

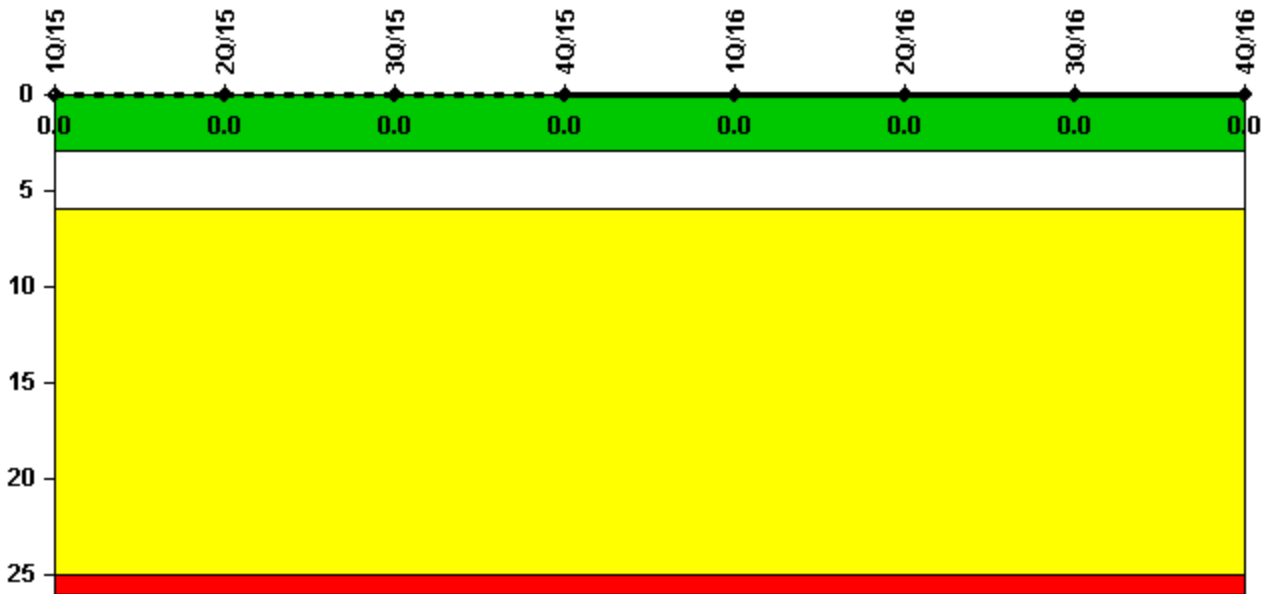
Brunswick 2

4Q/2016 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: none

Unplanned Scrams per 7000 Critical Hrs



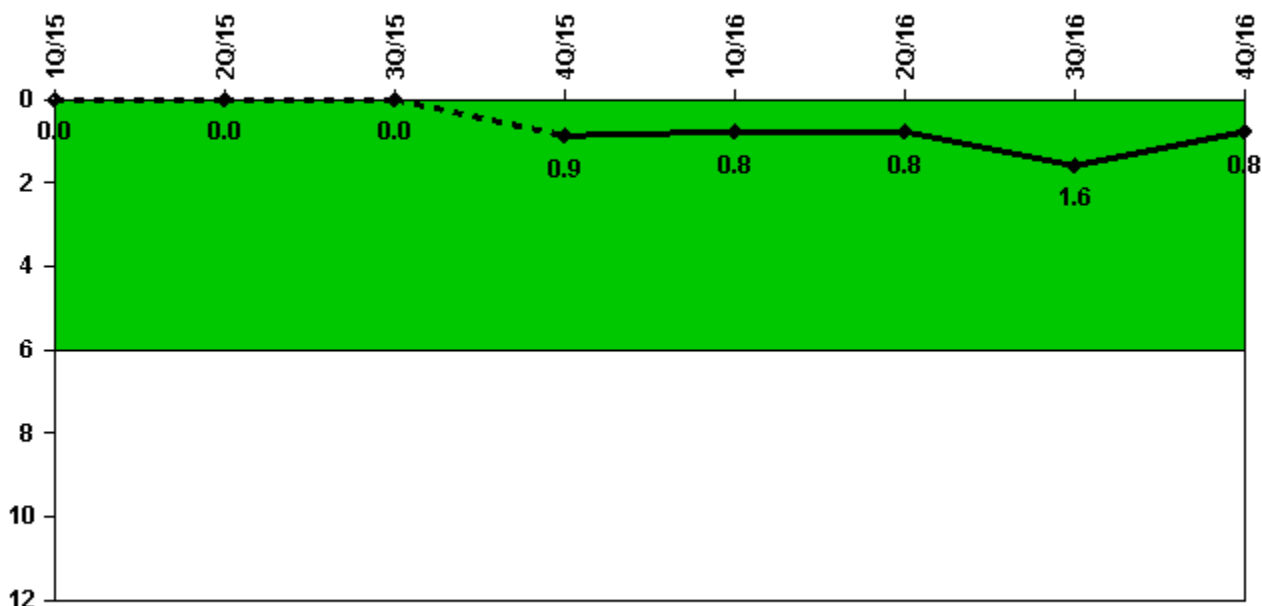
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

Unplanned Scrams per 7000 Critical Hrs	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Unplanned scrams	0	0	0	0	0	0	0	0
Critical hours	1220.5	2102.0	2208.0	2209.0	2183.0	2184.0	2208.0	2209.0
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

