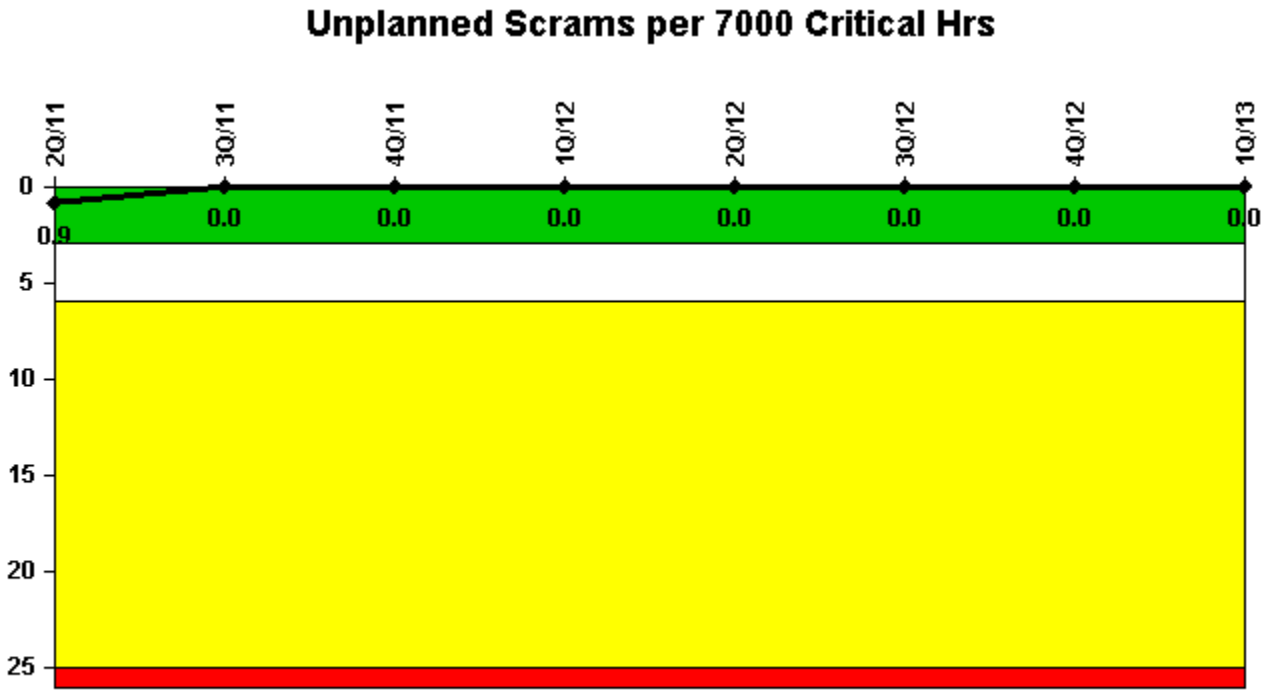
Braidwood 2

1Q/2013 Performance Indicators

Licensee's General Comments: none

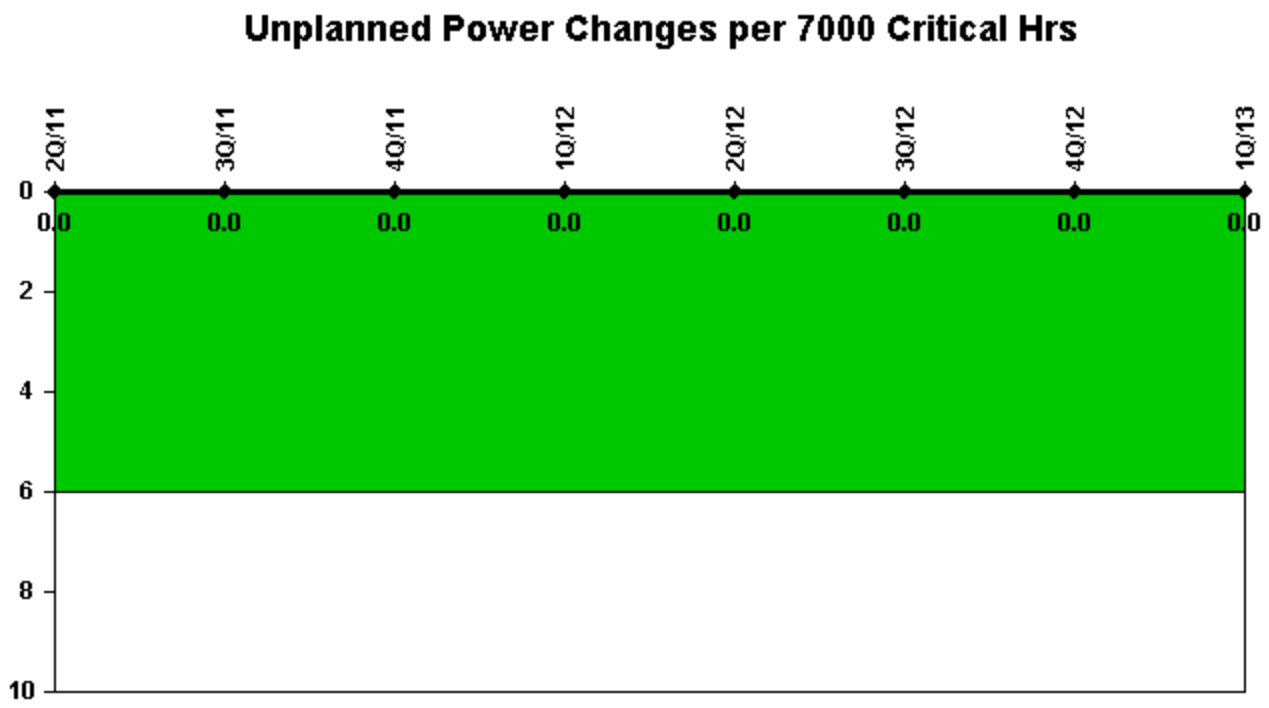


Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

Unplanned Scrams per 7000 Critical Hrs	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Unplanned scrams	0	0	0	0	0	0	0	0
Critical hours	1616.5	2208.0	2209.0	2183.0	2184.0	2208.0	1625.3	2159.0
Indicator value	**0.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Licensee Comments: none

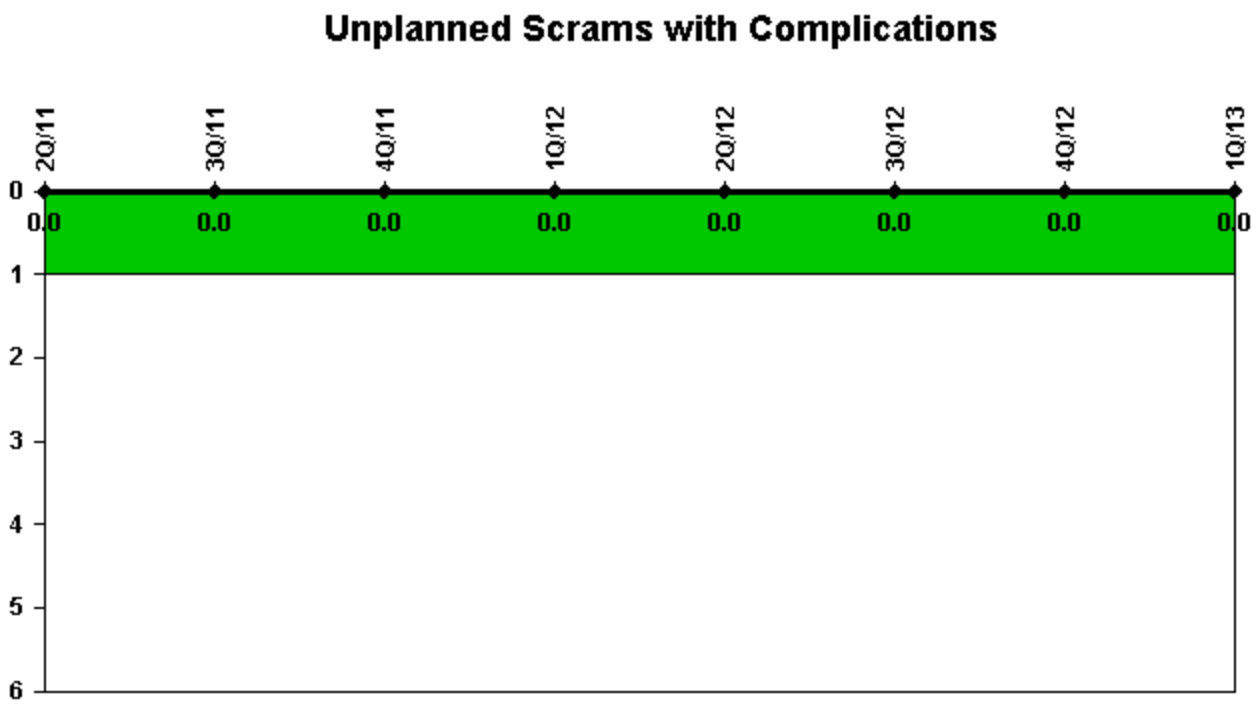


Thresholds: White > 6.0

Notes

Unplanned Power Changes per 7000 Critical Hrs	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	1616.5	2208.0	2209.0	2183.0	2184.0	2208.0	1625.3	2159.0
Indicator value	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Licensee Comments: none

