable Value during the CHANNEL CALIBRATION. Note that although a channel is OPERABLE under these circumstances, the setpoint must be left adjusted to within the established calibration tolerance band of the setpoint in accordance with Section 5.5.21, SCP.~~

Allowable Values and LOP Class 1E GTG Start Instrumentation Setpoints

The Nominal Trip Setpoint and Allowable Value are recorded and maintained in a document established by the Setpoint Control Program (SCP). MIC-03-16-00007

BASES

BACKGROUND(continued)

The Allowable Value in conjunction with the Nominal Trip Setpoint and LCO establishes the threshold for Engineered Safety Features Actuation System (ESFAS) action to prevent exceeding acceptable limits such that the consequences of Postulated Accidents (PAs) will be acceptable. The Allowable Value is considered a limiting value such that a channel is OPERABLE if the setpoint is found not to exceed the Allowable Value during the CHANNEL CALIBRATION (Ref. 7). Note that although a channel is OPERABLE under these circumstances, the setpoint shall be left adjusted to within the established Calibration Tolerance band of the setpoint in accordance with uncertainty assumptions stated in the referenced setpoint methodology (as-left-criteria), and confirmed to be operating within the statistical allowances of the uncertainty terms assigned. The Calibration Tolerance is recorded and maintained in a document established by the SCP. MIC-03-16-00007

If the as-found value of the device is found to have exceeded the Allowable Value, or the as-left value of the device cannot be adjusted to the value within the Calibration Tolerance, the device would be considered inoperable from a Technical Specification perspective. This requires corrective action including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required.

Setpoints adjusted consistent with the requirements of ~~Section~~Specification 5.5.21, SCP ensure that the consequences of accidents will be acceptable, ~~providing~~provided the unit is operated from within the LCOs at the onset of the accident and that the equipment functions as designed. The time ~~delay of~~required to start the Class 1E GTG~~ starting~~, which is initiated by ~~LOOP~~the LOP signal, is considered~~ as mitigation system time delay~~ in the analysis presented in FSAR Chapter 15 (Ref. 6). MIC-03-16-00007

~~The trip setpoints are selected to ensure that the setpoint measured by the surveillance procedure does not exceed the Allowable Value if the relay is performing as required.~~The Nominal Trip Setpoint entered into the LOP binary sensor is more conservative than that specified by the Analytical Limit. The Nominal Trip Setpoint accounts for measurement errors detectable by the CHANNEL CALIBRATION and other unmeasurable errors (such as the effects of anticipated environmental conditions), which are both considered in the Allowable Value for the LOP Nominal Trip Setpoint, which is checked during CHANNEL CALIBRATION. If the ~~measured~~as-found value of the LOP setpoint does not exceed the Allowable Value, the ~~relay~~channel is considered OPERABLE. Operation with a trip setpoint less conservative than the ~~n~~Nominal Trip Setpoint, but within the Allowable Value, is acceptable provided that operation and testing is consistent with the assumptions of the unit specific setpoint calculation. MIC-03-16-00007

BASES

BACKGROUND(continued)

Within the Protection and Safety Monitoring System (PSMS), LOP Time Delays are digital settings maintained in non-volatile software memory within each ESFAS train. Digital settings have no potential for variation due to time, environmental drift or component aging; therefore, these digital settings have no surveillance tolerance. Each train of the process control equipment has continuous automatic self-testing, which verifies that the digital Time Delay settings are correct. Time Delays are also verified periodically through a diverse software MEMORY INTEGRITY CHECK (MIC). MIC-03-16-00007

APPLICABLE SAFETY ANALYSES

The LOP Class 1E GTG start instrumentation is required for the Engineered Safety Features (ESF) Systems to function in any accident with a loss of offsite power. Its design basis is that of the ESF Actuation System (ESFAS). Accident analyses credit the loading of the Class 1E GTG based on the loss of offsite power during a loss of coolant accident (LOCA). The actual Class 1E GTG start has historically been associated with the ESFAS actuation. The Class 1E GTG loading has been included in the delay time associated with each safety system component requiring Class 1E GTG supplied power following a loss of offsite power. The analyses assume a non-mechanistic Class 1E GTG loading, which does not explicitly account for each individual component of loss of power detection and subsequent actions.

The required channels of LOP Class 1E GTG start instrumentation, in conjunction with the ESF systems powered from the Class 1E GTGs, provide unit protection in the event of any of the analyzed accidents discussed in Chapter 15, in which a loss of offsite power is assumed.

The delay times assumed in the safety analysis for the ESF equipment include the ~~100 second~~ Class 1E GTG start delay, and the appropriate sequencing delay, if applicable. The response times for ESFAS actuated equipment in LCO 3.3.2, "Engineered Safety Features Actuation System (ESFAS) Instrumentation," include the appropriate Class 1E GTG loading and sequencing delay. MIC-03-16-00007 MIC-03-16-00007

The LOP Class 1E GTG start instrumentation channels satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 4).

BASES

LCO

The Loss of Power (LOP) Class 1E Gas Turbine Generator (GTG) Start Instrumentation shall be OPERABLE for each bus that is required to be OPERABLE. MIC-03-16-00007

The LCO for LOP Class 1E GTG start instrumentation requires ~~that~~ three OPERABLE channels per required bus of both the loss of voltage and degraded voltage Functions ~~shall be OPERABLE~~ in MODES 1, 2, 3, and 4~~, as well as whenever the associated GTG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown." A Class 1E GTG is not required to be OPERABLE if its associated Class 1E 6.9 kV bus is not powering any required ESF loads. Therefore the associated Class 1E 6.9 kV bus is not required~~.

For MODES 5 and 6, three channels per required bus of both the loss of voltage and degraded voltage Functions shall be OPERABLE whenever the associated GTG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown" to ensure that the automatic start of the GTG is available when needed.

In addition, for each required bus, the LCO for LOP Class 1E GTG Start Instrumentation requires the ESFAS actuation logic, GTG actuation logic, GTG control system and GTG control output in the associated train of the ESFAS and SLS to be OPERABLE. These logic, control and output functions are collectively referred to as the LOP Actuation Function. There are four trains for the LOP Actuation Function, one train for each bus and its associated GTG.

Loss of the LOP Class 1E GTG Start Instrumentation Function could result in the delay of safety systems initiation when required. This could lead to unacceptable consequences during accidents. During the loss of offsite power the Class 1E GTG powers the motor driven Emergency Feedwater Pumps. Failure of these pumps to start would leave two turbine driven pumps, as well as an increased potential for a loss of decay heat removal through the secondary system.

APPLICABILITY

~~The LOP Class 1E GTG Start Instrumentation Functions are required in MODES 1, 2, 3, and 4, as well as whenever the associated Class 1E GTG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown.". A Class 1E GTG is not required to be OPERABLE if its associated Class 1E 6.9 kV bus is not powering any required ESF loads. Therefore the associated Class 1E 6.9 kV bus is not required.~~ Due to redundant components within the PSMS, such as controllers, communication links and power supplies, an inoperable component may or may not result in an inoperable channel or train. Where an inoperable component results in an inoperable required channel or train, LCOs are entered. For inoperable components that do not result in inoperable channels or trains, LCOs are not entered. MIC-03-16-00007

BASES

APPLICABILITY (continued)

The LOP GTG Start Instrumentation Functions are required in MODES 1, 2, 3, and 4 because ESF Functions are designed to provide protection in these MODES. This Function is also required in MODE 5 or 6 whenever the required GTG must be OPERABLE so that it can perform its function on an LOP or degraded power to its associated bus. MIC-03-16-00007

ACTIONS

In the event a channel Nominal Trip Setpoint is found non-conservative with respect to the Allowable Value, or the channel or train is found inoperable, then the function that channel or train provides must be declared inoperable and the LCO Condition entered for the particular protection function affected. MIC-03-16-00007

Because the required channels are specified on a per bus basis, the Condition may be entered separately for each bus as appropriate.

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in the LCO. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

In all cases where the LCO states "Restore channel or train to OPERABLE status", this means restore the required number of channels or trains to OPERABLE status. Therefore, restoration of an alternate channel or train, other than the failed channel or train, is also acceptable. MIC-03-16-00007

A.1

Condition A applies to the LOP Class 1E GTG ~~start~~Start Instrumentation Functions with one loss of voltage or one degraded voltage channel per required Class 1E 6.9 kV bus inoperable. MIC-03-16-00007

If one channel is inoperable, Required Action A.1 requires that channel to be placed in trip within 6 hours. With a channel in trip, the LOP Class 1E GTG start instrumentation channels are configured to provide a one-out-of-two logic to initiate a trip of the incoming offsite power.

~~A Note is added to allow bypassing an inoperable channel for up to 4 hours for surveillance testing of other channels. This allowance is made where bypassing the channel does not cause an actuation and where at least two other channels are monitoring that parameter.~~ MIC-03-16-00007

~~The specified Completion Time and time allowed for bypassing one channel are reasonable considering the Function remains fully OPERABLE on every bus and the low probability of an event occurring during these intervals.~~

BASES

ACTIONS (Continued)

The Completion Time of 6 hours is justified because the two remaining OPERABLE undervoltage devices for each bus are adequate to perform the safety function. Since the undervoltage devices are dedicated for each of the four Class 1E busses, and two undervoltage devices are adequate to perform the safety function of each bus, the LOP Class 1E GTG Start Instrumentation Function continues to meet the single failure criterion (i.e., three GTGs will still actuate if there is an additional undervoltage device failure on one bus). MIC-03-16-00007

The Completion Time of 6 hours is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 5).

A Note is added to allow placing one channel in bypass for up to 4 hours while performing surveillance testing, provided the other channels on the same bus are OPERABLE, or one channel is OPERABLE and the other is placed in the trip condition.

The Bypass Time of 4 hours is justified because the remaining OPERABLE channels are adequate to perform the safety function. In addition, the Bypass Time considers that the remaining OPERABLE channels have continuous automatic self-testing.

The 4 hour Bypass Time is also justified in the US-APWR reliability and risk analyses, the summary and result of which are documented in FSAR Chapter 19 (Ref. 5).

B.1

Condition B applies when two or more loss of voltage or two or more degraded voltage channels per required Class 1E 6.9 kV bus are inoperable. MIC-03-16-00007

Required Action B.1 requires restoring all but one channel per required Class 1E 6.9 kV bus to OPERABLE status. The 1 hour Completion Time should allow ample time to repair most failures and takes into account the low probability of an event requiring an LOP start occurring during this interval.

C.1

Condition C applies ~~to each~~when one train of the LOP ~~Class 1E GTG start Functions~~Actuation Function is inoperable for a required bus, or when the Required Action and associated Completion Time for Condition A or B are not met. MIC-03-16-00007

ACTIONS (Continued)

In these circumstances the Condition(s) specified in LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2, "AC Sources - Shutdown," for the Class 1E GTG made inoperable by failure of the LOP Class 1E GTG ~~s~~Start ~~i~~Instrumentation are required to be entered immediately. The actions of those LCOs provide for adequate compensatory actions to assure unit safety. MIC-03-16-00007 MIC-03-16-00007

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1

~~Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.~~ MIC-03-16-00007

~~Agreement criteria are determined based on a combination of the channel instrument uncertainties. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.~~

~~A CHANNEL CHECK may be conducted manually or automatically. For the US-APWR an automated CHANNEL CHECK is normally conducted continuously. Where the CHANNEL CHECK is conducted automatically, an alarm shall be generated when the agreement criteria is not met.~~

~~[The equipment that performs the automated CHANNEL CHECK shall be confirmed OPERABLE every 12 hours. This shall include the capability to generate fault alarms.~~SR 3.3.5.1 is the performance of a TADOT for the LOP undervoltage relays and their interface to the ESFAS. For these tests, the undervoltage relays are confirmed to actuate with reasonable proximity to the Nominal Trip Setpoints. Undervoltage trip setpoint Allowable Values are verified during CHANNEL CALIBRATION (SR 3.3.5.2). Undervoltage Time Delays, which are implemented in the ESFAS, are verified during MIC (SR 3.3.5.3) for the ESFAS.

[The Surveillance Frequency of 31 days is based on the known reliability of the relays and binary input devices for the PSMS, and the multi-channel redundancy available, and has been shown to be acceptable through operating experience.

SURVEILLANCE REQUIREMENTS (continued)

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.5.2

SR 3.3.5.2 is the performance of a TADOT for the LOP undervoltage relays and their interface to the PSMS. For these tests, the undervoltage relay is confirmed to actuate with reasonable proximity to the Nominal Trip Setpoints. Undervoltage trip setpoints Allowable Values and time delays are verified during CHANNEL CALIBRATION, SR 3.3.5.3. MIC-03-16-00007

[The Frequency of 31 days is based on the known reliability of the relays and binary input devices for the PSMS, and the multi-channel redundancy available, and has been shown to be acceptable through operating experience. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.5.3

SR 3.3.5.3 is the performance of a CHANNEL CALIBRATION.