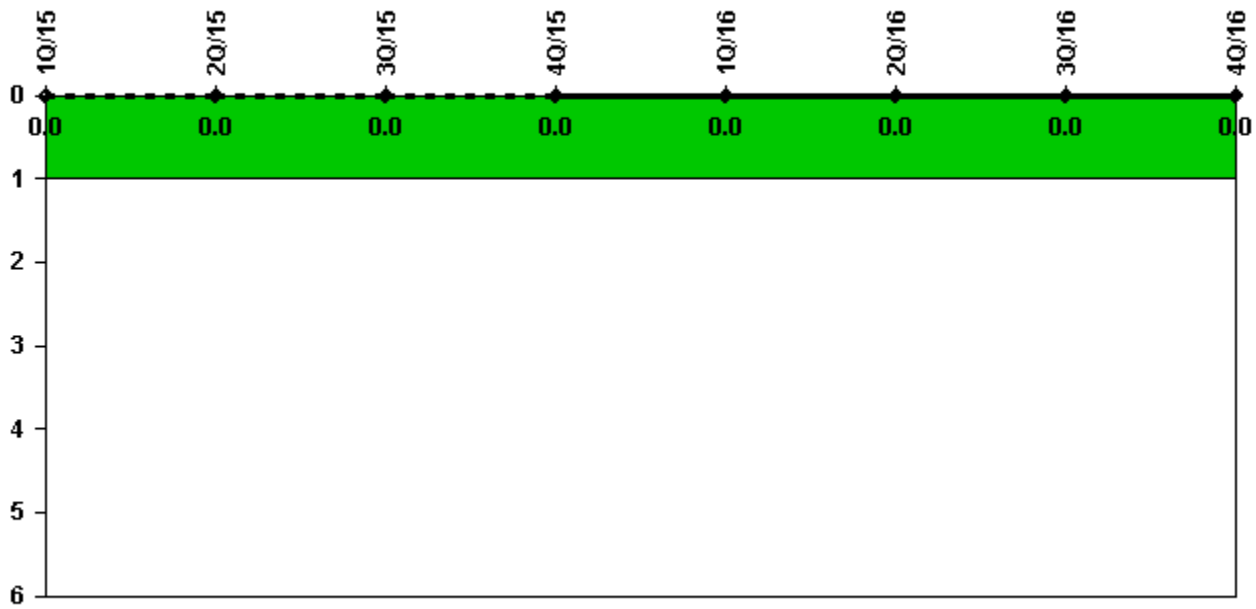
Notes

Unplanned Power Changes per 7000 Critical Hrs	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Unplanned power changes	0	0	0	1.0	0	0	1.0	0
Critical hours	1220.5	2102.0	2208.0	2209.0	2183.0	2184.0	2208.0	2209.0
Indicator value	0	0	0	0.9	0.8	0.8	1.6	0.8

Licensee Comments:

1Q/16: On March 4, 2016, the NRC approved a Notice of Enforcement Discretion (NOED) associated with the entry into LCO 3.0.3 as directed by Technical Specification (TS) 3.8.1, AC Sources - Operating, for the Brunswick Nuclear Plant, Unit 2. This LCO would have required Unit 2 to initiate actions within 1 hour to place the Unit in Mode 2 within 7 hours. The NOED extended this required action for up to 17 hours, allowing enough time to troubleshoot, repair, and declare Emergency Diesel Generator #3 operable. EDG3 was declared operable within this timeframe, and Unit 2 remained at full power for the entire duration. If the NOED had not been granted, it may have resulted in an unplanned power change of greater than 20% for Unit 2.

Unplanned Scrams with Complications



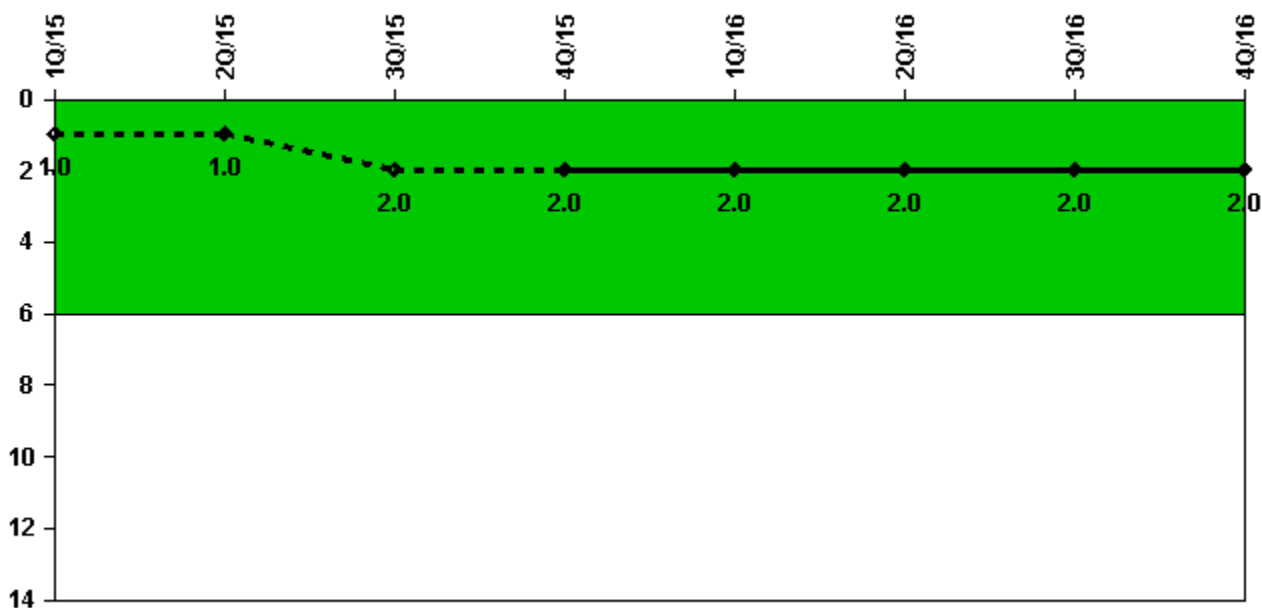
Thresholds: White > 1.0

Notes

Unplanned Scrams with Complications	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
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

Safety System Functional Failures (BWR)