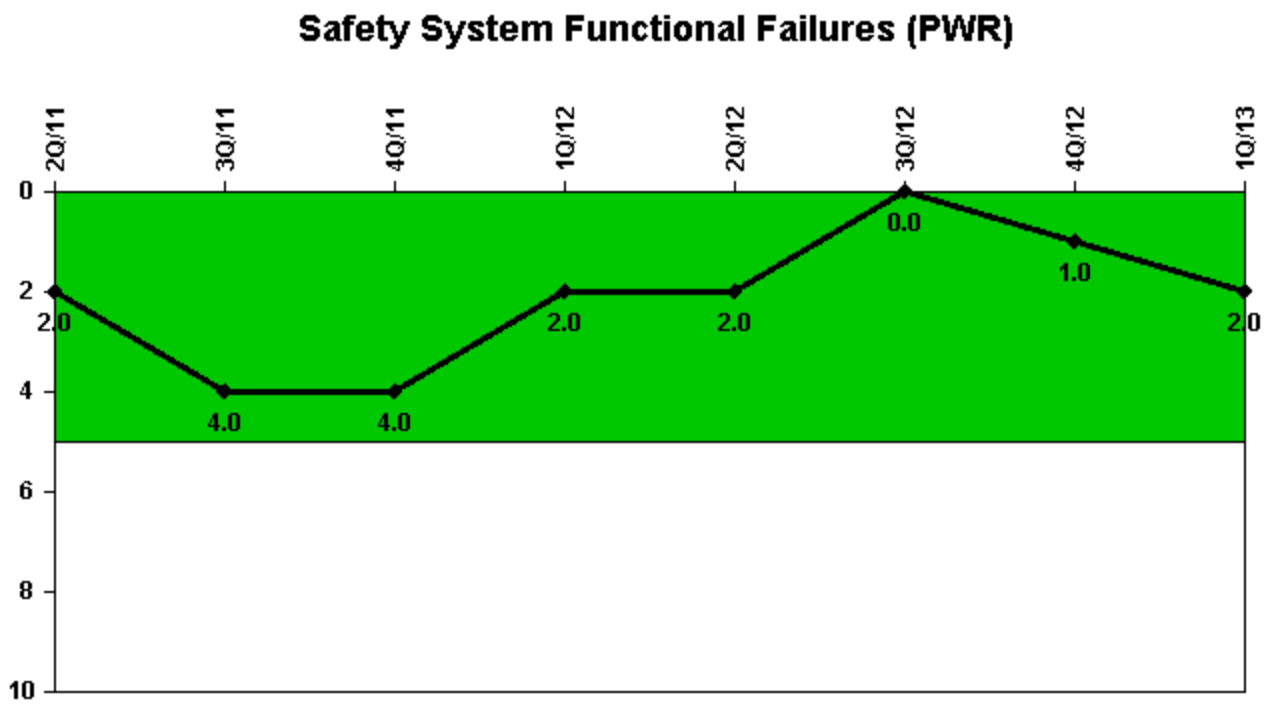


Thresholds: White > 1.0

Notes

Unplanned Scrams with Complications	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Scrams with complications	0	0	0	0	0	0	0	0
Indicator value	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Licensee Comments: none



Thresholds: White > 5.0

Notes

Safety System Functional Failures (PWR)	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Safety System Functional Failures	0	2	0	0	0	0	1	1
Indicator value	**2**	**4**	**4**	**2**	**2**	**0**	**1**	**2**

Licensee Comments:

1Q/13: LER 2012-003-01, Fuel Handling Incident Area Radiation Monitors Inoperable.

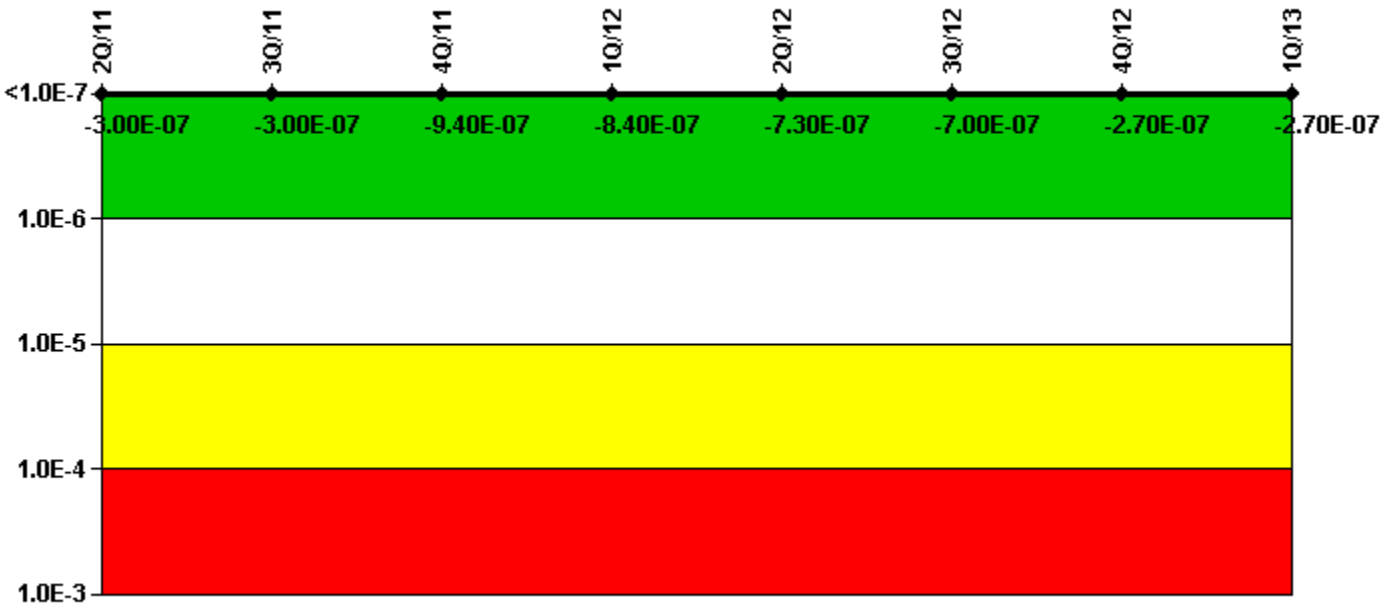
4Q/12: 1 SSFF - Licensee Event Report 2012-004-01 - Notice of Enforcement Discretion Received for Ultimate Heat Sink Temperature Exceeding Technical Specifications Requirements Due to Prolonged Hot Weather

3Q/11: 2 SSFFs - 1) LER 2011-001-00, Asiatic Clam Shells in Essential Service Water Supply Piping to the 2A Auxiliary Feedwater Pump Resulted in Auxiliary Feedwater System Inoperability; and 2) LER 2011-002-00, Auxiliary Feedwater System Inoperability Due to Additional Asiatic Clam Shells in Essential Service Water Supply Piping

2Q/11: Update: 10/7/11 LER 2011-003-00 withdrawn - no SSFF.

2Q/11: 1 SSFF - LER 2011-003-00, Drained Sections of Piping in Auxiliary Feedwater Suction Lines Result in system Inoperability Due to Inadequate Technical Evaluation.