The setpoints, as well as the response to a loss of voltage and a degraded voltage test, shall include a single point verification that the trip occurs within the required time delay.

CHANNEL CALIBRATION for a binary process measurement is a complete check of the instrument loop, including the sensor and interface to the PSMS, as described in Reference 2. The test verifies that the channel responds to measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION confirms the accuracy of the channel from sensor to digital Visual Display Unit (VDU) readout, as described in Reference 2. The CHANNEL CALIBRATION confirms the accuracy of the channel's state change at the required setpoint. MIC-03-16-00007

CHANNEL CALIBRATIONS must be performed consistent with the methods and assumptions in SectionSpecification 5.5.21, SCP. For binary measurements, the CHANNEL CALIBRATION confirms the accuracy of the channel's state change. The state change must occur within the Allowable Value of the Nominal Trip Setpoint. Time Delays associated with Loss of Voltage and Degraded Voltage are recorded and maintained in a document established by the Setpoint Control Program (SCP) and confirmed through MIC. MIC-03-16-00007

BASES

SURVEILLANCE REQUIREMENTS (continued)

[The Surveillance Frequency of 24 months is based on operating experience and ~~consistency~~is consistent with the typical industry refueling cycle~~ and~~. The Surveillance Frequency of 24 months is justified by the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in ~~Section~~accordance with Specification 5.5.21, SCP. MIC-03-16-00007 MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

The equipment that performs the automated CHANNEL CHECK shall be confirmed OPERABLE, including the capability to generate fault alarms during the CHANNEL CALIBRATION. MIC-03-16-00007

SR 3.3.5.3

SR 3.3.5.3 is the performance of a MIC for the LOP Class 1E GTG Start Instrumentation. This includes the ESFAS and the SLS.

The PSMS is self-tested automatically on a continuous basis from the digital side of all input modules to the digital side of all output modules. Continuous automatic self-testing encompasses all PSMS safety-related functions including Time Delays, actuation logic functions and continuous control functions. The continuous automatic self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. The continuous automatic self-testing is described in Reference 2 and Reference 3.

The MIC is a diverse check of the PSMS software memory integrity, consistent with the Setpoint Control Program (SCP), to ensure there is no change to the internal PSMS software that would impact its functional operation, including digital Time Delays, actuation logic functions, continuous control functions or the continuous automatic self-testing. The MIC is described in Reference 2 and Reference 3.

The capability to generate continuous automatic self-testing fault alarms shall be confirmed OPERABLE during the MIC.

The complete OPERABILITY check from the measurement channel input device to the Safety Logic System (SLS) output device is performed by the combination of the continuous automatic self-testing for the digital devices (the ESFAS, SLS and data communication interfaces), the TADOT (SR 3.3.5.1) and CHANNEL CALIBRATION (SR 3.3.5.2) for the LOP undervoltage relays, the MIC (SR 3.3.5.3) and the TADOT for the GTG control output of the SLS (SR 3.3.5.4). The CHANNEL CALIBRATION, MIC, and TADOTs, which are manual tests, overlap with the continuous automatic

BASES

SURVEILLANCE REQUIREMENTS (continued)

self-testing and confirm the functioning of the automatic tests. The MIC is described in Reference 2 and Reference 3. MIC-03-16-00007

[The Surveillance Frequency of 24 months is justified because the software memory integrity is checked by the continuous automatic self-testing.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.5.4

SR 3.3.5.4 is the performance of a TADOT for the GTG control outputs of the SLS.an ACTUATION LOGIC TEST. The Class 1E GTG start logic within the PSMS is self-tested on a continuous basis from the digital side of all input modules to the digital side of all output modules. Self-testing also encompasses all data communications within a PSMS train, between PSMS trains and between the PSMS and PCMS. The self-testing is described in Reference 2 and 3. The ACTUATION LOGIC TEST is a check of the PSMS software memory integrity to ensure there is no change to the internal PSMS software that would impact its functional operation or the continuous self-test function. The software memory integrity test is described in Reference 2 and 3. [The Frequency of every 24 months is justified based on the reliability of the PSMS. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-00007

The complete continuity check from the input device to the output device is performed by the combination of the continuous CHANNEL CHECK, the 24 month CHANNEL CALIBRATION for the non digital sided of the input module, the continuous self-testing for the digital side, the 24 month ACTUATION LOGIC TEST, and the 24 month ESFAS and SLS TADOT for the non-digital side of the output module. The CHANNEL CALIBRATION, ACTUATION LOGIC TEST and TADOT, which are manual tests, overlap with the CHANNEL CHECK and self-testing and confirm the functioning of the self-testing.

The ACTUATION LOGIC TEST interval of 24 months with the self test capability is justified in the PSMS reliability analysis. For detail information, refer to the US-APWR Technical Report MUAP-07030 PRA, Attachment 6A.12. The result of the PSMS reliability analysis is evaluated and confirmed in the US-APWR PRA Chapter 19.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.5.5 MIC-03-16-00007

SR 3.3.5.5 is the performance of a TADOT for the Actuation Outputs to start the Class 1E GTGs. This function actuates the outputs of the SLS. Therefore, The scope of this TADOT is limited to the GTG control outputs of the SLS, including the interface of those outputs to the GTG. However, this test is typically conducted in conjunction with testing the Class 1Ecomplete GTG. [The Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability, including the fuel system and operating history data. OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] The Actuation Outputs are solid state devices.other GTG engine components, in accordance with LCO 3.8.1. Since this test is conducted in conjunction with testing for the Class 1E GTG components, this test may be conducted more frequently, as may be required for the Class 1E GTG components.

[The Surveillance Frequency of 24 months is adequate, based on industry operating experience, considering instrument reliability and operating history data of solid state control output devices.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

REFERENCES

1. FSAR Section 8.3.1.
2. MUAP-07004-P (Proprietary) and MUAP-07004-NP (Non-Proprietary), Revision 7, "Safety I&C System Description and Design Process." MIC-03-16-00007
3. MUAP-07005-P (Proprietary) and MUAP-07005-NP (Non-Proprietary), Revision 8, "Safety System Digital Platform— -MELTAC-." MIC-03-16-00007
4. 10 CFR 50.36.
5. FSAR Chapter 19. MIC-03-16-00007
6. FSAR Chapter 15.
7. MUAP-09022-P, Revision 2, "US-APWR Instrument Setpoint Methodology."

B 3.3 INSTRUMENTATION

B 3.3.6 Diverse Actuation System (DAS) Instrumentation

BASES

BACKGROUND

The Diverse Actuation System (DAS) provides non-Class 1E backup controls in case of beyond design basis common-cause failure (CCF) of the digital I&C systems. CCF is a condition that concurrently affects all safety and non-safety systems that contain the same digital software. CCF is considered for the Protection and Safety Monitoring System (PSMS) and the Plant Control and Monitoring System (PCMS). The DAS is not credited for mitigating accidents in the FSAR Chapter 15 (Ref. 6) analyses. MIC-03-16-00007

To initiate ~~r~~Reactor ~~t~~Trip, the DAS uses equipment that is diverse from the PSMS equipment (hardware and software) that is used to initiate a ~~r~~Reactor ~~t~~Trip. This diversity does not include the analog input sensors or analog signal distribution devices.

To initiate ESF functions including ~~t~~Turbine ~~t~~Trip, the DAS uses equipment that is diverse from the PSMS software. This diversity does not include the analog input sensors or analog signal distribution devices, or the final solid state Actuation Outputs in the PSMS, which are referred to as Power Interface (PIF) modules. MIC-03-16-00007 MIC-03-16-00007

The DAS includes manual and automatic initiation capability.

~~Chapter 7~~Defense-in-Depth and Diversity (Ref. 1) and FSAR Section 7.8 (Ref. 3) provide~~s~~ a description of the DAS. MIC-03-16-00007

The DAS ~~i~~Instrumentation is segmented into ~~three~~four distinct but interconnected modules as described in ~~Chapter~~the Defense-in-Depth and Diversity report (Ref. 1) and FSAR Section 7.8 (Ref. 3), and as identified below:

1. Field transmitters or process sensors: provide a measurable electronic signal based upon the physical characteristics of the parameter being measured. The DAS shares field transmitters and process sensors, and signal distribution devices with the PSMS.

2. The Diverse Automatic Actuation Cabinet (DAAC): provides signal conditioning, analog bistables for setpoint comparison, process algorithm actuation, compatible electrical signal output to actuation devices, and control room indications. DAAC outputs provide the means to actuate the Rod Drive Motor-Generator Set Trip Devices which interrupt power ~~to~~from the Rod Drive Motor-Generator sets for ~~r~~Reactor ~~t~~Trip. ~~and~~ DAAC outputs also provide the means to actuate ~~t~~Turbine ~~t~~Trip and other ESF functions, through the Power Interface modules of the PSMS. There are four DAACs. Each is referred to as a DAAC subsystem. MIC-03-16-00007 MIC-03-16-00007

BACKGROUND (continued)

3. Diverse Human System Interface Panel (DHP): provides indications, alarms and Manual Initiation controls for DAS.

4. The Rod Drive Motor-Generator Set Trip Devices are actuated by output signals from the DAACs to interrupt power from the Rod Drive Motor-Generator Sets for Reactor Trip. MIC-03-16-00007

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, four field transmitters or sensors are used to measure each unit parameter. To account for the calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the Nominal ~~t~~Trip ~~s~~Setpoint and Allowable Values. The OPERABILITY of each channel from the transmitter or sensor through the signal distribution device is determined by ~~either~~ "as-found" and "as-left" calibration data evaluated during the CHANNEL CALIBRATION~~ or~~, and by ~~qualitative assessment of field transmitter or sensor as related to~~ the channel behavior observed during performance of the CHANNEL CHECK. Since all DAS measurement channels are shared with the PSMS, the PSMS CHANNEL CALIBRATION and CHANNEL CHECK also confirm OPERABILITY of the DAS instrumentation from the transmitter or sensor through the signal distribution device. MIC-03-16-00007

DAAC ~~Signal Processing~~Process Control Equipment

For each DAS automatic actuation function, ~~generally,~~ four channels of process control equipment are used in each ~~DAS~~DAAC subsystem for the signal processing of unit parameters measured by the field instruments. The process control equipment provides signal conditioning, ~~comparable~~ output signals for instruments located on the DHP, and analog comparison of measured input signals with setpoints established by the D3 Coping Analysis (Ref. 2). These analog setpoints are recorded and maintained in a document established by the Setpoint Control Program (SCP). If the measured value of a unit parameter exceeds the predetermined setpoint, a~~n~~ binary output from a DAAC analog bistable is forwarded to the DAAC voting logic for decision evaluation. Channels are isolated in the PSMS prior to their interface to the DAAC subsystems. MIC-03-16-00007 MIC-03-16-00007

In each DAAC subsystem ~~Three~~four channels with ~~a~~ two-out-of-~~three~~four logic are ~~sufficient to provide the required reliability and redundancy~~provided for each parameter. If one channel fails in a direction that would not result in a partial Function trip, the Function is still OPERABLE with a two-out-of-~~two~~three logic. If one channel fails, such that a partial Function trip occurs, a spurious trip will not occur and the Function is still OPERABLE MIC-03-16-00007 MIC-03-16-00007

BASES

BACKGROUND (continued)

with a one-out-of-twothree logic. Two channels are necessary to generate a trip or ESF actuation, and since the DAS needs to function with a concurrent fire or flood in any PSMS I&C equipment room, which is where these signals originate, three channels are required. A channel of process control equipment consists of the signal path from field transmitter or sensor through the analog bistable in each DAAC. MIC-03-16-00007

The DAAC includes provisions to bypass a failed channel to prevent spurious trip/ or actuation conditions.