Thresholds: White > 6.0

Notes

Safety System Functional Failures (BWR)	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Safety System Functional Failures	0	1	1	0	0	1	1	0
Indicator value	1	1	2	2	2	2	2	2

Licensee Comments:

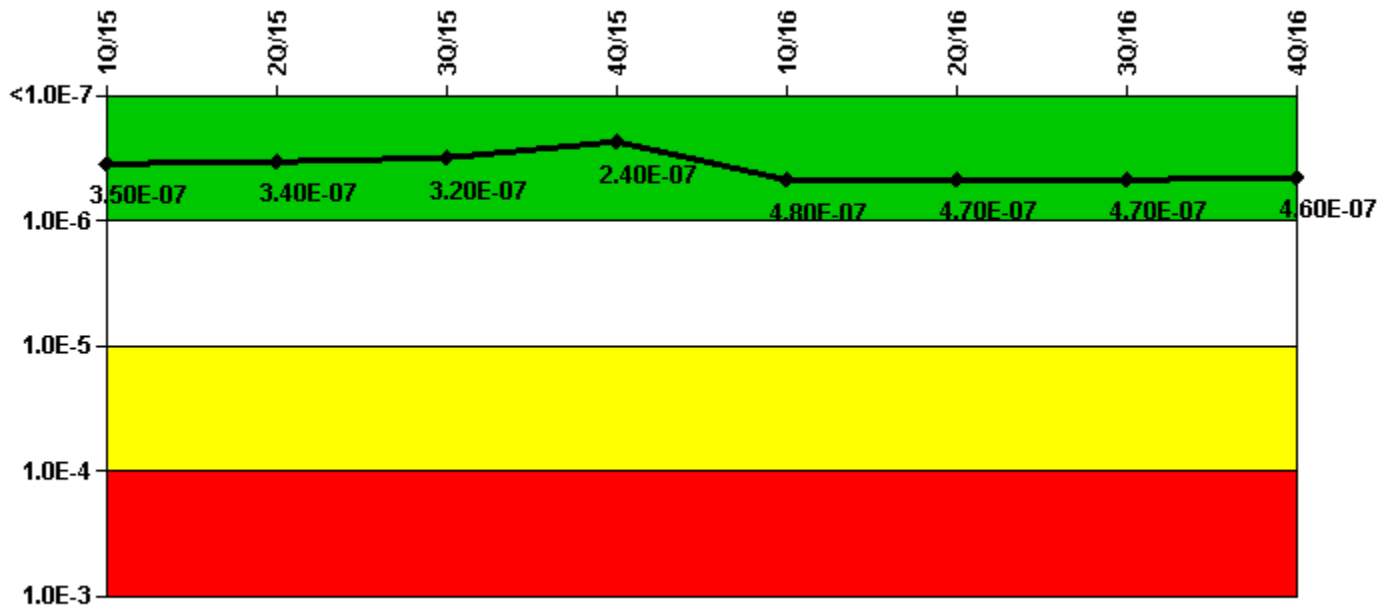
3Q/16: LER 2-2016-002, submitted on 08/29/2016, reported the High Pressure Coolant Injection System becoming inoperable due to a failed relay coil, which resulted in a safety system functional failure.

2Q/16: LER 1-2016-002, dated 5/2/16, reported one event where EDG 3 failed to start and was considered inoperable. Therefore, this event was counted as a SSFF. This was applicable to both Unit 1 and 2.

3Q/15: LER 2-2015-003, Revision 1, dated 8/5/15 reported a loss of safety function on the RHRSW system due to an oil leak that rendered an RHRSW system pump inoperable.

2Q/15: LER 1-2015-002, dated 5/20/15, reported one event where DG3 and DG4 were simultaneously inoperable and considered a SSFF for the onsite standby AC power source. LER 1-2015-002 counted for both Unit 1 and Unit 2.

Mitigating Systems Performance Index, Emergency AC Power System



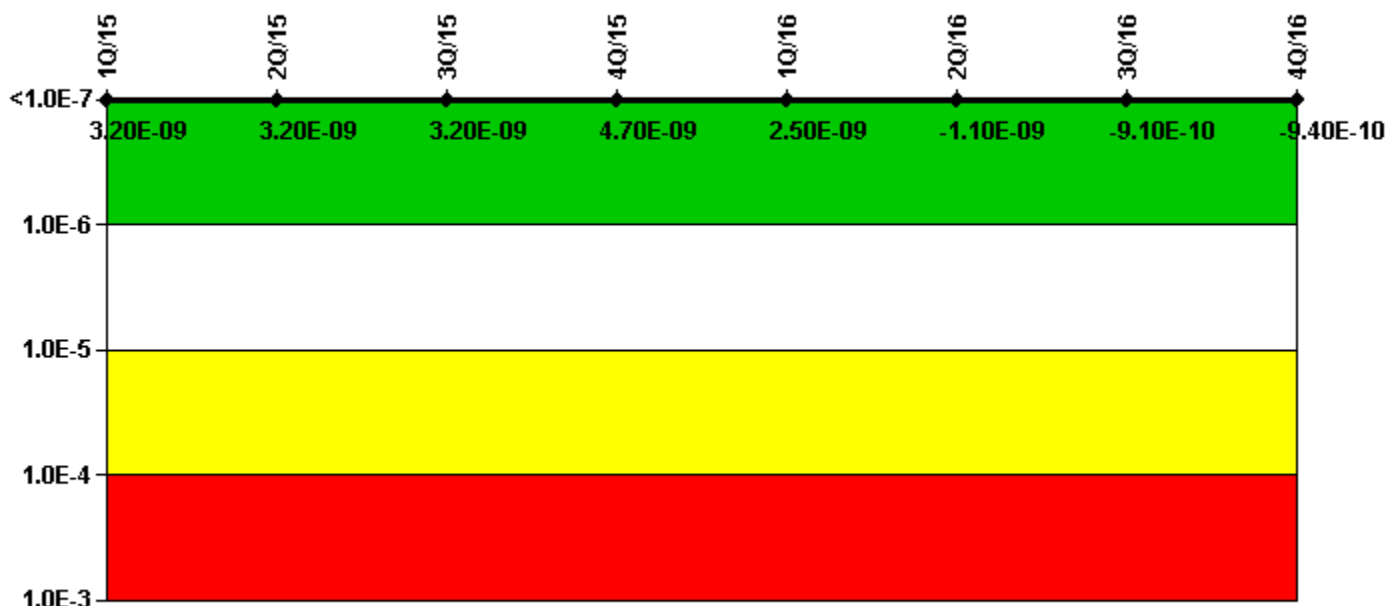
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Emergency AC Power System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (ΔCDF)	2.07E-07	1.95E-07	1.75E-07	1.72E-07	2.76E-07	2.59E-07	2.58E-07	2.56E-07
URI (ΔCDF)	1.42E-07	1.43E-07	1.43E-07	7.26E-08	2.06E-07	2.07E-07	2.07E-07	2.07E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	3.50E-07	3.40E-07	3.20E-07	2.40E-07	4.80E-07	4.70E-07	4.70E-07	4.60E-07