Mitigating Systems Performance Index, Emergency AC Power System



Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Emergency AC Power System	**2Q/11**	**3Q/11**	**4Q/11**	**1Q/12**	**2Q/12**	**3Q/12**	**4Q/12**	**1Q/13**
UAI (ΔCDF)	3.29E-09	-1.56E-09	1.12E-08	1.07E-07	5.26E-08	4.03E-08	4.50E-08	4.33E-08
URI (ΔCDF)	-3.03E-07	-3.00E-07	-9.47E-07	-9.46E-07	-7.78E-07	-7.41E-07	-3.20E-07	-3.11E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**-3.00E-07**	**-3.00E-07**	**-9.40E-07**	**-8.40E-07**	**-7.30E-07**	**-7.00E-07**	**-2.70E-07**	**-2.70E-07**

Licensee Comments:

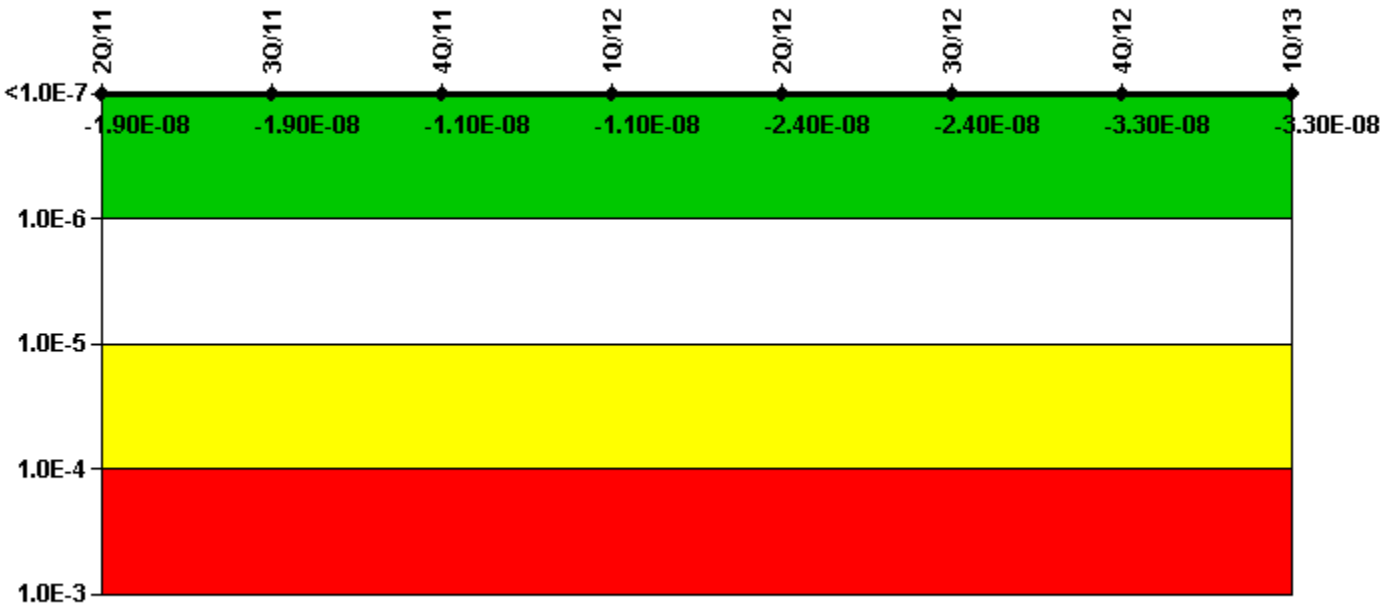
4Q/12: 1/15/2013 - Braidwood PRA Model Revision No: BB011b approved September 30, 2012, revised Unit 1 and Unit 2 PRA inputs due to eliminating conservative configurations, taking some credit for realigning the 0 CC pump, and the addition of credit for the SX007 valves to be manipulated manually.

2Q/12: Changed PRA Parameter(s). 7/20/12 - 1) Braidwood PRA Model Revision No: BB011a approved March 29, 2012, revised Unit 1 and Unit 2 PRA inputs due to a periodic PRA model update. This included new data analysis, new HRA dependency analysis, and new pre-initiator HRA. This update also removed credit for operator action to crosstie AFW. 2) During an investigation of the why the Unit 2 CWS MSPI became White, it was identified that the model change made for the fourth quarter 2011 reporting period eliminated credit for opposite unit components/trains for the shared Component Cooling Water System. It was not recognized at the time that this required re-scoping of the CWS and EAC indexes. An evaluation of this oversight for the fourth quarter 2011 and 1st quarter 2012 was performed and determined there was no impact on the reported colors for EAC and CWS. CDE inputs to properly reflect this scope change were made for the second quarter 2012.

1Q/12: Changed PRA Parameter(s).

4Q/11: Changed PRA Parameter(s). Braidwood PRA Model Revision No: 6F approved September 29, 2011, revised Unit 1 and Unit 2 PRA inputs due to a change in the plant operations which calls for preemptively splitting CC trains Post-LOCA and the addition of a revised internal flooding study. Additionally, the RH8716 valves were remove from MSPI scope due to a sufficiently low Birnbaum value.

Mitigating Systems Performance Index, High Pressure Injection System



Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, High Pressure Injection System	**2Q/11**	**3Q/11**	**4Q/11**	**1Q/12**	**2Q/12**	**3Q/12**	**4Q/12**	**1Q/13**
UAI (ΔCDF)	-1.46E-08	-1.46E-08	-8.05E-09	-8.05E-09	-1.58E-08	-1.59E-08	-2.46E-08	-2.46E-08
URI (ΔCDF)	-4.07E-09	-4.07E-09	-3.13E-09	-3.13E-09	-8.18E-09	-8.02E-09	-8.84E-09	-8.84E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**-1.90E-08**	**-1.90E-08**	**-1.10E-08**	**-1.10E-08**	**-2.40E-08**	**-2.40E-08**	**-3.30E-08**	**-3.30E-08**

Licensee Comments:

4Q/12: 1/15/2013 - Braidwood PRA Model Revision No: BB011b approved September 30, 2012, revised Unit 1

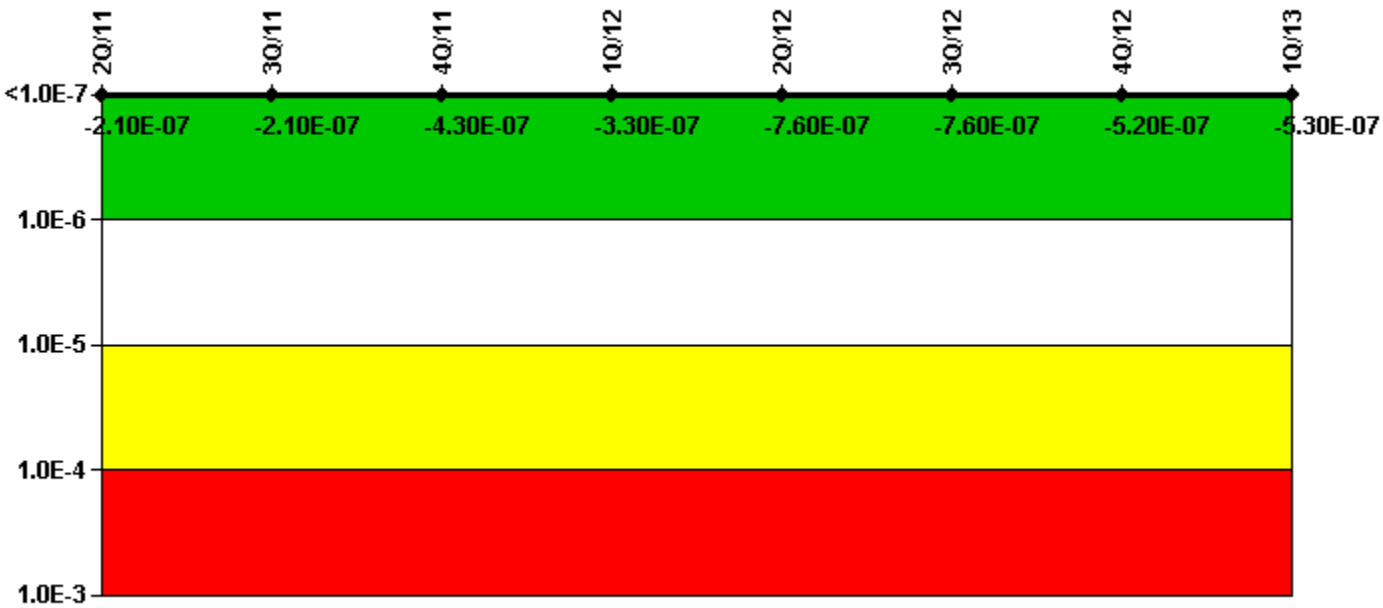
and Unit 2 PRA inputs due to eliminating conservative configurations, taking some credit for realigning the 0 CC pump, and the addition of credit for the SX007 valves to be manipulated manually.