Two measurement channels are required to ensure no single random failure of a DAAC measurement channel will result in spurious reactor trip, turbine trip or ESF actuation. The measurement channels are designed such that testing may be accomplished while the reactor is at power and without causing trip/ or actuation. ThreeFour measurement channels are provided for each function to allow, which allows one channel to be taken out of service with no operational restrictions. MIC-03-16-00007

The OPERABILITY of the DAAC process control equipment is determined by a CHANNEL OPERATIONAL TEST (COT) and by an ACTUATION LOGIC TEST. The COT overlaps with the CHANNEL CALIBRATION and the ACTUATION LOGIC TEST overlaps with the COT. OPERABILITY of the interface from each DAAC to the PSMS PIF modules and to the Rod Drive Motor-Generator Set Trip Devices is determined by a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT), which overlaps with the ACTUATION LOGIC TEST. MIC-03-16-00007

Allowable Values and DAS Setpoints

The CHANNEL CALIBRATION verifies the accuracy of the measurement channels at five calibration settings corresponding to 0%, 25%, 50%, 75% and 100% of the instrument range. If the as-found value of the device is found to have exceeded the Allowable Value, or the as-left value of the device cannot be adjusted to a value within the Calibration Tolerance, the device would be considered inoperable from a technical specification perspective. This requires corrective action including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required. Since DAS measurement channels are shared with the PSMS, the PSMS Reactor Trip or ESFAS Functions establish the accuracy requirements for the channel, including the Allowable Value and Calibration Tolerance for CHANNEL CALIBRATION. MIC-03-16-00007

BASES

BACKGROUND (continued)

The trip setpointsRegulatory guidance (Ref. 8) allows best estimate methods for analysis that demonstrate adequate coping for Anticipated Operational Occurrences (AOOs) and Postulated Accidents (PA) with concurrent CCF. Therefore, the Nominal Trip Setpoints used in the DAAC analog bistables are based on the analytical limits statedspecified in the D3 Coping Analysis. These setpoints (Ref. 2), with no channel uncertainty and no safety margin, in accordance with the setpoint methodology (Ref. 7). This results in analog setpoints that are generally less conservative than the corresponding digital setpoints in the PSMS to allowensure the PSMS to actuateactuates first. If the PSMS actuates, DAS actuation is blocked. For plant operators, DAS actuation is indicative of an accident with a concurrent CCF in the PSMS, which prompts the use of special emergency procedures for beyond design basis plant conditions. Therefore, avoiding unnecessary DAS actuation is an important design basis consideration. MIC-03-16-00007

The selection of thesethe DAS analytical limits and corresponding trip setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those DAS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 4), the Allowable Values recorded and maintained in a document established by the SCP in the accompanying LCO are conservative with respect to the analytical limits. A detailed description of the methodology used to calculate the Allowable Values and trip setpoints, incorporates the known uncertainties applicable to each channel. The magnitudes of these uncertainties are factored into the determination of each trip setpoint and corresponding Allowable Value. The trip setpoint entered into the bistable is more conservative than that specified by the Allowable Value to account for measurement errors detectable by the COT analog. The Allowable Value for the Nominal Trip Setpoint serves as the Technical Specification OPERABILITY limit for the purpose of the COT analog. Since the Nominal Trip Setpoints for DAS are set at the analytical limits in the D3 Coping Analysis (Ref. 2), the Allowable Value is established only to identify unexpected measurement error. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpointas-found value does not exceed the Allowable Value, the analog bistable is considered OPERABLE. MIC-03-16-00007

The Nominal tTrip sSetpoint is the value at which the analog bistable is set and is the expected value to be achieved during calibrationCOT. The Nominal tTrip sSetpoint value ensures the D3 Coping Analysis (Ref. 2) limits are met for surveillance interval selected when a channel is adjusted based on stated channel uncertainties. Any bistable is considered to be properly adjusted when the "as left" setpoint value is within the band for CHANNEL CALIBRATION uncertainty allowance (i.e., ± rack calibration + comparator setting uncertainties). The trip setpoint value is therefore considered a

BACKGROUND (continued)

"nominal" value (i.e., expressed as a value without inequalities) for the purposes of COT analog and CHANNEL CALIBRATION. A DAS analog bistable is considered to be properly adjusted when the "as-left" value is within the specified calibration tolerance around the Nominal Trip Setpoint. MIC-03-16-00007

OPERABLE channels, with calibration settings and Nominal Trip sSetpoints consistent with the requirements of the Allowable Value ensure that the consequences of AOOs and PAs will be acceptable, providingprovided the unit is operated from within the LCOs at the onset of the AOO or PA and the equipment functions as designed. The calibration setting Allowable Values, and the Nominal Trip Setpoints and corresponding Allowable Values, are recorded and maintained in a document established by the SCP. The setpoint methodology identified in the SCP (Ref. 7), is used to calculate the Allowable Values and Nominal Trip Setpoints. MIC-03-16-00007 MIC-03-16-00007

The "expected as-found value" shall be as specified in the plant-specific setpoint analysis. The expected as-found value reflects the expected normal drift of actual plant equipment, so that a degraded device can be identified before the Allowable Value limit is reached. The expected as-found value is also referred to as the Performance Test Acceptance Criteria (PTAC). The PTAC, recorded and maintained in a document established by the SCP, is applicable to DAS automatic trip and actuation Functions.

Each channel of the process control equipment can be tested on linewhile in service to verify that the measurement channel signal or analog bistable setpoint accuracy is within the specified allowance requirements. Once a designated channel is taken out of service for testing, the field transmitter or sensor is stimulated or a simulated signal is injected in place of the field instrument signal. The process equipment for the channel in test is then tested, verified, and calibrated. SRs for the channels are specified in the SRs section. MIC-03-16-00007

DAAC Actuation Logic and Actuation Outputs

There are four DAAC subsystems. Each DAAC subsystem processes each of the four measurement channels from the PSMS through separate analog bistables. The DAAC provides the decision logic processing of outputs from the signal processing equipment bistables. The DAAC Actuation Logic processes the outputs from the DAAC analog bistables through two-out-of-four voting logic. The outputs from the voting logic for one or more parameters are combined to generate the DAAC outputs for Reactor Trip, Turbine Trip and ESF actuation. MIC-03-16-00007

The DAAC subsystems also process the signals and generate the Actuation Outputs for the Manual Initiation and Manual Control Functions. For Functions that have both automatic and manual signals, the signals are

BACKGROUND (continued)

combined in each DAAC subsystem to generate a common Actuation Output. MIC-03-16-00007

To prevent spurious actuation, two and loss of the functions due to one DAAC subsystem failure, the output signals from four DAAC subsystems of DAAC, each performing the same functions, are providedcombined in a two--out--of--two voting logic after taking one-out-of-two voting logic twice. If the same Function outputs are generated from a selective two DAAC subsystems (i.e., DAAC1 or DAAC3, concurrent with DAAC2 or DAAC4), a Reactor Trip, Turbine Trip and/or ESF actuation will result.

The DAS needs to function with a concurrent fire or flood in any PSMS I&C equipment room, which is were these subsystems are located. All four DAAC subsystems are required because the outputs of the DAAC subsystems are configured in a selective two-out-of-four configuration, not a full two-out-of-four configuration.

The subsystems are designed such that testing may be accomplished while the reactor is at power and without causing trip/Reactor Trip, Turbine Trip or ESF actuation. If one subsystem is actuated for maintenance or test purposes, there will be no reactor trip, turbine trip or ESF actuationDAS Functions for Reactor Trip, Turbine Trip or ESF actuation are maintained for the unit. If both subsystems are actuated, a reactor trip, turbine trip and/or ESF actuation will result. Each DAAC subsystem is packaged in its own cabinet forto satisfy physical and electrical separation to satisfy separation and independence requirements. The system has been designed to not trip/ or actuate in the event of a loss of power, to prevent spurious actuation. MIC-03-16-00007

The DAAC performs the decision logic for actuating a rReactor tTrip, tTurbine tTrip or ESF actuation, generates the electrical output signal that will initiate the required trip or actuation, and provides the status, permissive, and annunciator output signals to the mMain cControl rRoom (MCR) of the unit. MIC-03-16-00007

Within each DAAC subsystem, the bistable outputs from the signal processing equipment are combined into logic matrices that represent combinations indicative of various unit upset and accident transients. If a required logic matrix combination is completed, the system will send actuation signals, to those components whose aggregate Function best serves to alleviate the condition and restore the unit to a safe condition, via PSMS Power Interface modules, if necessary. Examples are given in the Applicable Safety Analyses, LCO, and Applicability sections of this Bases. Output signals from each DAAC Subsystem are combined in a two-out-of-two logic within Rod Drive Motor-Generator set trip devices or the Power Interface module for each plant component. When each DAAC subsystem is tested, the interface to the Power Interface is tested. When plant components

BACKGROUND (continued)

The OPERABILITY of the DAAC Actuation Logic Function is determined by an ACTUATION LOGIC TEST. The ACTUATION LOGIC TEST overlaps with the COT. MIC-03-16-00007

The OPERABILITY of DAAC Actuation Outputs for ESF functions and Turbine Trip, which interface from each DAAC to the PIF modules in the PSMS, is determined by a TADOT (SR 3.3.6.5) which overlaps with the ACTUATION LOGIC TEST. When PIF modules are actuated ~~from the PSMS~~, either during the ESFAS Instrumentation TADOT (SR 3.3.2.3) or for testing or control of ESF plant components, the ~~PSMS~~Safety Logic System (SLS) output signals overlap with the DAAC output signals within the ~~Power Interface. This overlap completes the DAS Function testing. Testing of PSMS components is per LCO 3.3.2.~~PIF modules.

The OPERABILITY of DAAC Actuation Outputs for Reactor Trip, which interface from each DAAC to the Rod Drive Motor-Generator Set Trip Devices, and the OPERABILITY of the Rod Drive Motor-Generator Set Trip Devices themselves, is determined by a TADOT (SR 3.3.6.6) which overlaps with the ACTUATION LOGIC TEST.

Rod Drive Motor-Generator ~~sets~~Set Trip Devices

The Rod Drive Motor-Generator sets are the electrical power supply for the control rod drive mechanisms (CRDMs). ~~Tripping~~Actuating the Rod Drive MIC-03-16-00007 Motor-Generator ~~sets trip devices~~Set Trip Devices interrupts power to the CRDMs, which allows the control rod shutdown banks and control banks to fall into the core by gravity. There are two Rod Drive Motor-Generator ~~s~~Sets MIC-03-16-00007 operating in parallel~~.~~ to power all rods. Each has its own Rod Drive Motor-Generator Set Trip Device. The DAS trips both Rod Drive Motor-Generator ~~sets trip devices~~Set Trip Devices.

The DAS interfaces to the Rod Drive Motor-Generator ~~sets is~~Set Trip Devices are via hardwired circuit~~. This interface may be tested, with no reactor trip, as described in subsection 7.8.2.4. Actual tripping of the Rod Drive Motor-Generator set may be tested from the DAS. Rod Drive Motor-Generator sets may be tripped one at a time for testing~~s. Actual tripping of each Motor-Generator Set and the associated DAS interface may be tested one at a time, with no Reactor Trip. Actual tripping of each Rod Drive Motor-Generator Set may be tested from the DAS.

BASES

BACKGROUND (continued)

Diverse Human System Interface Panel (DHP)

The DHP provides Manual Initiation switches for all DAS automatic actuation functions and for additional functions that are required, per the D3 Coping Analysis (Ref. 2), to control all critical safety functions. Manual Initiation and Control switches are not redundant. [MIC-03-16-00007] To prevent spurious actuation due to a failure of any of the above switches, a separate manual actuation ~~p~~Permissive ~~s~~Switch is provided. [MIC-03-16-00007] This is referred to as the "Permissive Switch for DAS HSI."

The Manual Initiation and Manual Control switches interface to DAAC subsystems 1 and 3, and the Permissive Switch for DAS HSI interface to DAAC subsystems 2 and 4. Manual Initiation/Control signals and Permissive signals are combined with automatic actuation signals to generate the same DAS outputs. Therefore, as for automatic signals, if the same Manual Initiation/Control Function outputs are generated from a selective two DAAC subsystems (i.e., DAAC1 or DAAC3, concurrent with DAAC2 or DAAC4), a Reactor Trip, Turbine Trip and/or ESF actuation will result. [MIC-03-16-00007]

The OPERABILITY of the DHP Manual Initiation/Control and Permissive switches, including the interface to the DAAC subsystems and the interface from the DAAC subsystems to the PSMS PIF modules, is determined by a TADOT (SR 3.3.6.5). The OPERABILITY of the DHP Manual Initiation/Control and Permissive switches, including the interface to the DAAC subsystems and the interface from the DAAC subsystems to the Rod Drive Motor-Generator Set Trip Devices, is determined by a TADOT (SR 3.3.6.6). These TADOTs overlap with the ACTUATION LOGIC TEST.

The DHP also provides indications~~, per~~ and alarms to support the manual actions credited in the D3 Coping Analysis~~,~~ (Ref. 2), and to monitor ~~all~~and control critical safety functions.

~~The DHP also provides indications, per the D3 Coping Analysis, to monitor RCS Leakage.~~

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The DAS is required to provide a diverse capability to trip the reactor and actuate the specified safety-related equipment. The DAS is not credited for mitigating accidents in the Chapter 15 safety analyses. The DAS satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii) (Ref. 5).