Licensee Comments: none

Mitigating Systems Performance Index, High Pressure Injection System



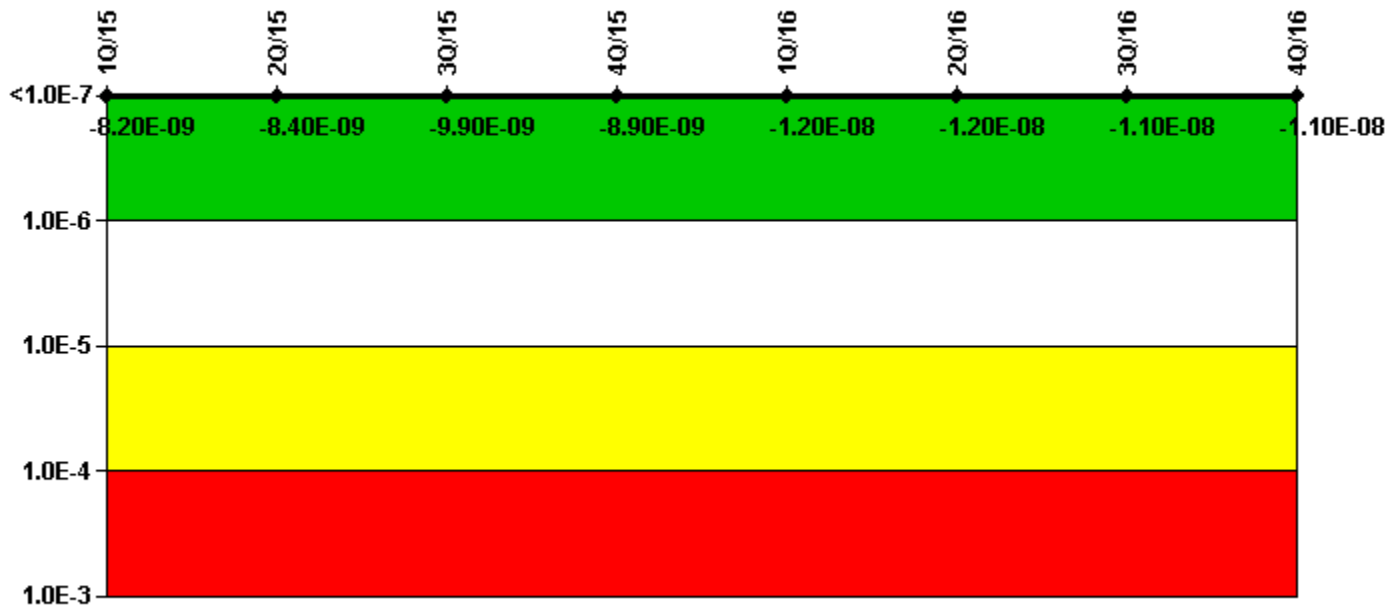
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, High Pressure Injection System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (Δ CDF)	9.33E-09	9.26E-09	9.27E-09	1.08E-08	8.60E-09	5.00E-09	5.20E-09	5.17E-09
URI (Δ CDF)	-6.11E-09	-6.11E-09	-6.11E-09	-6.11E-09	-6.11E-09	-6.11E-09	-6.11E-09	-6.11E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	3.20E-09	3.20E-09	3.20E-09	4.70E-09	2.50E-09	-1.10E-09	-9.10E-10	-9.40E-10