2Q/12: Changed PRA Parameter(s). 7/20/12 - Braidwood PRA Model Revision No: BB011a approved March 29, 2012, revised Unit 1 and Unit 2 PRA inputs due to a periodic PRA model update. This included new data analysis, new HRA dependency analysis, and new pre-initiator HRA. This update also removed credit for operator action to crosstie AFW.

1Q/12: Changed PRA Parameter(s).

4Q/11: Changed PRA Parameter(s). Braidwood PRA Model Revision No: 6F approved September 29, 2011, revised Unit 1 and Unit 2 PRA inputs due to a change in the plant operations which calls for preemptively splitting CC trains Post-LOCA and the addition of a revised internal flooding study. Additionally, the RH8716 valves were remove from MSPI scope due to a sufficiently low Birnbaum value.

Mitigating Systems Performance Index, Heat Removal System



Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Heat Removal System	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
UAI (ΔCDF)	8.32E-08	7.82E-08	1.10E-07	2.11E-07	-3.42E-08	-4.35E-08	-6.60E-08	-6.60E-08
URI (ΔCDF)	-2.92E-07	-2.92E-07	-5.44E-07	-5.36E-07	-7.25E-07	-7.17E-07	-4.56E-07	-4.60E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO

Indicator value	**-2.10E-07**	**-2.10E-07**	**-4.30E-07**	**-3.30E-07**	**-7.60E-07**	**-7.60E-07**	**-5.20E-07**	**-5.30E-07**

Licensee Comments:

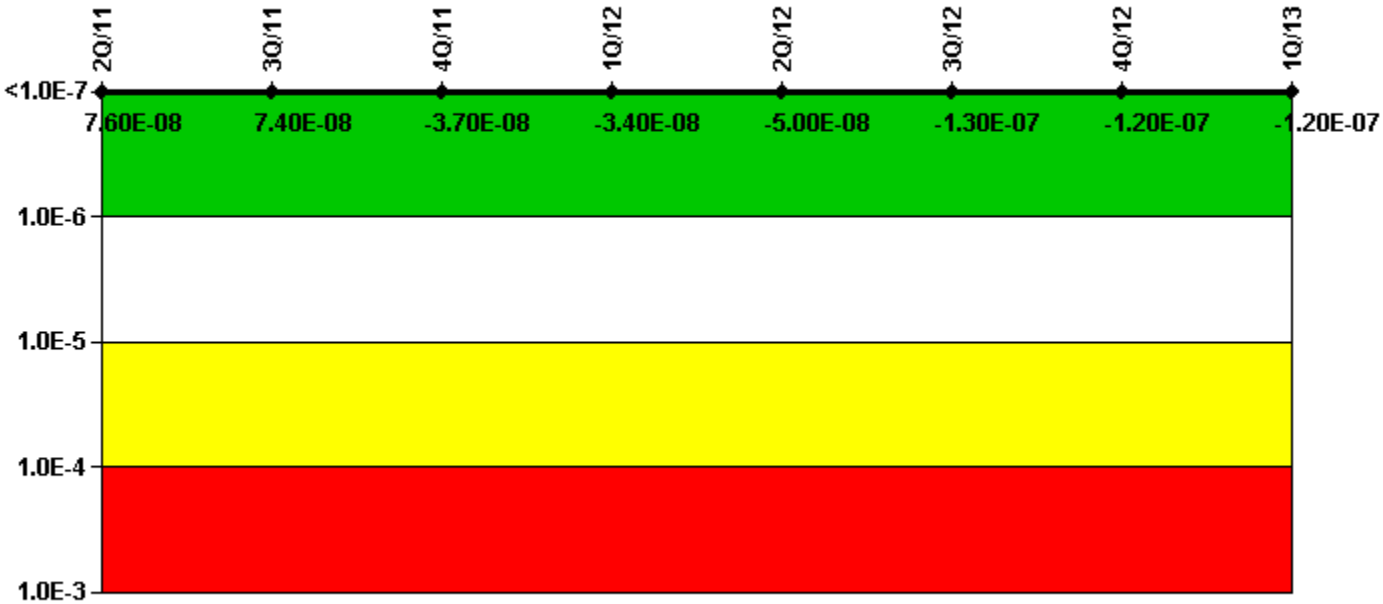
4Q/12: 1/15/2013 - Braidwood PRA Model Revision No: BB011b approved September 30, 2012, revised Unit 1 and Unit 2 PRA inputs due to eliminating conservative configurations, taking some credit for realigning the 0 CC pump, and the addition of credit for the SX007 valves to be manipulated manually.

2Q/12: Changed PRA Parameter(s). 7/20/12 - Braidwood PRA Model Revision No: BB011a approved March 29, 2012, revised Unit 1 and Unit 2 PRA inputs due to a periodic PRA model update. This included new data analysis, new HRA dependency analysis, and new pre-initiator HRA. This update also removed credit for operator action to crosstie AFW.

1Q/12: Changed PRA Parameter(s).

4Q/11: Changed PRA Parameter(s). Braidwood PRA Model Revision No: 6F approved September 29, 2011, revised Unit 1 and Unit 2 PRA inputs due to a change in the plant operations which calls for preemptively splitting CC trains Post-LOCA and the addition of a revised internal flooding study. Additionally, the RH8716 valves were remove from MSPI scope due to a sufficiently low Birnbaum value.

Mitigating Systems Performance Index, Residual Heat Removal System



Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Residual								

Heat Removal System	**2Q/11**	**3Q/11**	**4Q/11**	**1Q/12**	**2Q/12**	**3Q/12**	**4Q/12**	**1Q/13**
UAI (ΔCDF)	1.79E-07	1.78E-07	9.98E-08	1.02E-07	5.19E-08	-2.78E-08	-2.51E-08	-2.51E-08
URI (ΔCDF)	-1.03E-07	-1.03E-07	-1.37E-07	-1.37E-07	-1.02E-07	-9.97E-08	-9.48E-08	-9.46E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**7.60E-08**	**7.40E-08**	**-3.70E-08**	**-3.40E-08**	**-5.00E-08**	**-1.30E-07**	**-1.20E-07**	**-1.20E-07**