The DAS LCO provides the requirements for the OPERABILITY of the DAS necessary to place the reactor in a shutdown condition and to remove decay heat in the event that required PSMS components do not function due to CCF.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

A DAS measurement channel consists of the measurement device, its interface to each of the four DAAC subsystems, and the associated bistable within each of the four DAAC subsystems. A DAS measurement channel is OPERABLE provided the "as-found" values of the calibration settings checked during CHANNEL CALIBRATION do not exceed their associated Allowable Values, and the "as-found" value of the analog bistable trip setpoint checked during COT does not exceed its associated Allowable Value. A Nominal Trip Setpoint may be set more conservative than the Limiting Trip Setpoint as necessary in response to plant conditions. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions. MIC-03-16-00007

Due to redundant components within the DAS, such as analog bistables, voting logic, time delays and power supplies, an inoperable component may or may not result in an inoperable channel/subsystem. Where an inoperable component results in an inoperable required channel/subsystem, LCOs are entered. For inoperable components that do not result in inoperable channels/subsystems, LCOs are not entered. MIC-03-16-00007

The DAS is required to be OPERABLE in the MODES specified in Table 3.3.6-1. All functions of the DAS are required to be OPERABLE in MODES 1, 2 and 3 with the pPressurizer pPressure > P-11. MIC-03-16-00007

DAS functions are as follows:

1. Reactor Trip, Turbine Trip and Main Feedwater Isolation

a. Manual Initiation

The LCO requires 1one channel to be OPERABLE. ThisThe channel consists of the Reactor Trip, Turbine Trip and Main Feedwater Isolation - Manual Initiation switch. This function requires operation of and its interface to DAAC 1 and 3, and the Permissive Switch for DAS HSI and its interface to DAAC 2 and 4. The Permissive Switch for DAS HSI is common for all DAS Manual Initiation/Control Functions. The operator can initiate this functiona specific DAS Function at any time by operation of both of these switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals. MIC-03-16-00007 MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. ~~Automatic~~ Actuation Logic and Actuation Outputs MIC-03-16-00007

This LCO requires ~~two channels~~four DAAC subsystems to be OPERABLE. Actuation ~~l~~Logic and Actuation Outputs consists of all circuitry housed within the DAAC, up to the Rod Drive Motor-Generator Set Trip Devices or the Power Interface modules ~~responsible~~ for ~~actuating~~ the ESF equipment.

c. Low Pressurizer Pressure

There are four Low Pressurizer Pressure channels ~~in~~with two-out-of-four voting logic in each DAAC subsystem. This automatic function is automatically blocked when status signals (P-4) are received indicating that the minimum combination of the RTBs have actuated for the RT function. The LCO requires ~~2~~3 Low Pressurizer Pressure channels for each DAAC subsystem to be OPERABLE. MIC-03-16-00007 MIC-03-16-00007

d. High Pressurizer Pressure

There are four High Pressurizer Pressure channels ~~in~~with two-out-of-four voting logic in each DAAC subsystem. This automatic function is automatically blocked when status signals (P-4) are received indicating that the minimum combination (2-out-of-4) of the RTBs have actuated for the RT function. The LCO requires ~~2~~3 High Pressurizer Pressure channels for each DAAC subsystem to be OPERABLE. MIC-03-16-00007 MIC-03-16-00007

e. Low Steam Generator Water Level

There is one Low SG Water Level channel for each SG (four total). The LCO requires 1 Low SG Water Level channel for each DAAC subsystem to be OPERABLE on any ~~2~~3 Steam Generators. These signals from each SG are processed ~~through~~with two-out-of-four voting logic in each DAAC subsystem. The D3 Coping Analysis (Ref. 2) demonstrates that the two-out-of-four voting logic is adequate for all secondary events including loss of feedwater and SG rupture. This automatic function is automatically blocked when status signals (P-4) are received indicating that the minimum combination (2-out-of-4) of the RTBs have actuated for the RT function. MIC-03-16-00007 MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

f. Rod Drive Motor-Generator Set Trip Device MIC-03-16-00007

This LCO requires two Rod Drive Motor-Generator ~~s~~Set

~~This LCO requires two channels~~ Trip Device subsystems, one for each Motor-Generator set, to be OPERABLE. ~~Each channel~~This is because each subsystem trips one Motor-Generator set~~. Both~~ and both Motor-Generator sets must be tripped for this Reactor Trip Function. The DAS cannot initiate a Reactor Trip with a failure of a Rod Drive Motor-Generator Set Trip Device.

2. Emergency Feedwater Actuation

a. Manual Initiation

Manual Initiation consists of the same features and operates in the same manner as described for DAS Function 1.a. One channel is required to be OPERABLE. MIC-03-16-00007

b. ~~Automatic~~ Actuation Logic and Actuation Outputs

~~Automatic a~~Actuation ~~l~~Logic and ~~a~~Actuation ~~o~~Outputs consist of the same features and operate in the same manner as described for DAS Function 1.b. Four subsystems are required to be OPERABLE. MIC-03-16-00007

c. Low Steam Generator Water Level

The Low Steam Generator Water Level channels consist of the same features and operate in the same manner as described for DAS Function 1.e. ~~This~~One Low SG Water Level channel for each DAAC subsystem is required to be OPERABLE on any 3 Steam Generators. MIC-03-16-00007

The DAS Emergency Feedwater (EFW) Actuation automatic function is automatically blocked when status signals are received indicating that the PSMS ESFAS EFW function has actuated correctly. Correct actuation is indicated when ~~2-out-of-4~~ status signals are received from limit switch contacts on the steam inlet valves to the turbine driven EFW pumps ~~and~~or from auxiliary contacts on the motor starters controlling the motor driven EFW pumps. MIC-03-16-00007 MIC-03-16-00007

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

3. ECCS Actuation

a. Manual Initiation

Manual Initiation consists of the same features and operates in the same manner as described for DAS Function 1.a. One channel is required to be OPERABLE. MIC-03-16-00007

b. Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for DAS Function 1.b. Four subsystems are required to be OPERABLE.

c. ECCS Actuation – Low-Low Pressurizer Pressure

There are four Low-Low Pressurizer Pressure channels with two-out-of-four voting logic in each DAAC subsystem. This automatic function is automatically blocked when status signals are received from auxiliary contacts on the motor starters controlling the Safety Injection (SI) pumps, indicating that 2-out-of-4 pumps have actuated. The LCO requires 3 Low-Low Pressurizer Pressure channels for each DAAC subsystem to be OPERABLE.

4. Containment Isolation

a. Manual Initiation

There are two valves for each containment penetration. Only one of the two valves is controlled by the DAS. Manual Initiation consists of the same features and operates in the same manner as described for DAS Function 1.a. One channel is required to be OPERABLE. MIC-03-16-00007 MIC-03-16-00007

b. Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for DAS Function 1.b. Four subsystems are required to be OPERABLE.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

5. EFW Isolation Valves

a. Manual Control

There are separate EFW Isolation Valves Control ~~switches~~channels for each Steam Generator. Manual Control consists of the same features and operates in the same manner as described for DAS Function 1.a. The LCO requires ~~1~~one channel to be OPERABLE for each of the four Steam Generators. ~~This consists of the EFW Isolation Valves - Manual Control switch, and the Permissive Switch for DAS HSI. The Permissive Switch for DAS HSI is common for all DAS Manual Initiation/Control Functions.~~ The operator can initiate this ~~function~~Function for any single Steam Generator at any time by operation of both of these switches in the control room. MIC-03-16-00007

b. Actuation Logic and Actuation Outputs MIC-03-16-00007

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for DAS Function 1.b. Four subsystems are required to be OPERABLE.

6. Pressurizer Safety Depressurization Valves

a. Manual Control

There are four Pressurizer Safety Depressurization Valves. Only one of the four valves is controlled by the DAS. The LCO requires one channel to be OPERABLE. The channel consists of the Pressurizer Safety Depressurization Valves - Manual Control switch, and the Permissive Switch for DAS HSI. The Permissive Switch for DAS HSI is common for all DAS Manual Initiation ~~consists~~/Control Functions. The operator can initiate this function at any time by operation of both of these switches in the control room. MIC-03-16-00007

b. Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate~~s~~ in the same manner as described for DAS Function 1.~~a~~b. Four subsystems are required to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

7. Main Steam Depressurization Valves

a. Manual Control

There are separate Main Steam Depressurization Valve ~~switches~~Control channels for each Steam Generator. The LCO requires ~~1~~one channel to be OPERABLE for each of the four Steam Generators. ~~This~~A channel consists of the Main Steam Depressurization Valves - Manual Control switch, and the Permissive Switch for DAS HSI. The Permissive Switch for DAS HSI is common for all DAS Manual Initiation/Control Functions. The operator can initiate ~~Main Steam Depressurization Valves~~this Function for any single Steam Generator at any time by operation of both of these switches in the control room. MIC-03-16-00007

8. Main Steam Line Isolation

a. Manual Initiation

Manual Initiation consists of the same features and operates in the same manner as described for DAS Function 1.a. One channel is required to be OPERABLE.

b. Actuation Logic and Actuation Outputs

Actuation Logic and Actuation Outputs consist of the same features and operate in the same manner as described for DAS Function 1.b. Four subsystems are required to be OPERABLE.

MIC-03-16-00007

ACTIONS

In all cases where the LCO states “Restore channel or subsystem to OPERABLE status”, this means restore the required number of channels or subsystems to OPERABLE status. Therefore, restoration of an alternate channel or subsystem, other than the failed channel or subsystem, is also acceptable. MIC-03-16-00007

A.1~~, A.2.1, and A.2.2~~

Condition A applies when one or more subsystems or required ~~DAS Functions~~channels are inoperable~~.~~

~~If~~ in one or more ~~required DAS functions are~~Functions. With one subsystem or required channel inoperable, 30 days are allowed to restore the ~~Function~~channel or subsystem to OPERABLE status. ~~30~~

BASES

ACTIONS (continued)

The Completion Time of 30 days is ~~reasonable~~justified because the DAS is a separate and diverse non-safety backup system. ~~The 30 days Completion Time allows sufficient time to repair an inoperable DAS and ensures the control is repaired to provide backup protection~~In addition, the Completion Time considers that the remaining OPERABLE channels and Actuation Logic and Actuation Outputs subsystems are adequate to perform the DAS Function. MIC-03-16-00007

~~Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 30 days, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours.~~The Required Actions are modified by two Notes. Note 1 allows placing the Actuation Logic of one subsystem or one required channel in bypass for up to 4 hours while performing surveillance testing, provided the Actuation Logic in the other subsystems or the other required channels are OPERABLE. This Note does not allow a bypass with one channel or subsystem in the tripped condition, as for the RTS and ESFAS, to avoid a spurious DAS actuation.

The Bypass Time of 4 hours for Actuation Logic and channels is justified because the remaining OPERABLE channels or subsystems are adequate to perform the safety function.

Note 2 allows placing the Actuation Outputs of two subsystems in bypass for up to 4 hours while performing surveillance testing of the Actuation Outputs from the other subsystems, or surveillance testing of the Rod Drive Motor-Generator Set Trip Devices. This bypass avoids spurious DAS actuation, because the Actuation Outputs and Rod Drive Motor-Generator Set Trip Devices must be actuated for these tests and they do not have bypass test capability.

When the Actuation Outputs of DAAC 1 or DAAC 3 are tested, this Note allows bypassing the Actuation Outputs of DAAC 2 and DAAC 4, to prevent spurious signals that would result in a spurious reactor trip or ESF actuation. When the Actuation Outputs of DAAC 2 or DAAC 4 are tested, this Note allows bypassing the Actuation Outputs of DAAC 1 and DAAC 3, to prevent spurious signals that would result in a spurious reactor trip or ESF actuation.

When Rod Drive Motor-Generator Set Trip Device 1 is tested, this Note allows bypassing the Actuation Outputs of DAAC 2 and DAAC 4, to prevent spurious signals that would trip Rod Drive Motor-Generator Set Trip Device 2 and cause a spurious reactor trip. When Rod Drive Motor-Generator Set Trip Device 2 is tested, this Note allows bypassing the Actuation Outputs of DAAC 1 and DAAC 3, to prevent spurious signals that would trip Rod Drive Motor-Generator Set Trip Device 1 and cause a spurious reactor trip.

BASES

ACTIONS (continued)

The Bypass Time of 4 hours for Actuation Outputs is justified because the DAS is a separate and diverse non-safety backup system. MIC-03-16-00007

The 4 hour Bypass Time for all Functions is reasonable, based on operating experience that 4 hours is the average time required to perform a channel, Actuation Logic, Actuation Output or Rod Drive Motor-Generator Set Trip Device surveillance.