Licensee Comments: none

Mitigating Systems Performance Index, Heat Removal System



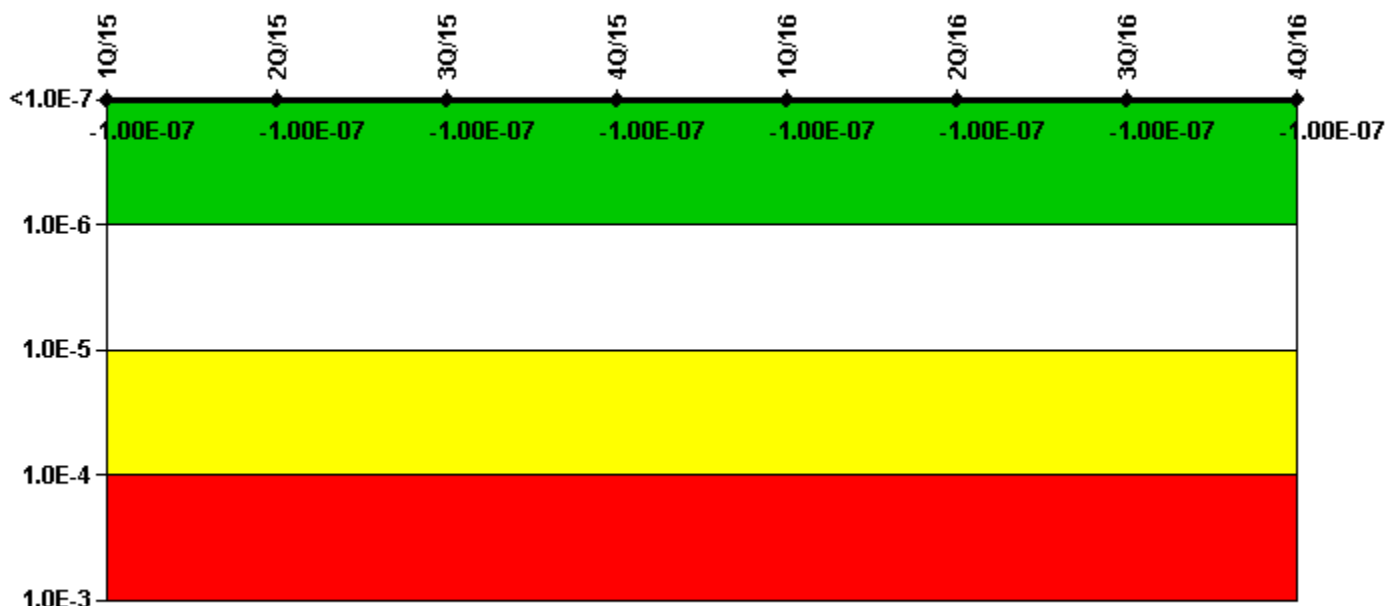
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Heat Removal System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (Δ CDF)	2.81E-09	2.58E-09	1.12E-09	2.11E-09	-1.05E-09	-1.08E-09	-3.07E-10	-1.41E-10
URI (Δ CDF)	-1.10E-08	-1.10E-08	-1.10E-08	-1.10E-08	-1.10E-08	-1.10E-08	-1.10E-08	-1.10E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-8.20E-09	-8.40E-09	-9.90E-09	-8.90E-09	-1.20E-08	-1.20E-08	-1.10E-08	-1.10E-08

Licensee Comments: none

Mitigating Systems Performance Index, Residual Heat Removal System



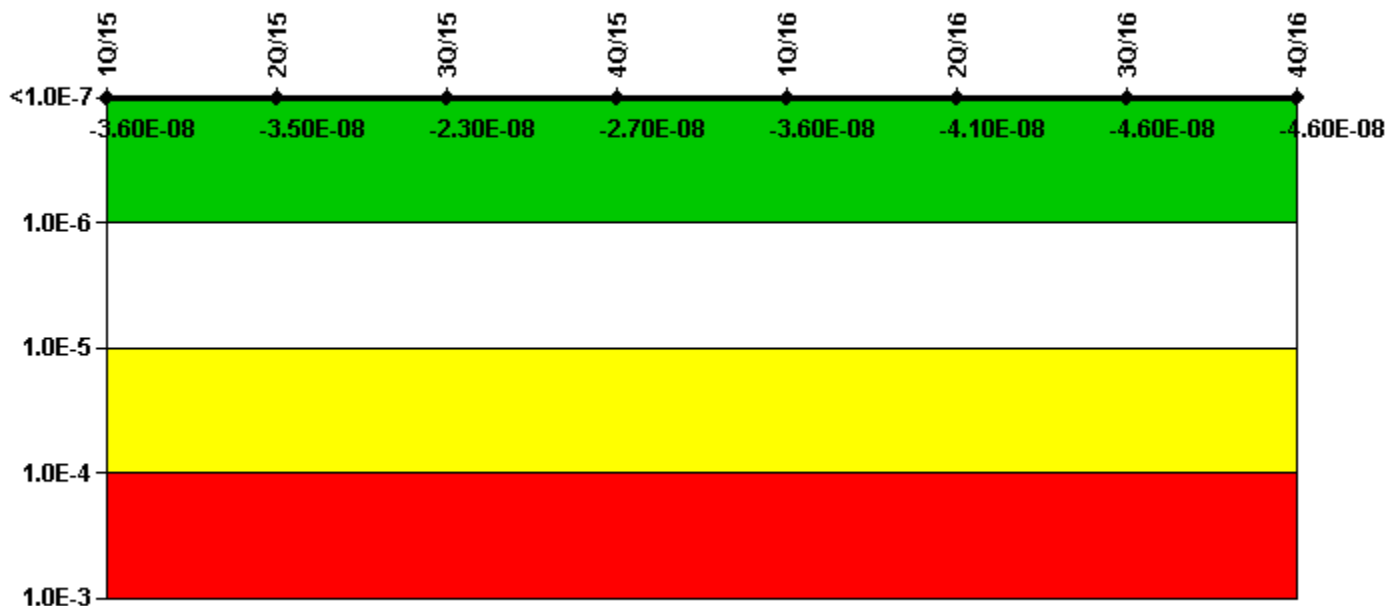
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Residual Heat Removal System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (Δ CDF)	-3.37E-08	-3.38E-08	-3.38E-08	-3.38E-08	-3.38E-08	-3.38E-08	-3.38E-08	-3.38E-08
URI (Δ CDF)	-6.81E-08	-6.81E-08	-6.81E-08	-6.81E-08	-6.81E-08	-6.81E-08	-6.81E-08	-6.81E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07

Licensee Comments: none

Mitigating Systems Performance Index, Cooling Water Systems



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

Notes

Mitigating Systems Performance Index, Cooling Water Systems	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (ΔCDF)	-2.19E-08	-2.05E-08	-8.13E-09	-1.23E-08	-2.12E-08	-2.25E-08	-2.95E-08	-2.95E-08
URI (ΔCDF)	-1.45E-08	-1.45E-08	-1.45E-08	-1.45E-08	-1.45E-08	-1.83E-08	-1.61E-08	-1.61E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.60E-08	-3.50E-08	-2.30E-08	-2.70E-08	-3.60E-08	-4.10E-08	-4.60E-08	-4.60E-08