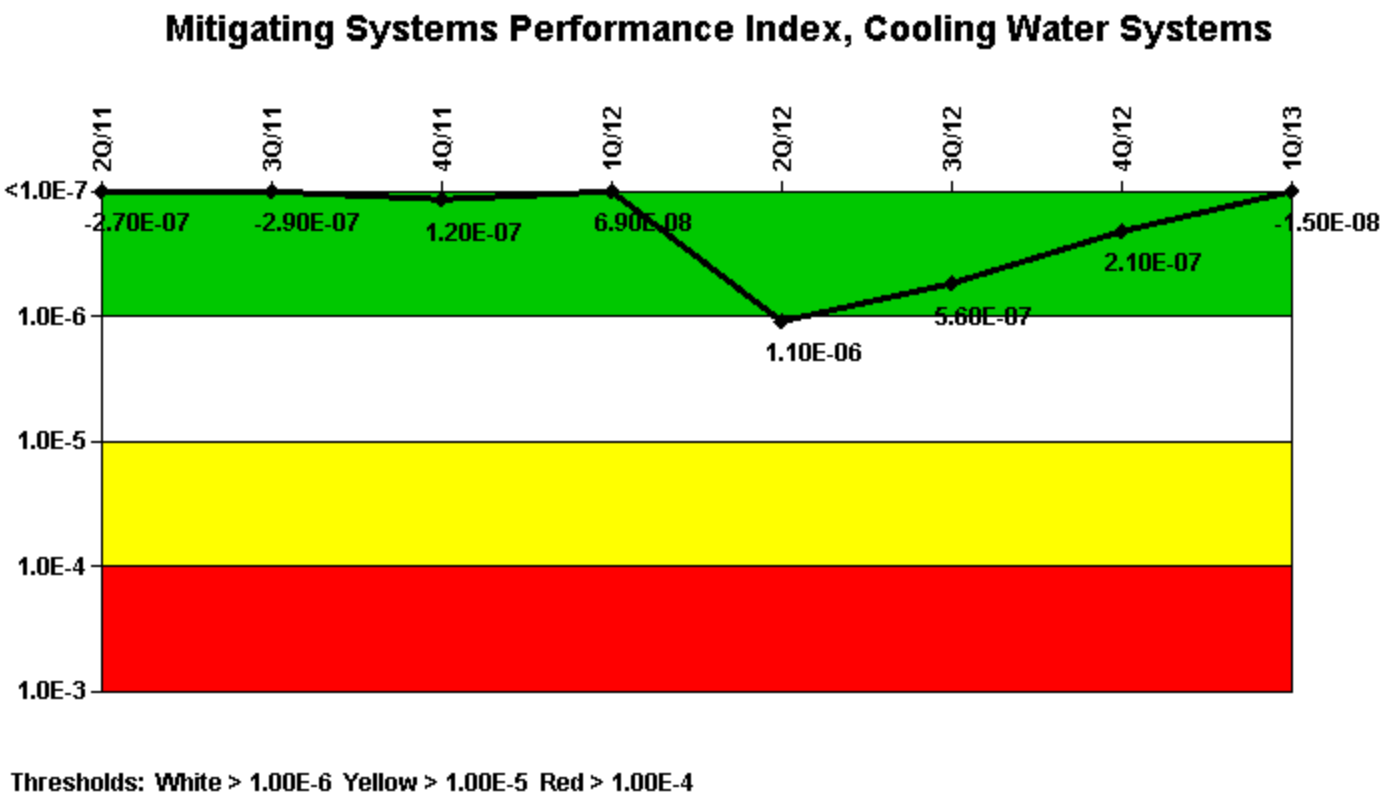
Licensee Comments:

4Q/12: 1/15/2013 - Braidwood PRA Model Revision No: BB011b approved September 30, 2012, revised Unit 1 and Unit 2 PRA inputs due to eliminating conservative configurations, taking some credit for realigning the 0 CC pump, and the addition of credit for the SX007 valves to be manipulated manually.

2Q/12: Changed PRA Parameter(s). 7/20/12 - Braidwood PRA Model Revision No: BB011a approved March 29, 2012, revised Unit 1 and Unit 2 PRA inputs due to a periodic PRA model update. This included new data analysis, new HRA dependency analysis, and new pre-initiator HRA. This update also removed credit for operator action to crosstie AFW.

1Q/12: Changed PRA Parameter(s).

4Q/11: Changed PRA Parameter(s). Braidwood PRA Model Revision No: 6F approved September 29, 2011, revised Unit 1 and Unit 2 PRA inputs due to a change in the plant operations which calls for preemptively splitting CC trains Post-LOCA and the addition of a revised internal flooding study. Additionally, the RH8716 valves were remove from MSPI scope due to a sufficiently low Birnbaum value.



Notes

Mitigating Systems Performance Index, Cooling Water Systems	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
UAI (ΔCDF)	3.18E-07	2.94E-07	6.54E-07	6.00E-07	3.68E-07	3.50E-07	1.76E-07	1.42E-07
URI (ΔCDF)	-5.84E-07	-5.86E-07	-5.36E-07	-5.31E-07	7.64E-07	2.09E-07	3.48E-08	-1.56E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**-2.70E-07**	**-2.90E-07**	**1.20E-07**	**6.90E-08**	**1.10E-06**	**5.60E-07**	**2.10E-07**	**-1.50E-08**

Licensee Comments:

4Q/12: 1/15/2013 - Braidwood PRA Model Revision No: BB011b approved September 30, 2012, revised Unit 1 and Unit 2 PRA inputs due to eliminating conservative configurations, taking some credit for realigning the 0 CC pump, and the addition of credit for the SX007 valves to be manipulated manually.

3Q/12: Risk Cap Invoked.

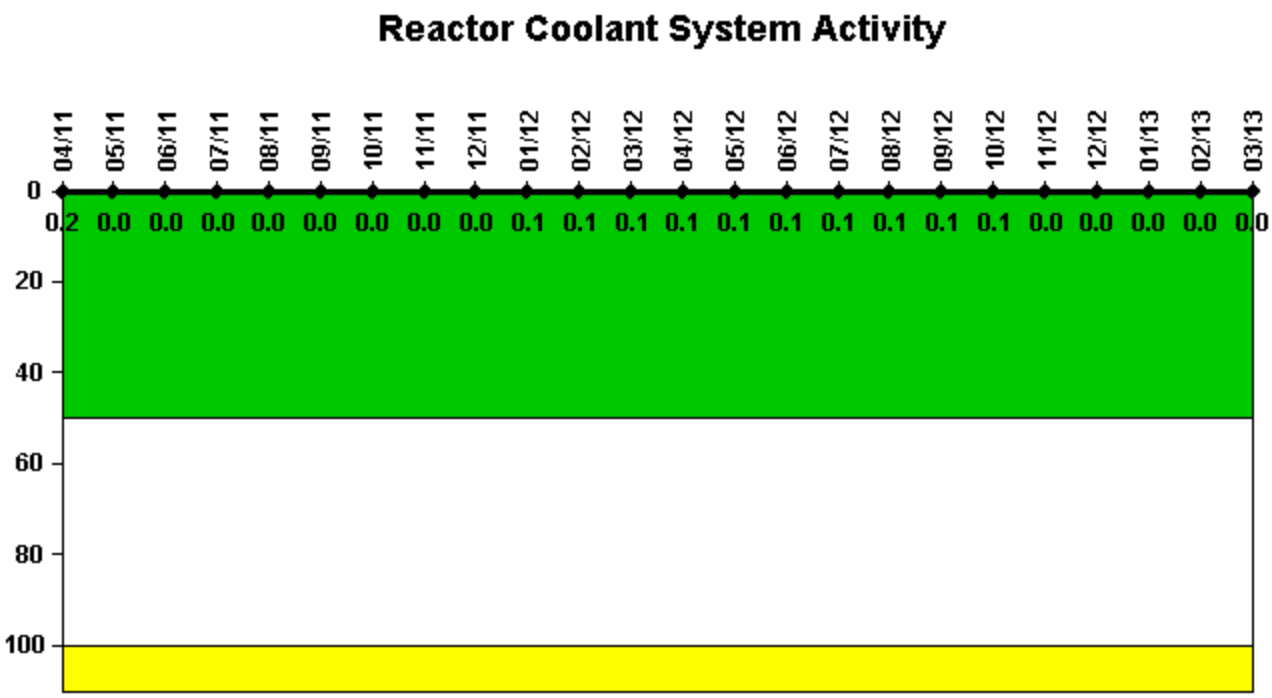
2Q/12: Risk Cap Invoked. Changed PRA Parameter(s). 7/20/12 - 1) Braidwood PRA Model Revision No: BB011a approved March 29, 2012, revised Unit 1 and Unit 2 PRA inputs due to a periodic PRA model update. This included new data analysis, new HRA dependency analysis, and new pre-initiator HRA. This update also removed credit for operator action to crosstie AFW. 2) The Unit 2 Cooling Water System (CWS) MSPI turned White for the second quarter 2012 following a PRA model revision. It should be noted that there was no degradation of system performance during the second quarter. Preliminary evaluation of the White condition identified that the model update inadvertently eliminated credit for starting the swing component cooling water (CC) pump. Elimination of this credit resulted in a significant increase in the risk impact of 2 previous CC pump failures. With proper credit for the swing pump, it is expected that the CWS MSPI would have remained Green. It should also be noted that

both of the CC pump failures are due to failure of a low discharge pressure switch which has subsequently been classified as a low risk significant function. As such, failures of the low discharge pressure switch are no longer considered an MSPI failure. Finally, one of the CC pump failures will roll out of the monitoring period during the third quarter 2012 restoring the CWS MSPI to Green. 3) During an investigation of the why the Unit 2 CWS MSPI became White, it was identified that the model change made for the fourth quarter 2011 reporting period eliminated credit for opposite unit components/trains for the shared Component Cooling Water System. It was not recognized at the time that this required re-scoping of the CWS and EAC indexes. An evaluation of this oversight for the fourth quarter 2011 and 1st quarter 2012 was performed and determined there was no impact on the reported colors for EAC and CWS. CDE inputs to properly reflect this scope change were made for the second quarter 2012.