B.1 and B.2

Condition B applies when the Required Action and associated Completion Time of Condition A are not met. In this condition, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times for Required Actions A.2 and A.3 are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE. MIC-03-16-00007

SURVEILLANCE REQUIREMENTS

SR 3.3.6.1

SR 3.3.6.1 is performance of CHANNEL CHECK. Performance of the CHANNEL CHECK ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION. MIC-03-16-00007 MIC-03-16-00007

Agreement criteria are determined by the unit staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. MIC-03-16-00007

[The Surveillance Frequency of 31 days is justified based on the following: Since sensor signals used by the DAS are distributed from the PSMS, the CHANNEL CHECK of the DAS sensors is included in the PSMS CHANNEL CHECK, which is conducted automatically and continuously. The isolation module of the PSMS and the indicator of the DAS, that cannot be confirmed

SURVEILLANCE REQUIREMENTS (continued)

~~in~~by the continuous CHANNEL CHECK on the PSMS, are manually confirmed by this SR. These conventional analog devices, which operate only in mild environments, have a long history of proven reliability. MIC-03-16-0 0007

~~The reliability of the isolation module is included in the scope of the PRA, and the adequacy of the test interval of once every 31 days is confirmed in the PRA.~~ OR ~~T~~the Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] MIC-03-16-0 0007

SR 3.3.6.2

A COT ~~analog~~ is performed on each required channel to ensure the ~~entire channel~~DAAC process control equipment (including analog bistable modules) and DHP indications and alarms will perform ~~the~~their intended Function. The COT for DAS is performed by injecting simulated process measurement signals at a point that overlaps with the CHANNEL CALIBRATION. The signal distribution module for sensors shared between PSMS and DAS shall be checked by either CHANNEL CALIBRATION or COT. MIC-03-16-0 0007

A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of single contact of the relay. This clarifies what is an acceptable COT of a relay. This is acceptable because all of the other required contacts of relay are verified by Technical Specifications and Non-Technical Specifications test at least once per refueling interval with applicable extensions.

~~Setpoints~~The COT confirms the accuracy of the channel's trip setting (i.e., the channel's analog bistable state change). The state change must ~~be~~occur within the Allowable Value ~~administered~~of the Nominal Trip Setpoint. The Nominal Trip Setpoints and Allowable Values are recorded and maintained in a document established by the SCP. MIC-03-16-0 0007

The analog setpoint shall be left set consistent with the Calibration Tolerance recorded and maintained in a document established by the SCP~~the assumptions of the current unit specific setpoint methodology~~.

[The Surveillance Frequency of 24 months is adequate. It is based on industry operating experience~~.~~ with Anticipated Transient Without Scram (ATWS) mitigation systems.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.3

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifiesmust be performed consistent with the methods and assumptions of Specification 5.5.21, SCP, to verify that the channel responds to a measured parameter within the necessary range and accuracy. Since all DAS channels are shared with the PSMS, a Note has been added that allows the CHANNEL CALIBRATION conducted for the PSMS in LCO 3.3.1 or 3.3.2 to be credited for DAS. MIC-03-16-00007 MIC-03-16-00007

CHANNEL CALIBRATION must be performed consistent with the methods and assumptions in Section 5.5.21, SCP.

[The Surveillance Frequency of 24 months is based on the assumption of 24 months calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.accordance with Specification 5.5.21, Setpoint Control Program (SCP). MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

SR 3.3.6.4

An ACTUATION LOGIC TEST is performed on each of the DAAC (four Diverse Automatic Actuation Cabinet) using the semiautomatic tester. The channel being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all subsystems. All possible logic combinations are tested for each protection function. Verification of Bistable module,each Logic module, and Output module is included in this test. MIC-03-16-00007 MIC-03-16-00007

[The Surveillance Frequency of 24 months is adequate. It is based on industry operating experience. with Anticipated Transient Without Scram (ATWS) mitigation systems. MIC-03-16-00007

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.5

A TADOT is performed for the Manual Initiation/Control and Actuation Outputs of all DAS functions. This test actuates the outputs to the PSMS Power Interface modules. Through overlap with the ACTUATION LOGIC TEST, the TADOT confirms these outputs can be generated from the Manual Initiation/Control switches and from the Aautomatic Aactuation Llogic. MIC-03-16-00007

[The Surveillance Frequency of 24 months is adequate, based on industry operating experience with ATWS mitigation systems, considering instrument reliability and operating history data. of solid state Actuation Outputs devices.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.] The Actuation Outputs are solid state devices. MIC-03-16-00007

SR 3.3.6.6

A TADOT for the Rod Drive Motor-Generator set trip devices is performed by actuating the Manual Initiation switch from the control room and by verifying actuation of the Rod Drive Motor-Generator set trip device. Through overlap with the ACTUATION LOGIC TEST, the TADOT confirms the Rod Drive Motor-Generator set trip devices can be actuated from the Manual Initiation/Control switches and from the Aautomatic Aactuation Llogic. MIC-03-16-00007

[The Surveillance Frequency of 24 months is based on known reliability of the Functions, and has been shown to be acceptable through operating experience. with ATWS mitigation systems.

OR The Surveillance Frequency is based on operating experience, equipment reliability, and plant risk and is controlled under the Surveillance Frequency Control Program.]

REFERENCES

1. MUAP-07006-P (Proprietary) and MUAP-07006-NP (Non-Proprietary)-A, Revision 2, "Defense-in-Depth and Diversity." MIC-03-16-00007

2. MUAP-07014-P (Proprietary) and MUAP-07014-NP (Non-Proprietary), Revision 4, "Defense-in-Depth and Diversity Coping Analysis."

3. FSAR Section 7.8.

4. 10 CFR 50.49.

5. 10 CFR 50.36.

6. FSAR Chapter 15. MIC-03-16-00007

7. MUAP-09022-P, Revision 2, "US-APWR Instrument Setpoint Methodology."

8. U.S. Nuclear Regulatory Commission, Standard Review Plan, Branch Technical Position 7-19, "Guidance for Evaluation of Diversity and Defense-in-Depth in Digital Computer-Based Instrumentation and Control Systems."

BASES

LCO (continued)

The LCO is modified by a Note allowing penetration flow paths with direct access from the containment atmosphere to the outside atmosphere to be unisolated under administrative controls. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the penetration flow path during CORE ALTERATIONS or movement of irradiated fuel assemblies within containment, and 2) specified individuals are designated and readily available to isolate the flow path in the event of a fuel handling accident.

The equipment hatch may be open during movement of irradiated fuel or CORE ALTER~~N~~ATIONS provided the hatch is capable of being closed and the water level in the refueling pool is maintained as required. Administrative controls ensure that 1) appropriate personnel are aware of the open status of the containment during movement of irradiated fuel or CORE ALTER~~N~~ATIONS, 2) specified individuals are designated and readily available to close the equipment hatch following an evacuation that would occur in the event of a fuel handling accident, and 3) any

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obstructions (e.g., cables and hoses) that would prevent rapid closure ofthe equipment hatch can be quickly removed.

APPLICABILITY

The containment penetration requirements are applicable during movement of irradiated fuel assemblies within containment because this is when there is a potential for the limiting fuel handling accident. In MODES 1, 2, 3, and 4, containment penetration requirements are addressed by LCO 3.6.1. In MODES 5 and 6, when movement of irradiated fuel assemblies within containment is not being conducted, the potential for a fuel handling accident does not exist. Therefore, under these conditions no requirements are placed on containment penetration status.

ACTIONS

A.1

If the containment equipment hatch, air locks, or any containment penetration that provides direct access from the containment atmosphere to the outside atmosphere is not in the required status, including the Containment Ventilation Isolation System not capable of automatic actuation when the purge isolation valves are open, the unit must be placed in a condition where the isolation function is not needed. This is accomplished by immediately suspending movement of irradiated fuel assemblies within containment. Performance of these actions shall not preclude completion of movement of a component to a safe position.

Chapter 16 COL Information Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-16-00007	16.2	16.2-1	Change due to NRC meeting result on 2012/1/17	Revised the sections listed in Location column for the NRC meeting result.	2

16.2 Combined License Information

COL 16.1(1)	*Adoption of RMTS is to be confirmed and the relevant descriptions are to be fixed.*
COL 16.1(2)	*Adoption of SFCP is to be confirmed and the relevant descriptions are to be fixed.*
COL 16.1_3.3.1(1)	*Deleted.*
COL 16.1_3.3.2(1)	*Deleted.*
COL 16.1_3.3.2(2)	*LCO 3.3.2 and associated Bases for hazardous chemical are to be confirmed by the evaluation with site-specific condition.*
COL 16.1_3.3.4(1)	*Component controls and instrumentation required for safe shutdown related to the Ultimate Heat Sink in Tables B 3.3.4-1 and B 3.3.4-2 to be specified.*
COL 16.1_3.3.5(1)	~~*The time delay values in SR 3.3.5.3 are to be confirmed based on the plant specific transmission system performance.*~~*Deleted.*
COL 16.1_3.3.6(1)	*Deleted.*
COL 16.1_3.4.17(1)	*Deleted.*
COL 16.1_3.7.9(1)	*LCO 3.7.9 and associated Bases for the Ultimate Heat Sink based on plant specific design, including required UHS water volume, lowest water level for ESW pumps and maximum water temperature of the UHS, are to be developed.*
COL 16.1_3.7.10(1)	*LCO 3.7.10 and associated Bases for hazardous chemical are to be confirmed by the evaluation with site-specific condition.*
COL 16.1_3.8.4(1)	*The battery float current values in required action A.2 is to be confirmed after selection of the plant batteries.*
COL 16.1_3.8.5(1)	*The battery float current values in required action A.2 is to be confirmed after selection of the plant batteries.*
COL 16.1_3.8.6(1)	*The battery float current values in condition B, required action B.2, and SR 3.8.6.1 are to be confirmed after selection of the plant batteries.*
COL 16.1_4.1(1)	*The site specific information for site location is to be provided.*
COL 16.1_4.3.1(1)	*Deleted.*
COL 16.1_5.1.1(1)	*The titles for members of the unit staff are to be specified .*

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Tier 2

Chapter 17

Chapter 17 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_09.02.02-80 This change is superseded by the amend RAI Response.	Table 17.4-1 (Sheet 11, 23, 24 of 51)	17.4-17 17.4-29 17.4-30	Response to RAI No. 697 MHI Letter No. UAP-HF-11133 Date 05/12/2011	Revised the Table 17.4-1 to reflect alternative cooling water line isolation valves.	-
DCD_09.02.02-80	Table 17.4-1 (Sheet 11, 23, 24 of 51)	17.4-17 17.4-29 17.4-30	Amended Response to RAI No. 697 MHI Letter No. UAP-HF-11239 Date 07/29/2011	Revised the Table 17.4-1 to reflect alternative cooling water line isolation valves.	-

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is “-“, the change was not made in a T/R.