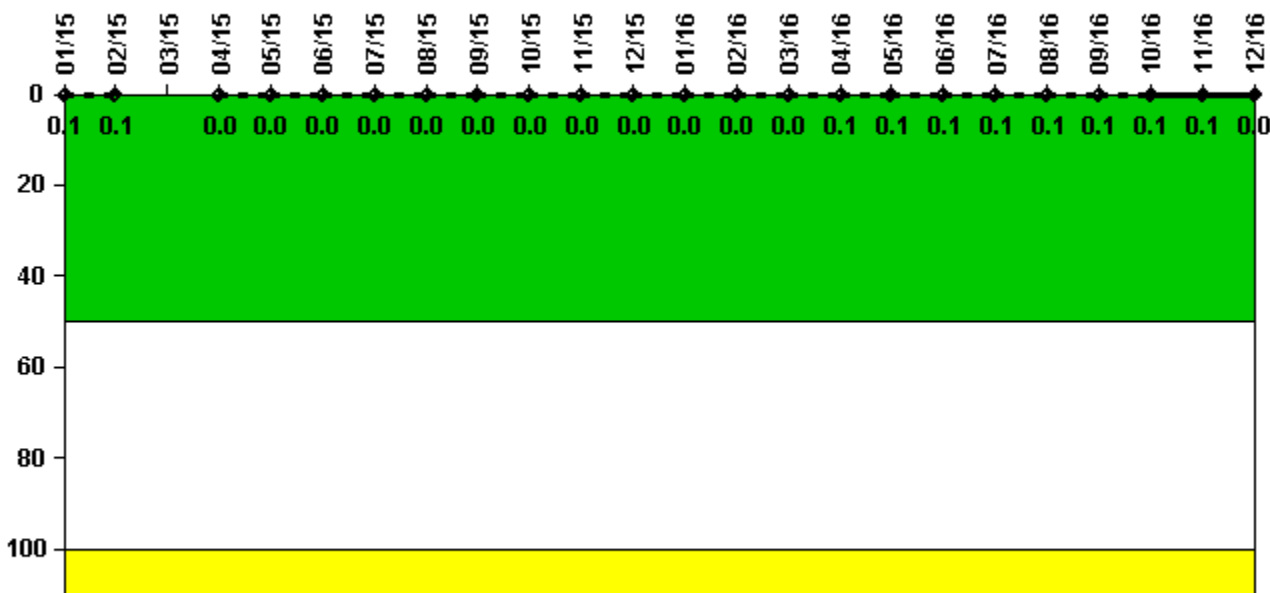
Licensee Comments:

3Q/15: Changed PRA Parameter(s). The MSPI Basis document (BNP-PSA-069), Revision 13, was approved on 3/24/14 that corrected data for the Service Water (Cooling Water) pump alignments and various valves. This data was not updated within CDE until 8/24/15 due to lack of communication of the change to the MSPI Basis Document. CDE values for Cooling Water were updated back to the approval date of the MSPI Basis Document. No thresholds were crossed due to this change and the greatest delta in calculated unavailability margin due to this change was only 3%.

2Q/15: Changed PRA Parameter(s). The MSPI Basis document (BNP-PSA-069), Revision 13, was approved on 3/24/14 that corrected data for the Service Water (Cooling Water) pump alignments and various valves. This data was not updated within CDE until 8/24/15 due to lack of communication of the change to the MSPI Basis Document. CDE values for Cooling Water were updated back to the approval date of the MSPI Basis Document. No thresholds were crossed due to this change and the greatest delta in calculated unavailability margin due to this change was only 3%.

1Q/15: Changed PRA Parameter(s). The MSPI Basis document (BNP-PSA-069), Revision 13, was approved on 3/24/14 that corrected data for the Service Water (Cooling Water) pump alignments and various valves. This data was not updated within CDE until 8/24/15 due to lack of communication of the change to the MSPI Basis Document. CDE values for Cooling Water were updated back to the approval date of the MSPI Basis Document. No thresholds were crossed due to this change and the greatest delta in calculated unavailability margin due to this change was only 3%.

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

Notes

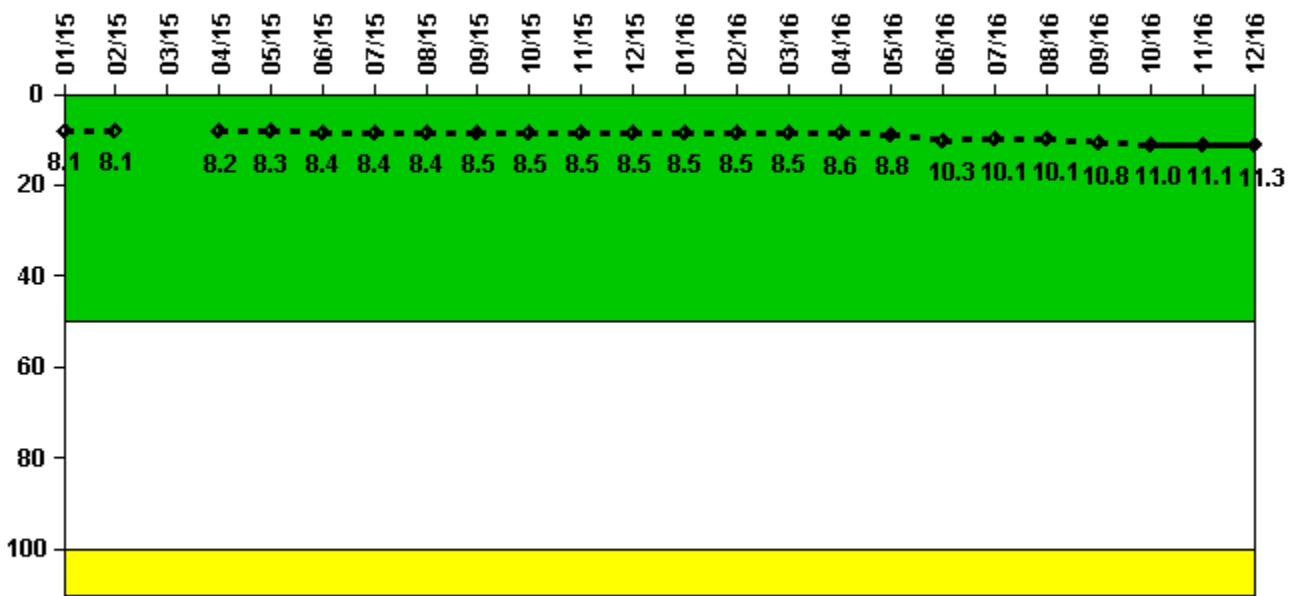
Reactor Coolant System Activity	1/15	2/15	3/15	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15
Maximum activity	0.000111	0.000101	N/A	0.000060	0.000056	0.000057	0.000070	0.000070	0.000061	0.000073	0.000070	0.000078
Technical specification limit	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indicator value	0.1	0.1	N/A	0	0	0	0	0	0	0	0	0