2Q/12: Risk Cap Invoked. Changed PRA Parameter(s). 7/20/12 - 1) Braidwood PRA Model Revision No: BB011a approved March 29, 2012, revised Unit 1 and Unit 2 PRA inputs due to a periodic PRA model update. This included new data analysis, new HRA dependency analysis, and new pre-initiator HRA. This update also removed credit for operator action to crosstie AFW. 2) The Unit 2 Cooling Water System (CWS) MSPI turned White for the second quarter 2012 following a PRA model revision. It should be noted that there was no degradation of system performance during the second quarter. Preliminary evaluation of the White condition identified that the model update inadvertently eliminated credit for starting the swing component cooling water (CC) pump. Elimination of this credit resulted in a significant increase in the risk impact of 2 previous CC pump failures. With proper credit for the swing pump, it is expected that the CWS MSPI would have remained Green. It should also be noted that both of the CC pump failures are due to failure of a low discharge pressure switch which has subsequently been classified as a low risk significant function. As such, failures of the low discharge pressure switch are no longer considered an MSPI failure. Finally, one of the CC pump failures will roll out of the monitoring period during the third quarter 2012 restoring the CWS MSPI to Green. 3) During an investigation of the why the Unit 2 CWS MSPI became White, it was identified that the model change made for the fourth quarter 2011 reporting period eliminated credit for opposite unit components/trains for the shared Component Cooling Water System. It was not recognized at the time that this required re-scoping of the CWS and EAC indexes. An evaluation of this oversight for the fourth quarter 2011 and 1st quarter 2012 was performed and determined there was no impact on the reported colors for EAC and CWS. CDE inputs to properly reflect this scope change were made for the second quarter 2012. 10/18/12: Per MSPI Basis Document Rev. 9 (approved 10/17/12), PRA inputs changed to reflect use of a greater number of significant digits. Resulted in minor decrease in UAI and no change to MSPI PI; MSPI remained White for 2nd QTR 2012.

1Q/12: Changed PRA Parameter(s).

4Q/11: Changed PRA Parameter(s). Braidwood PRA Model Revision No: 6F approved September 29, 2011, revised Unit 1 and Unit 2 PRA inputs due to a change in the plant operations which calls for preemptively splitting CC trains Post-LOCA and the addition of a revised internal flooding study. Additionally, the RH8716 valves were remove from MSPI scope due to a sufficiently low Birnbaum value.

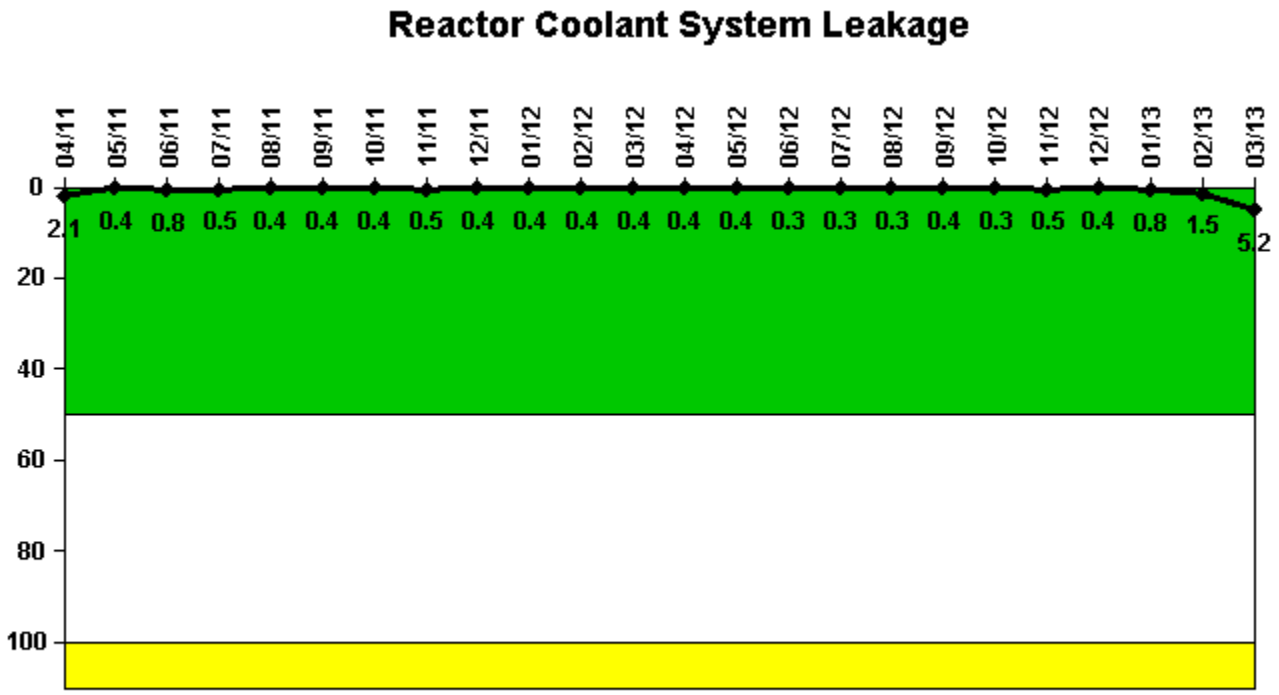


Thresholds: White > 50.0 Yellow > 100.0

Notes

Reactor Coolant System Activity	**4/11**	**5/11**	**6/11**	**7/11**	**8/11**	**9/11**	**10/11**	**11/11**	**12/11**	**1/12**	**2/12**	**3/12**
Maximum activity	0.001680	0.000332	0.000348	0.000363	0.000383	0.000392	0.000436	0.000441	0.000479	0.000531	0.000503	0.000542
Technical specification limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Indicator value	**0.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.1**	**0.1**	**0.1**
Reactor Coolant System Activity	**4/12**	**5/12**	**6/12**	**7/12**	**8/12**	**9/12**	**10/12**	**11/12**	**12/12**	**1/13**	**2/13**	**3/13**
Maximum activity	0.000543	0.000545	0.000584	0.000642	0.000625	0.000596	0.000613	0.000178	0.000188	0.000233	0.000213	0.000223
Technical specification limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Indicator value	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0**	**0**	**0**	**0**	**0**