Tier 2

Chapter 18

Chapter 18 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_18-100	18.5.2	18.5-2	Response to RAI No. 725 MHI Letter No. UAP-HF-11124 Date 04/27/2011	Revised Subsection 18.5.2 Note 1 for RAI response.	-
DCD_18-103	18.5.1 18.5.5	18.5-1 18.5-5	Response to RAI No. 725 MHI Letter No. UAP-HF-11124 Date 04/27/2011	Added description about the Staffing and Qualifications Implementation Plan Added reference to 18.5-12Added	-
DCD_18-106	18.1.1.1 18.1.2.4 18.1.3.4 18.1.3.6 18.1.4 18.1.7	18.1-2 18.1-8 18.1-9 18.1-10 18.1-14	Response to RAI No. 728 MHI Letter No. UAP-HF-11125 Date 04/28/2011	Revised subsection 18.1.1.1 for RAI response. Replaced “Subsection 5.1.2.2” with “18.1-12 Part 1 Section 3.2” Revised subsection 18.1.3.4 for RAI response. Added reference to18.1-12, Part 1 Section 5. Replaced “Subsection 5.1.4” with “18.1-12 Part 1 Section 6 and Section 7”.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Added reference to 18.1-12.	
DCD_18-107	18.6.1 18.6.2 18.6.3 18.1.7	18.6-1 18.6-2 18.1-14	Response to RAI No. 728 MHI Letter No. UAP-HF-11125 Date 04/28/2011	Deleted description as follow: “design” Added reference to second paragraph of 18.6.1	-
DCD_18-108	18.1.1.2	18.1-3	Response to RAI No. 728 MHI Letter No. UAP-HF-11125 Date 04/28/2011	Deleted description as follow:“design” Added reference to second paragraph of 18.6.1	-
DCD_18-109	18.1.2.2 Figure 18.1-1	18.1-4 18.1-5 18.1-15	Response to RAI No. 728 MHI Letter No. UAP-HF-11125 Date 04/28/2011	Deleted description as follow:“design” Added reference to second paragraph of 18.6.1	-
DCD_18-114	18.1.2.4 18.1.3.3 18.1.3.4 18.1.5	18.1-8 18.1-9 18.1-10	Response to RAI No. 728 MHI Letter No. UAP-HF-11125 Date 04/28/2011	Added reference to first paragraph of Subsection 18.1.2.4 Added description about work process Revised subsection 18.1.3.4 for RAI response Revised Subsection 18.1.5 for RAI response	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_18-110	18.1.1.3	18.1-3	Response to RAI No. 728 MHI Letter No. UAP-HF-11132 Date 05/12/2011	Replaced “emergency response” with “accident management”	-
DCD_18-114	18.1.3.4	18.1-9	Response to RAI No. 728 MHI Letter No. UAP-HF-11132 Date 05/12/2011	Revised Subsection 18.1.3.4 for RAI response	-
DCD_18-120	18.8.1 18.9.2.1 18.9.2.4 18.9.2.5 18.9.5	18.8-1 18.9-2 18.9-4 18.9-5 18.9-6	Response to RAI No. 757 MHI Letter No. UAP-HF-11166 Date 05/31/2011	Added description about objectives and scope. Added description about general training approach. Revised Subsection 18.9.2.4 for RAI response. Added description about effectiveness of training programs. Added reference to 18.9-13.	-
DCD_18-116	18.11.2 18.11.5	18.11-1 18.11-2	Response to RAI No. 755 MHI Letter No. UAP-HF-11165 Date 05/31/2011	Added description about the design implementation plan. Added reference to 18.11-2.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_18-117	18.11.1 18.11.2	18.11-1	Response to RAI No. 755 MHI Letter No. UAP-HF-11165 Date 05/31/2011	Added description about the design implementation plan. Revised Subsection 18.11.2 for RAI response.	-
DCD_07.08-9	18.9.2.1	18.9-2	Response to RAI No. 677 MHI Letter No. UAP-HF-11032 Date 02/09/2011	Added description about general training approach.	-
DCD_07.08-9	18.9.2.1	18.9-2	Response to RAI No. 677 MHI Letter No. UAP-HF-11159 Date 05/31/2011	Added description about general training approach.	-
DCD_18-126	18.12.2	18.12-2	Response to RAI No. 777 MHI Letter No. UAP-HF-11275 Date 8/24/2011	Added third and last paragraphs about plant data.	-
DCD_18-128	18.12.3	18.12-2	Response to RAI No. 777 MHI Letter No. UAP-HF-11275 Date 8/24/2011	Added “in a timely manner”	-
DCD_18-140	Figure 18.1-2	18.1-18	Response to RAI No. 792 MHI Letter No. UAP-HF-11278	Assigned dual role of SRO/STA to the main control room supervisor and clarified the	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			Date 08/25/2011	presence of a second SRO/STA for minimum shift staffing.	
DCD_18-140	Figure 18.1-3 18.5.2 18.9.2.1	18.1-16 18.5-1 18.9-2	Response to RAI No. 792 MHI Letter No. UAP-HF-11278 Date 08/25/2011	Revised Shift Supervisor title to “Shift Manager”	-
DCD_18-129	18.4.1 18.7.3.2 18.10.1	18.4-2 18.7-8 18.10-1	Response to RAI No. 780 MHI Letter No. UAP-HF-11267 Date 8/19/2011	Revised the fifth bullet in the first paragraph in Section 18.1.1.2. Revised third paragraph in Section 18.1.1.2.	-
DCD_18-187	New Subsection 18.12.5	18.12-2	Response to RAI No. 843 MHI Letter No. UAP-HF-11360 Date 10/21/2011	Added a new reference.	-
DCD_18-188	18.8.5	18.8-5	Response to RAI No. 844 MHI Letter No. UAP-HF-11359 Date 10/21/2011	Added a new reference	-
DCD_18-178	18.7.3.3 18.7.4	18.7-10	Response to RAI No. 797 MHI Letter No. UAP-HF-11366	Revised the first sentence in Section 18.7.3.3 for RAI response.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			Date 10/27/2011	Added a new reference.	
DCD_18-182	18.7.2.5	18.7-7	Response to RAI No. 797 MHI Letter No. UAP-HF-11366 Date 10/27/2011	Revised the phrase in Section 18.7.2.5 for RAI response.	-
DCD_18-185	18.7.3 18.7.3.2	18.7-8 18.7-9	Response to RAI No. 797 MHI Letter No. UAP-HF-11366 Date 10/27/2011	Revised the sentence in Section 18.7.3 for RAI response. Revised the first sentence in Section 18.7.3.2 for RAI response. Revised the second sentence in Section 18.7.3.2 for RAI response.	-
DCD_18-131	18.4.1	18.4-1	Response to RAI No. 781 MHI Letter No. UAP-HF-11433 Date 12/15/2011	Revised Section 18.4.1 for RAI response	-
DCD_18- 131, 132, 133, 134, 135, 136, 138, 139	18.4.2 18.4.2.1	18.4-2 18.4-3	Response to RAI No. 781 MHI Letter No. UAP-HF-11433 Date 12/15/2011	Revised to refer to the revised MUAP-09019 as the TA Implementation Plan, instead of MUAP-07007	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_18-142	18.3.3	18.3-4	Response to RAI No. 793 MHI Letter No. UAP-HF-11435 Date 12/16/2011	Revised Section 18.3.3 for RAI response	-
DCD_18-147	18.3.2.1 18.3.3	18.3-2 18.3-5	Response to RAI No. 793 MHI Letter No. UAP-HF-11435 Date 12/16/2011	Revised Section 18.3.2.1 and 18.3.3 for RAI response	-
DCD_18-150	18.1.2.3.2 18.1.5 18.7.2.6 18.7.5 18.8.2.4 18.8.5 18.10.1 18.10.2 18.10.2.1 18.10.2.3 18.10.5	18.1-8 18.1-13 18.7-7 18.7-10 18.8-4 18.8-5 18.10-1 18.10-2 18.10-3 18.10-4 18.10-5	Response to RAI No. 796 MHI Letter No. UAP-HF-12038 Date 02/16/2012	Added the V&V Implementation Plan (MUAP-10012) for RAI response	-
DCD_18-153	18.10.3	18.10-5	Response to RAI No. 796 MHI Letter No. UAP-HF-12038 Date 02/16/2012	Revised Section 18.10.3 for RAI response	-
DCD_18-177	18.10.2.2	18.10-2	Response to RAI No. 796 MHI Letter No. UAP-HF-12038 Date 02/16/2012	Revised Section 18.10.2.2 for RAI response	-