Reactor Coolant System Activity	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16
Maximum activity	0.000079	0.000082	0.000089	0.000105	0.000102	0.000109	0.000110	0.000119	0.000119	0.000100	0.000104	0.000097
Technical specification												

limit	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indicator value	0	0	0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0

Licensee Comments: none

Reactor Coolant System Leakage



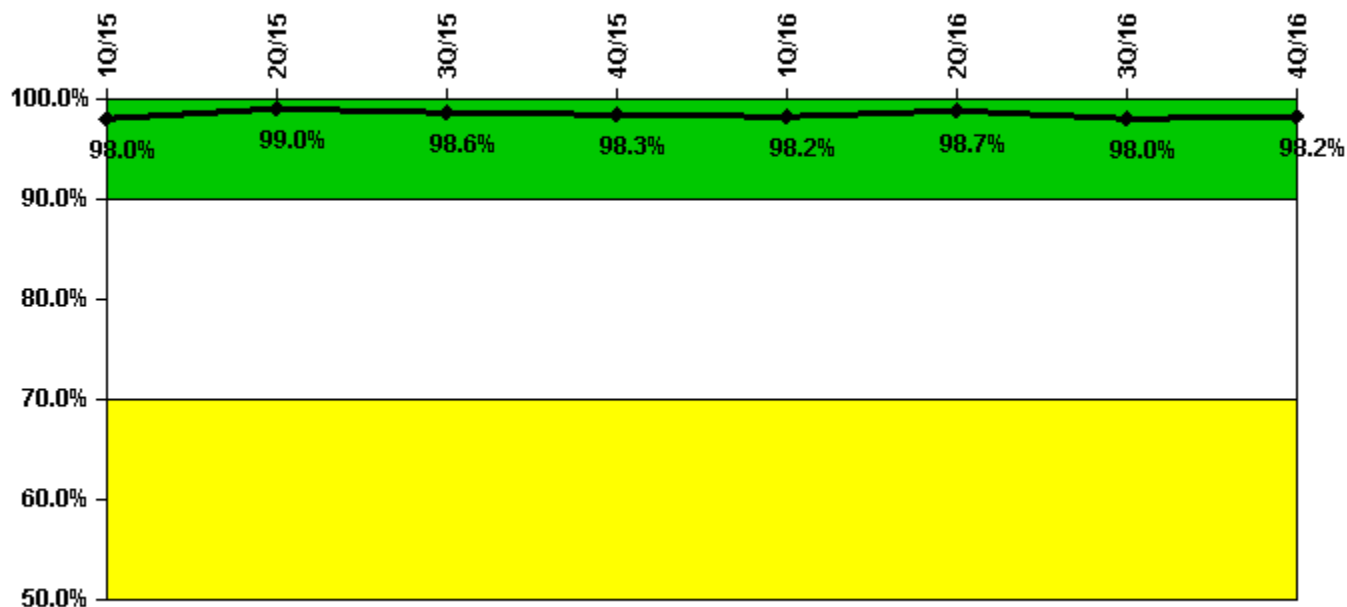
Thresholds: White > 50.0 Yellow > 100.0

Notes

Reactor Coolant System Leakage	1/15	2/15	3/15	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15
Maximum leakage	2.024	2.021	N/A	2.053	2.070	2.090	2.090	2.110	2.130	2.130	2.120	2.120
Technical specification limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Indicator value	8.1	8.1	N/A	8.2	8.3	8.4	8.4	8.4	8.5	8.5	8.5	8.5
Reactor Coolant System Leakage	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16
Maximum leakage	2.120	2.120	2.130	2.140	2.190	2.570	2.530	2.530	2.690	2.750	2.780	2.820
Technical specification limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Indicator value	8.5	8.5	8.5	8.6	8.8	10.3	10.1	10.1	10.8	11.0	11.1	11.3