Licensee Comments: none

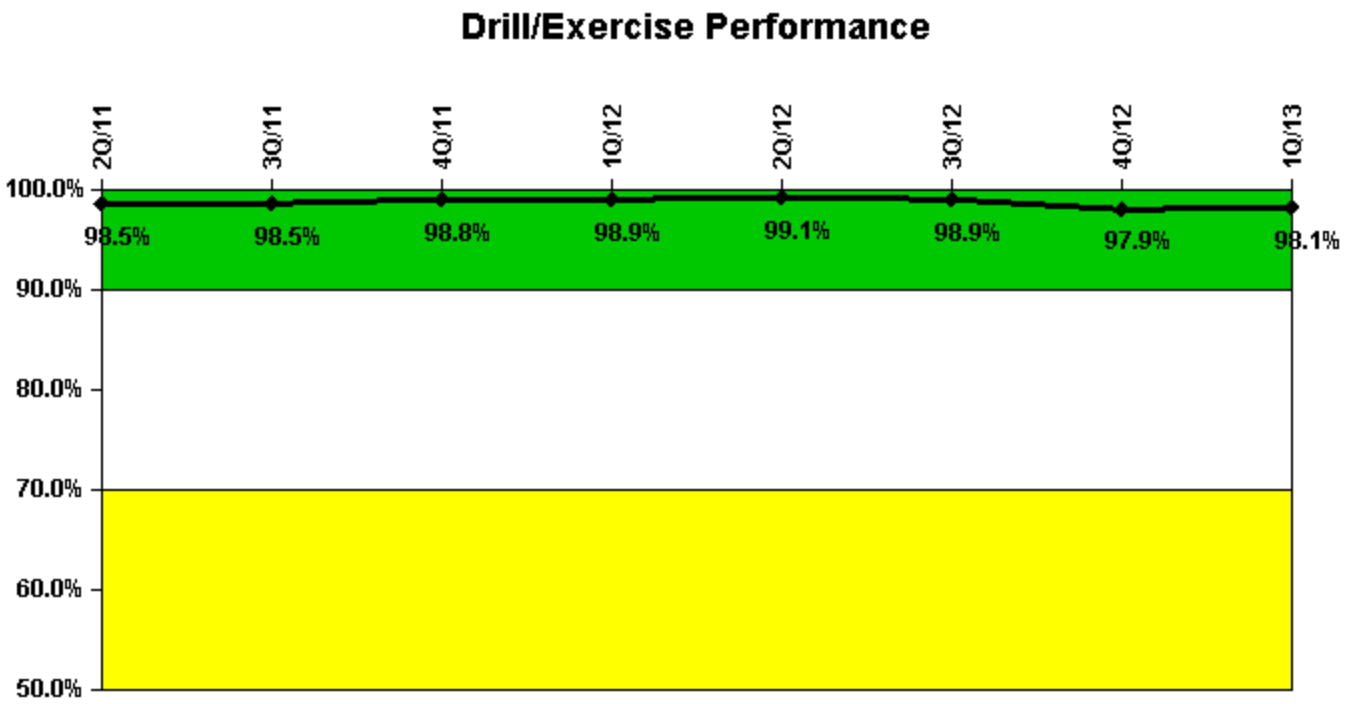


Thresholds: White > 50.0 Yellow > 100.0

Notes

Reactor Coolant System Leakage	4/11	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11	1/12	2/12	3/12
Maximum leakage	0.205	0.038	0.076	0.045	0.041	0.038	0.039	0.050	0.035	0.036	0.038	0.039
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Indicator value	**2.1**	**0.4**	**0.8**	**0.5**	**0.4**	**0.4**	**0.4**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**
Reactor Coolant System Leakage	**4/12**	**5/12**	**6/12**	**7/12**	**8/12**	**9/12**	**10/12**	**11/12**	**12/12**	**1/13**	**2/13**	**3/13**
Maximum leakage	0.040	0.036	0.032	0.034	0.034	0.035	0.029	0.048	0.037	0.080	0.150	0.521
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Indicator value	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.4**	**0.3**	**0.5**	**0.4**	**0.8**	**1.5**	**5.2**

Licensee Comments: none



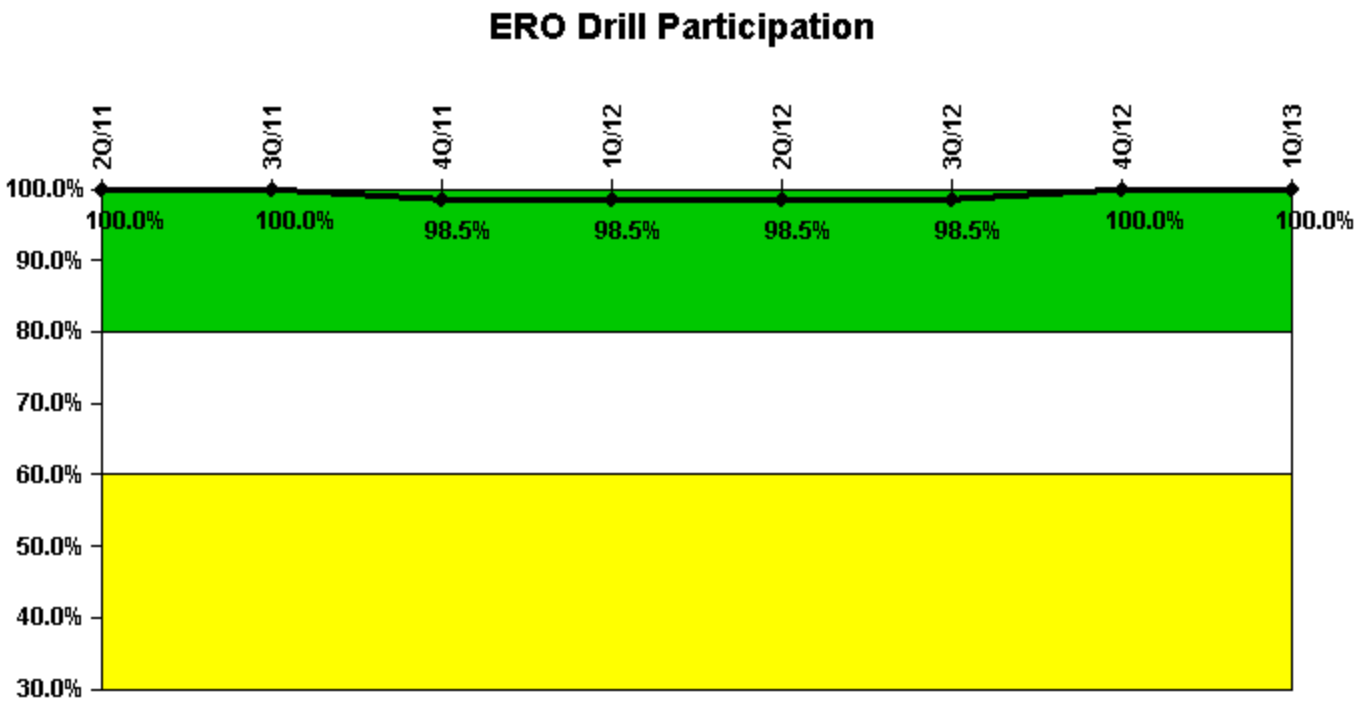
Thresholds: White < 90.0% Yellow < 70.0%

Notes

Drill/Exercise Performance	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Successful opportunities	16.0	56.0	78.0	67.0	20.0	70.0	30.0	22.0
Total opportunities	16.0	56.0	78.0	69.0	20.0	72.0	33.0	22.0
Indicator value	**98.5%**	**98.5%**	**98.8%**	**98.9%**	**99.1%**	**98.9%**	**97.9%**	**98.1%**

Licensee Comments:

2Q/12: 12/2012 - June 2012 data corrected remove two May 2012 DEPs that had already been counted in May, 2012. Data changed from 16 event opportunities to 14 event opportunities.