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

Tier 2

Chapter 19

Chapter 19 Change List

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_6.2.5-41	19.2.3.3.2	19.2-8	Response to RAI No. 696 MHI Letter No. UAP-HF-11059 Date 03/07/2011	Revised for editorial correction	-
MIC-03-19-00003	Table 19.1-119 (Sheet 14 of 46)	19.1-911	Update the reflection of SPDI MHI Letter No. UAP-HF-11030 Date 02/21/2011	Added "The case where ESW pump motors are air-cooled has a small impact on PRA results because the HVAC system for the ESW pump room is reliable due to operator backup."	-
DCD_19-495	19.1.6.1	19.1-135	Response to RAI No. 681 MHI Letter No. UAP-HF-11037 Date 02/17/2011	Replaced "These valves are automatically closed by detection of RCS Low level signal and …" with "These valves are automatically closed by detection of RCS Low water level signal which actuates when the RCS water level is 0.47 feet higher than loop center, and …"	-
DCD_19-496	Table 19.1-119 (Sheet 27,	19.1-924 19.1-930	Response to RAI No. 681 MHI Letter	Replaced "MSDV" and "close pressurizer spray vent valve (if	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	33 of 46)		No. UAP-HF-11037 Date 02/17/2011	open)" with "main steam depressurization valve" and "close the pressurizer spray vent valve (if the valve is opened)", respectively. Inserted item 13 regarding removal of pressurizer safety valve to prevent the damage of SG nozzle dams.	
DCD_19-499	19.2.3.3.7 Table 19.2-10 (New table)	19.2-22 19.2-23 19.2-60	Response to RAI No. 707 MHI Letter No. UAP-HF-11084 Date 03/29/2011	Added detailed technical information in section 19.2.3.3.7. Added new table 19.2-10.	-
DCD_19-500	Table 19.1-119 (Sheet 39 of 46)	19.1-936	Response to RAI No. 714 MHI Letter No. UAP-HF-11099 Date 04/8/2011	Added second ballet in the fourth paragraph about MCR fire.	-
DCD_06.02.05-43	19.2.3.3.2	19.2-8	Response to RAI No. 751 MHI Letter No. UAP-HF-11169 Date 06/03/2011	Replaced "for decay heat removal" in the second from the last paragraph of section 19.2.3.3.2 with "due to failure of the safety injection system and the containment spray system"	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
DCD_19-525	19.3.3	19.3-1	Response to RAI No. 761 MHI Letter No. UAP-HF-11192 Date 06/28/2011	Replaced "Deleted" with "The COL Applicant will identify … if any new vulnerability have been introduced." (Added COL Item 19.3(5))	-
DCD_03.07.02-35	19.1.5.1.1	19.1-82	Response to RAI No. 542 MHI Letter No. UAP-HF-11195 Date 06/30/2011	Replaced reference to a three dimensional lumped mass stick model for dynamic seismic response analysis with reference to a finite element model for soil structure interaction analysis.	-
DCD_19-508	19.2.5 19.3.3	19.2-33 19.3-1	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Inserted "developed by a COL applicant." Revised COL Action item 19.3(6).	-
DCD_19-510	19.1.2 19.1.2.3 19.1.2.4	19.1-4 19.1-5 19.1-6	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Deleted the following descriptions "The quality of the PRA is sufficient … risk-informed applications". (Sec. 19.2) "The PRA has been developed … peer review guide (Reference 19.1-14)".	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				(Sec. 19.1.2.3) "Upgrades of the PRA will … the PRA that have been upgraded." (Sec. 19.1.2.4)	
DCD_19-511	19.1.4.1.2 Table 19.1-38 (Sheets 5 and 6 of 9) Table 19.1-140 (Sheets 1 and 2 of 3)	19.1-54 19.1-55 19.1-58 19.1-413 19.1-414 19.1-1001 19.1-1002	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Inserted two sensitivity analysis results, i.e., CASE 4-4 and CASE 4-5. Revised description in sensitivity analysis CASE 6-1 Inserted "US-APWR PRA uses the various assumptions … are summarized in Table 19.1-38." Revised descriptions regarding "Status of pressurizer safety valves", "Test interval of equipments" (Sheet 5), "Failure probability and failure rates for diesel generators" and "Failure probability of digital I&C software" (Sheet 6) in Table	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				19.1-38 Revised impact on CDF regarding “Digital I&C” (Sheet 2), “Status of pressurize safety valve” and “Test interval of equipments” (Sheet 3) in Table 19.1-140.	
DCD_19-512	Table 19.1-119 (Sheets 1, 5, 10 and 11 of 46)	19.1-898 19.1-902 19.1-907 19.1-908	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Inserted the following design features “SI pumps are operable … within mission time.” (Sheet 1) “CS/RHR pumps are operable … within mission time.” (Sheet 5) The EFWS is automatically initiated … low SG water level signal”.(Sheet 11) Replaced design feature of T/D EFW pump operability with “On the other hand, turbine-driven EFW pumps are operable regardless of room cooling.” (Sheet 11)	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				Added disposition for M/D EFW pump operability. (Sheet 11)	
DCD_19-513	Table 19.1-15 (Sheet 10 of 14)	19.1-241	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Added T-H analyses results for alternate containment cooling (No.2.4).	-
DCD_19-514	Table 19.1-119 (Sheets 25 of 46)	19.1-922	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Added new risk-significant operator actions for equalization between primary and secondary pressure in SGTR.	-
DCD_19-516	Table 19.1-119 (Sheets 1, 5, 11, 16 and 18 of 46) Table 19.1-180(New table)	19.1-898 19.1-902 19.1-908 19.1-913 19.1-915 19.1-1149	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Inserted the following design features “SI pumps are operable … within mission time.” (Sheet 1) “CS/RHR pumps are operable … within mission time.” (Sheet 5) “GTG can operate regardless of … essential chilled water system.” Replaced design feature of T/D EFW pump operability with “On the other hand,	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				turbine-driven EFW pumps are operable regardless of room cooling." (Sheet 11) Added disposition for M/D EFW pump operability. (Sheet 11) Incorporated Table 19.1-180 that summarizes room temperature analysis for each area.	
DCD_19-518	19.3.3	19.3-1	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Revised COL Action item 19.3(4).	-
DCD_19-519	19.1.5.1.2	19.1-88	Response to RAI No. 750 MHI Letter No. UAP-HF-11201 Date 06/30/2011	Replaced description of GTG failure for SMA with "The probability that all gas-turbine generators … (all failure modes)".	-
MIC-03-19-00002	Table 19.1-14	19.1-231 [19.1-232]	Correction for track change	Remove track changes of "CSS/RHRS" (Contents are not change)	0
DCD_09.02.0	Table 19.1-	19.1-440	Response to	Replaced "424" and	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
2-80 This change is superseded by the amend RAI Response.	44 (Sheet 7 of 7) Table 19.1-45 (Sheet 41, 42, 43 of 60) Figure 19.1-2 (Sheet 28, 29 of 42)	19.1 -481 19.1-482 19.1-483 19.1-1196 19.1-1197	RAI No. 697 MHI Letter No. UAP-HF-11133 Date 05/12/2011	“425” with “241” and “242” respectively. Replaced “VWS-MOV-424” and “VWS-MOV-425” with “NCS-MOV-241” and “NCS-MOV-242”, respectively.	
DCD_09.02.0 2-80	Table 19.1-45 (Sheet 41, 42, 43 of 60) Figure 19.1-2 (Sheet 28, 29 of 42)	19.1 -481 19.1-482 19.1-483 19.1-1196 19.1-1197	Amended Response to RAI No. 697 MHI Letter No. UAP-HF-11239 Date 07/29/2011	Replaced “424” and “425” with “241” and “242” respectively. Replaced “VWS-MOV-424” and “VWS-MOV-425” with “NCS-MOV-241” and “NCS-MOV-242”, respectively.	-
DCD_09.02.02 -48	Table 19.1-119 (Sheet 22 of 46) Figure 19.1-2 (sheet 14 and 15 of 42)	19.1-919 19.1-1182 19.1-1183	Amended Response to RAI No. 571 MHI Letter No. UAP-HF-11237 Date 7/29/2011	Revised Table 19.1-119 (Sheet 22 of 46): Delete Item 17 relating to automatic closure of CCW header tie line. Revised Figure 19.1-2 (Sheets 14, 15) to delete automatic closure of header tie line isolation valves.	-
DCD_19.01-5	Table 19.1-119 (Sheet 32 of 46)	19.1-929	Response to RAI No. 621 MHI Letter No. UAP-HF-	Inserted the description regarding SG reflux cooling during mid-loop operation after	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			11229 Date 7/20/2011	refueling.	
DCD_19-493	Table 19.1-141	19.1-1004	Response to RAI No. 669 MHI Letter No. UAP-HF-11229 Date 7/20/2011	Inserted “SG tube drain performed” in POS 4-1.	-
DCD_19-493	Table 19.1-141	19.1-1005	Response to RAI No. 669 MHI Letter No. UAP-HF-11229 Date 7/20/2011	Revised time to core boiling in POSs 4-2 and 4-3.	-
DCD_19-506	Table 19.1-119 (Sheet 36 of 46)	19.1-933	Response to RAI No. 749 MHI Letter No. UAP-HF-11229 Date 7/20/2011	Replaced “Pressurizer” with “At least three pressurizer”	-
DCD_19-493	Table 19.1-119 (Sheet 36 of 46)	19.1-933	Response to RAI No. 669 MHI Letter No. UAP-HF-11229 Date 7/20/2011	Revised procedure to remove SG manways and to install SG nozzle dams.	-
DCD_19-503	Table 19.1-119 (Sheet 40 of 46)	19.1-937	Response to RAI No. 744 MHI Letter No. UAP-HF-11252 Date 8/2/2011, and revised response to RAI No. 744 MHI Letter	Replaced the 6th assumption of “Internal fire assumptions”	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			No. UAP-HF-11302 Date 9/8/2011		
DCD_19-547	19.1.6.1	19.1-139	Response to RAI No. 783 MHI Letter No. UAP-HF-11274 Date 08/24/2011	Replaced “engineering judgment based on the previous PRA studies” with “a system analysis and calculations determining the loss of RCS inventory due to boiling as a function of time and the minimum gravity injection flowrate at atmospheric pressure” Replaced “engineering judgment based on previous PRA studies” with “calculating peak RCS temperatures and pressures during various mid-loop POS scenarios as a function of time with consideration of the time required for successful operator mitigative actions.”	-
DCD_19-547	19.1.6.1	19.1-141	Response to RAI No. 783 MHI Letter No. UAP-HF-11274 Date	Replaced “engineering judgment based on the previous PRA studies” with “a system analysis and calculations determining the loss of RCS inventory due to	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			08/24/2011	boiling as a function of time and the minimum gravity injection flowrate at atmospheric pressure" Replaced "engineering judgment based on previous PRA studies" with "calculating peak RCS temperatures and pressures during various mid-loop POS scenarios as a function of time with consideration of the time required for successful operator mitigative actions."	
DCD_19-532	19A.1 19A.6	19A-1 19A-4	Response to RAI No. 773 MHI Letter No. UAP-HF-11268 Date 08/22/2011	Insert "Theses guidelines were fully followed with no exception taken." Reference 19A-2 is corrected.	-
DCD_19-533	19A.3	19A-2	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 19A.3 is revised to reflect that the methods described in NEI 07-13 were used to assess the physical, fire and vibration effects of the aircraft impact on SSCs in the reactor building and the power source buildings in order to determine the continued core	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				cooling capability of the existing and enhanced design.	
DCD_19-534	19A.4.1 19A.4.2	19A-2 19A-3	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 19A.4.1 is revised to add a paragraph which address the potential for leakage through the SFP liner below the required minimum water level of the pool due to aircraft impact scenarios per NEI 07-13. The sixth item in Section 19A.4.2 is deleted.	-
DCD_19-535	19A.4.3	19A-3	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 9.5.1.2.1, page 9A-610 and section 19A.4.3 are revised to include the pressure resistance capability of penetration seals and dampers.	-
DCD_19-537	19A.4.4	19A-4	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	A new sentence is added at the end of Section 19A.4.3. Section 19A.4.4 is revised to describe design features and functional capabilities of the US-APWR that assure long term cooling (for 24 hours or more) while the plant is	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				producing power.	
DCD_19-538	19A.4.4	19A-4	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 19A.4.4 is revised to describe design features and functional capabilities of the US-APWR that assure long term cooling (for 24 hours or more) while the plant is shutdown with the reactor head removed and the reactor water level at or near the reactor vessel head flange.	-
DCD_19-539	19A.4.1 19A.6	19A-3 19A-4	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 19A.6, "References," is revised to reflect NEI 07-13, Revision 8, April 2011.	-
DCD_19-541	19A.1 19A.6	19A-1 19A-4	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 19A.1 is revised to delete the sentence and reference referring to the NRC providing the loading function. Section 19A.6 is revised to delete Reference 19A-1.	-
DCD_19-542	19A.4.1	19A-2	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date	Section 19A.4.1 is revised to provide additional information about aircraft impact on	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			08/22/2011	the PCCV.	
DCD_19-543	19A.4.2	19A-3	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 19A.4.2 is revised to provide the rationale for limiting potential aircraft strikes on the R/B and PS/B.	-
DCD_19-544	19A.1 19A.4 19A.5	19A-1 19A-2 19A-4	Response to RAI No. 773 MHI Letter No. UAP-HF-11268Date 08/22/2011	Section 19A.4.1, 19A.4 and 19A.5 are revised to optimize the description about the integrity of PCCV.	-
DCD_06.02.05-44	19.2.3.3.2 19.2.5	19.2-8 19.2-37	Response to RAI No. 803 MHI Letter No. UAP-HF-11304 Date 9/9/2011	Withdrawing application of firewater system to enhance containment mixing	-
DCD_06.02.05-45	19.2.3.3.7 19.3.3	19.2-25 19.3-1	Response to RAI No. 803 MHI Letter No. UAP-HF-11304 Date 9/9/2011	Changing position of responsibility for SA equipment survivability from DC applicant to COL applicant and create new COL action item.	-
DCD_19-550	19.1.6.2 New Table 19.1-181	19.1-164 through 19.1-166 19.1-172 19.1-1149	Response to RAI No. 832 MHI Letter No. UAP-HF-11364 Date 10/27/2011	Inserted sensitivity analysis results (Cases 1-2, 4-3, 6-1 and 6-2) and Table 19.1-181 summarizing key sources of uncertainty and key assumptions	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
				for LPSD PRA. Changed the number of sensitivity analyses	
DCD_19-551	19.1.6.2	19.1-171	Response to RAI No. 832 MHI Letter No. UAP-HF-11364 Date 10/27/2011	Inserted RAW of US-APWR unique design, i.e., automatic isolation for low pressure letdown line	-
DCD_19-552	19.1.5.3.1	19.1-114	Response to RAI No. 834 MHI Letter No. UAP-HF-11380 Date 11/8/2011	Added following additional sentence after the last sentence of the last bullet. "In this internal flooding PRA, consequential effects of HELB and MELB are bounded by the effects of floods and major floods assuming all components placed in flood propagation areas lose their function."	-
DCD_19-553	Table 19.1-58	19.1-530	Response to RAI No. 834 MHI Letter No. UAP-HF-11380 Date 11/8/2011	Revised editorial errors in Table 19.1-58.	-
DCD_19-554	Table 19.1-57	19.1-529	Response to RAI No. 834	Revised editorial errors in Table 19.1-57.	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			MHI Letter No. UAP-HF-11380 Date 11/8/2011		
DCD_19-556	19.1.5.3.1	19.1-112	Response to RAI No. 834 MHI Letter No. UAP-HF-11380 Date 11/8/2011	Revised assumption “i” to be clear. “i. Fire protection doors that are not water tight are conservatively assumed as flood propagation paths for flood and major flood scenarios”	-
DCD_19-557	19.1.5.2.1 19.1.5.3.1 Table 19.1-119 (sheet 40,44)	19.1-93 19.1-112 19.1-113 19.1-937 19.1-941	Response to RAI No. 834 MHI Letter No. UAP-HF-11380 Date 11/8/2011	Revised assumptions in DCD 19.1.5.2.1, 19.1.5.1.3, and Table 19.1-119.	-
DCD_08.03.01-38	19.1.3.1 Table 19.1-119 (sheet 15)	19.1-10 19.1-919	Response to RAI No. 394 MHI Letter No. UAP-HF-11404 Date 11/22/2011	Revised the description for adopting different manufacturers for the AAC GTG and Class 1E GTG ensures diversity.	-
MIC-03-19-00004	19.1.7.1	19.1-180 [19.1-182]	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Added last paragraph to discuss PRA evaluation for crediting containment pressure in determining available NPSH of safety pumps.	1

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
MIC-03-19-00005	19.1.8	19.1-182 [119.1-185]	GSI-191, Tracking Report MHI Letter No. UAP-HF-11287 Dated 08/31/2011	Added a bullet to address the minimal contribution to plant risk due to crediting containment pressure in NPSH calculation.	1
DCD_09.02.02-82	19.1.4.1.1	19.1-33 [19.1-34]	Response to RAI No. 760 MHI Letter No. UAP-HF-12043 Date 02/15/2012	Added description on assumption in RCP seal LOCA analysis.	-
DCD_16-117	DCD Table 19.1-119 Sheets 19, 34 FSAR Table 19.1-119R Sheets 19, 34	19.1-916 19.1-931 19.1-21 19.1-36	Response to RAI No. 161 MHI Letter No. UAP-HF-12022 Date 02/08/2012	Incorporated new key insights regarding administrative controls for AAC and demineralized water storage tank during at-power operation and SIS during LPSD operation	-
DCD_19-494	DCD Table 19.1-119 Sheet 34 FSAR Table 19.1-119R Sheet 34	19.1-931 19.1-36	Response to RAI No. 669 MHI Letter No. UAP-HF-12023 Date 02/08/2012	Incorporated a new key insight regarding administrative controls for SIS during LPSD operation	-
DCD_19.01-10 S01	19.1.5.3.2	19.1-124 19.1-125 [19.1-128	Response to Amended RAI No. 668	Deleted description regarding hydrogen	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	19.1.6.1 Table 19.1-119 (sheet 31)	19.1-129] 19.1-142 [19.1-146] 19.1-928 [19.1-937]	MHI Letter No. UAP-HF-12036 Date 02/07/2012	peroxide.	
DCD_19-564	19.1 19.1.1.1 19.1.1.2.1 19.1.1.2.2 19.1.1.3 19.1.1.3.2 19.1.1.4 19.1.1.4.1 19.1.1.4.2 19.1.2.1 19.1.2.2 19.1.2.4 19.3.3	19.1-1 19.1-2 19.1-3 19.1-4 19.1-5 19.1-6 19.3-1	Response to RAI No. 898 MHI Letter No. UAP-HF-12053 Date 02/28/2012	Clarify the responsibility of the DC Applicant, COL Applicant, and COL holder on the use, maintenance and upgrade of the PRA. Revised description to clearly state the use of PRA-based SMA. Revised description to specify the PRA uses during operational phase, revised COL Action item 19.3(6), and developed a new COL Action item 19.3(8) Revised description regarding design specific PRA maintenance and upgrade program, and developed a new COL Action item 19.3(9)	-
DCD_19-532 S01	19A.1	19A-1	Response to Supplemental RAI No. 773	The reference in DCD Section 19A.1 to NEI 07-13 is revised to	-

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
			MHI Letter No. UAP-HF-12056 Date 3/2/2012	update the reference to NEI 07-13, Revision 8.	
DCD_19-538 S01	19A.4.1 19.A.4.4	19A-2 19A-4	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-12056 Date 3/2/2012	Revised to describe key design features for AIA.	-
DCD_19-543 S01	19A.4.2	19A-3	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-12056 Date 3/2/2012	Added and revised description about screening effect of the Auxiliary Building	-
DCD_19-544 S01	19A.1	19A-1	Response to Supplemental RAI No. 773 MHI Letter No. UAP-HF-12056 Date 3/2/2012	Correction of editorial error	-
MIC-03-16-00007	Appendix 19B (New) Table 19.B-1 Table 19.B-2 Table	19A-1 [19B-1, 19B-2] 19A-1 [19B-3, 19B-4, 19B-5]	Change due to NRC meeting result on 1/17/2012	Added the Appendix 19B for the NRC meeting result.	2

Change ID No.	Location (e.g., subsection, table, or figure)	DCD Rev.3 Page *	Reason for Change	Change Summary	Rev. of T/R**
	19.B-3				

*Page numbers for the attached marked-up pages may differ from the revision 3 page numbers due to text additions and deletions. When the page numbers for the attached pages do differ, the page number for the attached page is shown in brackets.