Licensee Comments: none

Drill/Exercise Performance



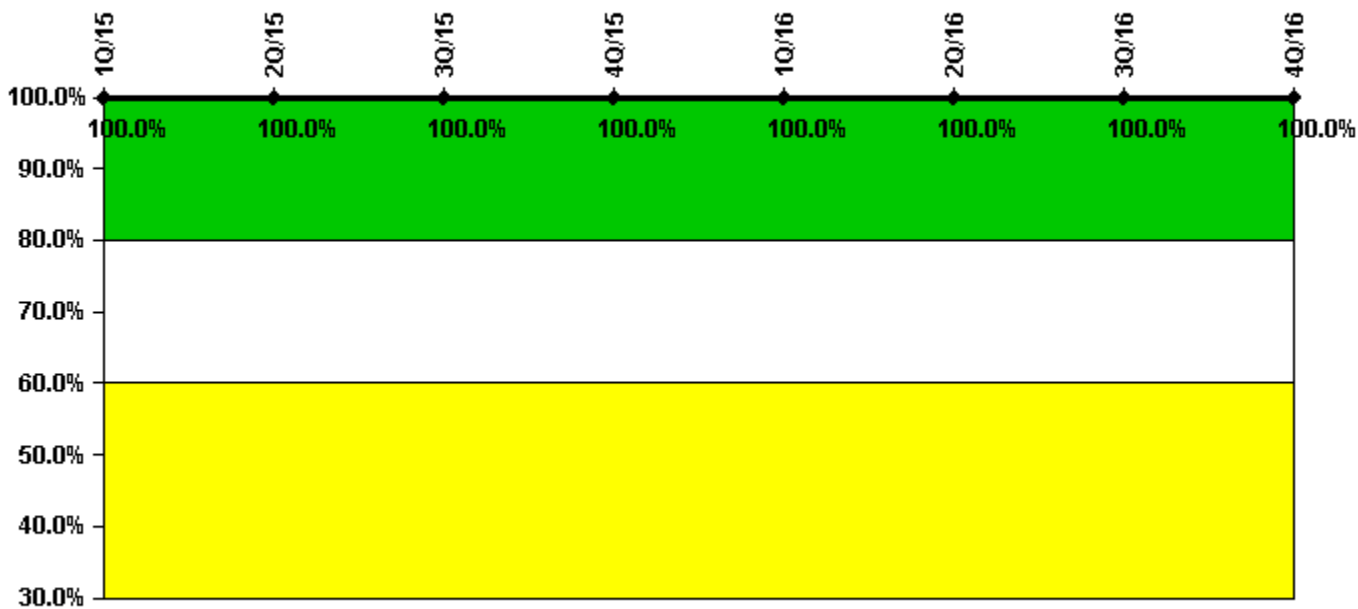
Thresholds: White < 90.0% Yellow < 70.0%

Notes

Drill/Exercise Performance	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Successful opportunities	8.0	21.0	30.0	22.0	8.0	9.0	29.0	35.0
Total opportunities	8.0	22.0	31.0	22.0	8.0	9.0	30.0	35.0
Indicator value	98.0%	99.0%	98.6%	98.3%	98.2%	98.7%	98.0%	98.2%

Licensee Comments: none

ERO Drill Participation



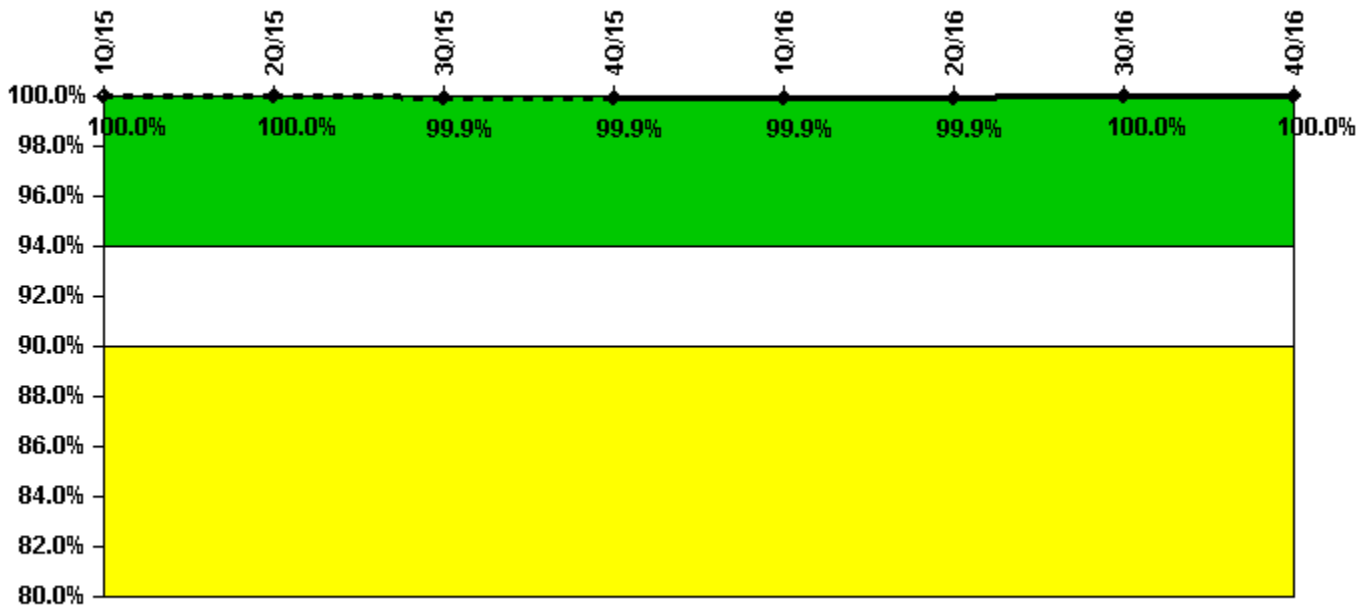
Thresholds: White < 80.0% Yellow < 60.0%

Notes

ERO Drill Participation	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Participating Key personnel	93.0	101.0	106.0	112.0	108.0	102.0	109.0	112.0
Total Key personnel	93.0	101.0	106.0	112.0	108.0	102.0	109.0	112.0
Indicator value	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Licensee Comments: none

Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

Notes

Alert & Notification System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Successful siren-tests	532	532	530	570	532	532	532	532
Total sirens-tests	532	532	532	570	532	532	532	532
Indicator value	100.0%	100.0%	99.9%	99.9%	99.9%	99.9%	100.0%	100.0%

Licensee Comments: none

Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

Notes

Occupational Exposure Control Effectiveness	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
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

RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
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: January 24, 2017