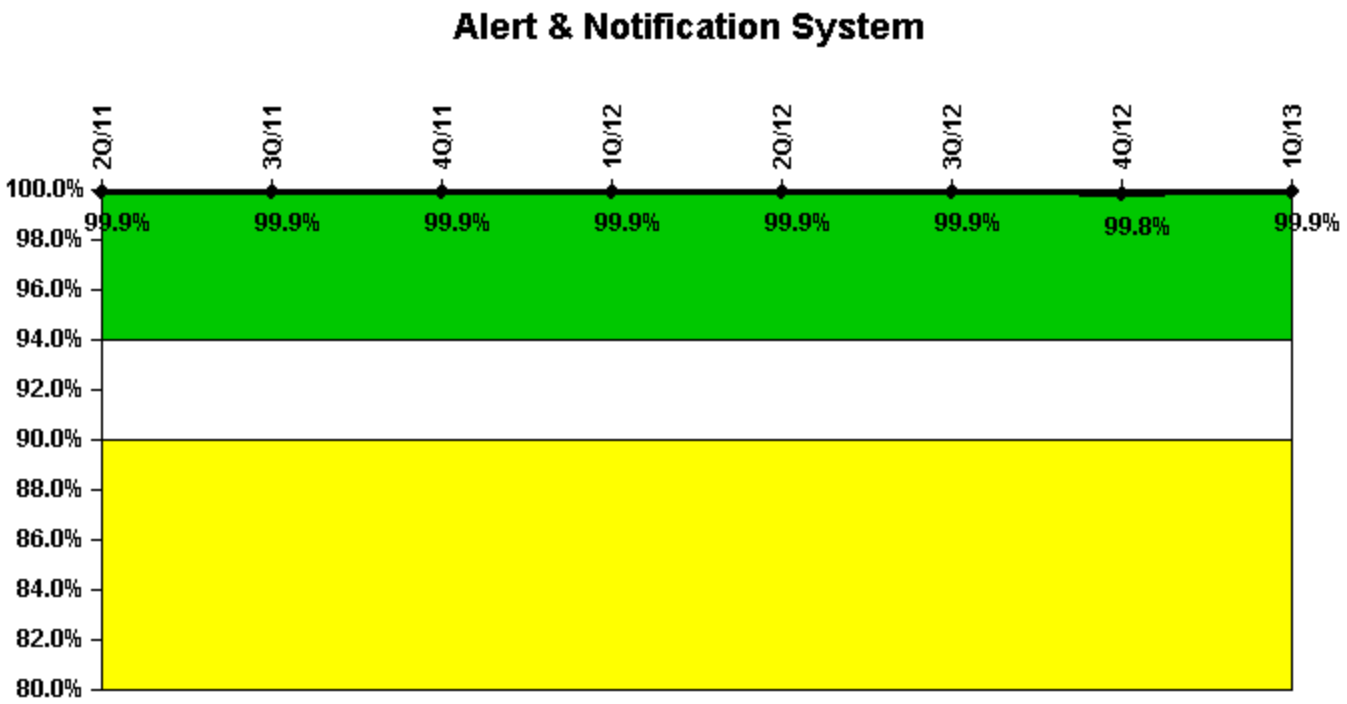


Thresholds: White < 80.0% Yellow < 60.0%

Notes

ERO Drill Participation	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Participating Key personnel	62.0	65.0	65.0	67.0	66.0	65.0	65.0	62.0
Total Key personnel	62.0	65.0	66.0	68.0	67.0	66.0	65.0	62.0
Indicator value	**100.0%**	**100.0%**	**98.5%**	**98.5%**	**98.5%**	**98.5%**	**100.0%**	**100.0%**

Licensee Comments: none



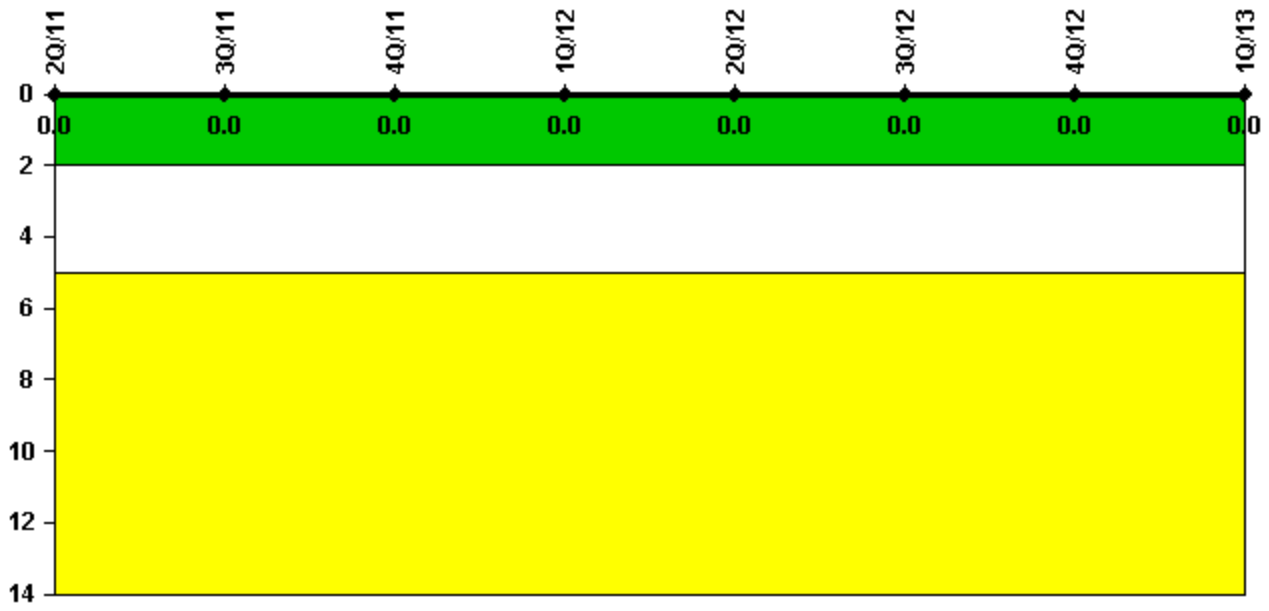
Thresholds: White < 94.0% Yellow < 90.0%

Notes

Alert & Notification System	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Successful siren-tests	3065	3070	3071	3117	3063	3019	3070	3070
Total sirens-tests	3072	3072	3072	3120	3072	3024	3072	3072
Indicator value	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.9%**	**99.8%**	**99.9%**

Licensee Comments: none

Occupational Exposure Control Effectiveness

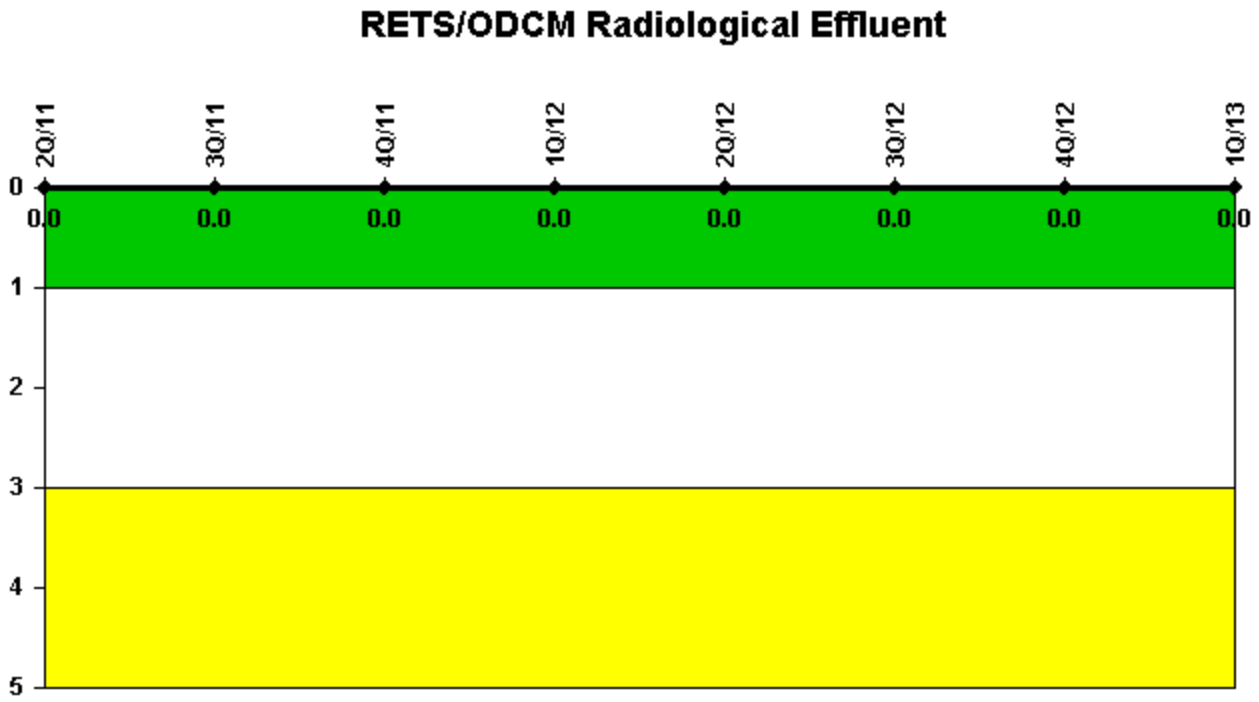


Thresholds: White > 2.0 Yellow > 5.0

Notes

Occupational Exposure Control Effectiveness	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
High radiation area occurrences	0	0	0	0	0	0	0	0
Very high radiation area occurrences	0	0	0	0	0	0	0	0
Unintended exposure occurrences	0	0	0	0	0	0	0	0
Indicator value	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Licensee Comments: none



Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
RETS/ODCM occurrences	0	0	0	0	0	0	0	0
Indicator value	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Licensee Comments: none

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page.

Action Matrix Summary | Inspection Findings Summary | PI Summary | Reactor Oversight Process

Last Modified: April 23, 2013