**Numerical number is the revision number of the Tracking Report (T/R) which include the markup pages. When the column is "-", the change was not made in a T/R.

19B Summary of PSMS Reliability Analysis in PRA

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In the US-APWR Base PRA, the Protection and Safety Monitoring System (PSMS) is modeled in the Fault Tree Analysis (FTA) at the module level (Refer to Attachments 6A.12, 6A.13 and 6A.14.10 of MUAP-07030 "US-APWR Probabilistic Risk Assessment"). With one exception, described below, the unavailability of each module of the reactor trip (RT) and engineered safety features (ESF) actuation functions of the PSMS is calculated based on the bounding longest Completion Time (CT), Bypass Time (BT) and Surveillance Frequency (SF) defined in the US-APWR Technical Specification (TS). Due to the use of digital technology, some of these times are extended from past industry experience, as represented by the Westinghouse Owners Group (WOG) Standard Technical Specifications (STS). For the RT and ESF actuation functions Tables 19B-1 and 19B-2, respectively, show the times for the US-APWR TS, the corresponding times for the WOG STS and the times used in the US-APWR Base PRA.

In the PRA unavailability calculation, a single FTA model is used to represents all RT and ESF functions of the PSMS. As explained above, for this representative model, the longest values of CT, BT and SF are applied for the RPS and ESFAS subsystems of the PSMS in order to bound all RT and ESF actuation functions. For the SLS subsystem of the PSMS, the longest TS values of CT and BT are also applied. However, for the SLS subsystem, the PRA credits a more realistic test frequency value, which is the frequency for in-service testing (IST) of the mechanical components, which are actuated by the SLS. Since the SLS controls these mechanical components, and the SLS is actuated during IST, the IST value is applicable.

With the bounding longest values of CT, BT and SF for most of the PSMS, as defined by the US-APWR TS, and the IST SF values for the SLS portion of the PSMS, the US-APWR Base PRA shows acceptable CDF results. In addition, to supplement the Base PRA results, sensitivity analyses are also performed to show how changes in the PSMS CT, BT and SF affect the resulting CDF (Refer to Attachment 18A.1 of MUAP-07030 "Probabilistic Risk Assessment"). The Base PRA (Case 0) and the additional evaluated cases (Case 1-4) are summarized in Table 19B-3. The evaluated cases reflect (1) comparisons for using shorter WOG STS values for CT, BT and SF, instead of the US-APWR TS values used in the Base PRA, and (2) comparisons for longer US-APWR TS values for the SLS SF, instead of the SLS IST value used in the Base PRA. For each Case, Table 19B-3 shows the changes from the Base PRA (Case 0), the resulting CDF for internal events, and a comparison of that CDF to the CDF for the Base PRA (Case 0). The following summarizes each Case:

Case 0: Base case of US-APWR PRA, using US-APWR TS CT, BT SF value with IST value for SLS SF.

Case 1: This case was performed to assess the impact of using the US-APWR IST value for the SLS SF in the Base PRA (Case 0). The US-APWR IST value used in the Base PRA is more frequent than the US-APWR TS SF value for the SLS. In this case the SLS IST SF value used in Case 0, is replaced with the US-APWR TS SF value. The results show that when the less frequent US-APWR TS SF value is used, the CDF increases 1.9% compared to the Base PRA (Case 0).

Case 2: This case was performed to assess the impact of using the US-APWR TS CT and BT values in the Base PRA (Case 0). Some of the US-APWR TS CT and BT values used in the Base PRA are longer than the WOG STS CT and BT values. In this case the US-APWR TS CT and BT values used in Case 0, are replaced with the WOG STS CT and BT values. The results show that when the more frequent WOG STS CT and BT values are used, the CDF decreases by 0.1% compared to the Base PRA (Case 0). MIC-03-16-00007

Case 3: This case was performed to assess the impact of using the US-APWR TS SF values, and the IST SF value for the SLS in the Base PRA (Case 0). Some of the US-APWR TS SF values are less frequent than the WOG STS SF values. In this case the US-APWR TS SF values and the SLS IST SF value used in Case 0, are replaced with the WOG STS SF values. The results show that when the more frequent WOG STS SF values are used, the CDF decreases by 4.2% compared to the Base PRA (Case 0).

Case 4: This case was performed to assess the impact of using the US-APWR TS CT, BT and SF values, and the IST SF value for the SLS in the Base PRA (Case 0). Some of the US-APWR TS CT and BT values are longer than the WOG STS CT and BT values, and some of the US-APWR TS SF values are less frequent than the WOG STS SF values. In this case the US-APWR TS CT, BT and SF values, and the IST SF value for the SLS, are replaced with the WOG STS CT, BT and SF values. The results show that when the more frequent WOG STS CT, BT and SF values are used, the CDF decreases by 4.3% compared to the Base PRA (Case 0).

As shown in Table 19B-3 for Cases 1-4, the changes in CDF from internal events, compared to the Base PRA (Case 0), are less than 5% for all comparison cases. Therefore, the sensitivity analyses shows (1) an insignificant risk impact for the extension of the US-APWR TS values from the WOG STS values and (2) an insignificant risk impact when the actual US-APWR TS values for SLS surveillance frequency are applied, instead of the IST values.

It is noted that there are also differences in the values of CT, BT and SF between the US-APWR TS and WOG STS for Manual Initiation of RT and ESFAS. However, as indicated in the risk important analysis documented in this Chapter, the Manual Initiation functions are considered negligible for CDF reduction (i.e., other failures dominate the failure of RT or ESF actuation). Therefore, no sensitivity analyses were performed for Manual Initiation functions.

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Table 19.B-1 Comparison of TS requirements for reactor trip system

Function	US-APWR TS *0, *1			WOG STS *1			Value Used in US-APWR Base PRA *2			
	CT	BT	SF	CT	BT	SF	CT	BT	SF	Surveillance Test
High Pressurizer Pressure/ Low SG Water Level	1h	NA	12h	72h	12h	12h	72h *3	12h *4	12h	CHANNEL CHECK
			24M			184d			24M	MEMORY INTEGRITY CHECK*11
			24M			18M			24M	CHANNEL CALIBRATION
Automatic Trip Logic (RPS, except output)	24h/48h *8	4h	24M	24h/48h *5	4h	92d STB	72h *6	4h	24M	MEMORY INTEGRITY CHECK*11
RPS output and Reactor Trip Breaker*7	24h/48h *8	NA	62d STB *9	24h/48h *8	4h	62d STB	48h *10	NA	62d STB	TRIP ACTUATION DEVICE OPERATIONAL TEST

*0: In the US-APWR TS columns, the values that are different from the WOG STS are underlined.
*1: These columns indicate the Tech Spec values for the specific functions represented in the Function column.
*2: The values in these columns bound the US-APWR TS values for the functions represented in the Function column, and all other RT functions.
*3: 72 hours CT is used in the unavailability calculation since other RT functions have 72 hours CT.
*4: 12 hours BT is used in the unavailability calculation since other RT functions have 12 hours BT.
*5: Automatic Trip Logic in Mode 1 and 2 has 24 hours CT. In other Modes, Automatic Trip Logic has 48 hours CT.
*6: 72 hours CT is used since the same I&C equipment is shared between the channel processing part and logic processing part of RPS, and the longest CT for the channel processing part is 72 hours, as explained in Item 3, above.
*7: Includes the mechanical portion of the reactor trip breakers, and the reactor trip breaker undervoltage mechanisms and shunt trip mechanisms.
*8: Only the mechanical portion of the RTB in Mode 1 and 2 has 24 hours CT. RPS output, mechanical portion of the RTB in other Modes, and reactor trip breaker undervoltage mechanisms and shunt trip mechanisms have 48 hours CT.
*9: This number is underlined because the US-APWR has four trains. Therefore the test frequency for the same component is not the same as for WOG STS.
*10: 48 hours CT is used in all RTB unavailability calculations for simplicity.
*11: The CHANNEL OPERATIONAL TEST and the ACTUATION LOGIC TEST, as used in the WOG STS, correspond to the MEMORY INTEGRITY CHECK (SR 3.3.1.6) in the US-APWR TS.

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Table 19.B-2 Comparison of TS requirements for ESF actuation system

Function	US-APWR TS *0, *1			WOG STS *1			Value Used in US-APWR Base PRA *2			
	CT	BT	SF	CT	BT	SF	CT	BT	SF	Surveillance Test
High Containment Pressure/ Low Pressurizer Pressure	72h/ 1h*3	12h/ NA*3	12h	72h	12h	12h	72h *4	12h *5	12h	CHANNEL CHECK
			24M			184d			24M	MEMORY INTEGRITY CHECK*9
			24M			18M			24M	CHANNEL CALIBRATION
Actuation Logic (ESFAS)	24h	4h	24M	24h	4h	92d STB*6	72h *8	4h	24M*6	MEMORY INTEGRITY CHECK*9 and Manual Initiation TADOT*6
Actuation Logic (SLS)						92d*7			92d*7	In-service Test for Mechanical Components*7
Actuation Outputs (SLS)										In-service Test for Mechanical Components*7

*0 In the US-APWR TS columns, the values that are different from WOG STS are underlined.

*1: These columns indicate the Tech Spec values only for ECCS actuation, as a representative function.

*2: These columns bound all ESFAS functions.

*3: In the US-APWR TS, Pressurizer Pressure has 1 hour CT and no bypass capability, while Containment Pressure has 72 hours CT and 12 hours BT.

*4: 72 hours CT is used in the unavailability calculation since other ESF actuation functions have 72 hours CT.

*5: 12 hours BT is used in the unavailability calculation since other ESF actuation functions have 12 hours BT.

*6: The ACTUATION LOGIC TEST (92 days Staggered Test Basis (STB)) and the MASTER RELAY TEST (92 days STB) of the WOG STS, correspond to the MEMORY INTEGRITY CHECK*9 (SR 3.3.2.2) and ESFAS Manual Initiation TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) (SR 3.3.2.5) (24 months) in the US-APWR TS.

*7: The SLAVE RELAY TEST (92 days) of the WOG STS corresponds to the test of the Actuation Logic (SR 3.3.2.2) and Actuation Outputs (SR 3.3.2.3) of the US-APWR SLS (24 months). However, the US-APWR In-service Test for Mechanical Components (92 days) also confirms the Actuation Logic and Actuation Outputs of the SLS.

*8: 72 hours CT is used in unavailability calculation since the Emergency Feedwater Actuation Function has 72 hours CT.

*9: The CHANNEL OPERATIONAL TEST and ACTUATION LOGIC TEST, as used in the WOG STS, correspond to the MEMORY INTEGRITY CHECK (SR 3.3.2.2) in the US-APWR TS.

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Table 19.B-3 Sensitivity analyses cases

Analysis Case	Applied Values for PSMS Unavailability Calculation		Internal events CDF [/RY]	Deviation of CDF Compared to Case 0 [/RY (%)]
	CT and BT	SF		
Case 0	US-APWR TS	US-APWR TS (IST frequency is applied to SLS)	1.03E-6	-
Case 1	US-APWR TS	US-APWR TS (including SF for SLS*)	1.05E-6	2.0E-08 (+1.9%)
Case 2	WOG STS*	US-APWR TS (IST frequency is applied to SLS)	1.03E-6	-1.0E-09 (-0.1%)
Case 3	US-APWR TS	WOG STS*	9.86E-7	-4.3E-08 (-4.2%)
Case 4	WOG STS*	WOG STS*	9.85E-7	-4.4E-08 (-4.3%)

*Changes from Base PRA (Case 0)

(SRI)