Reactor Oversight Process (ROP)
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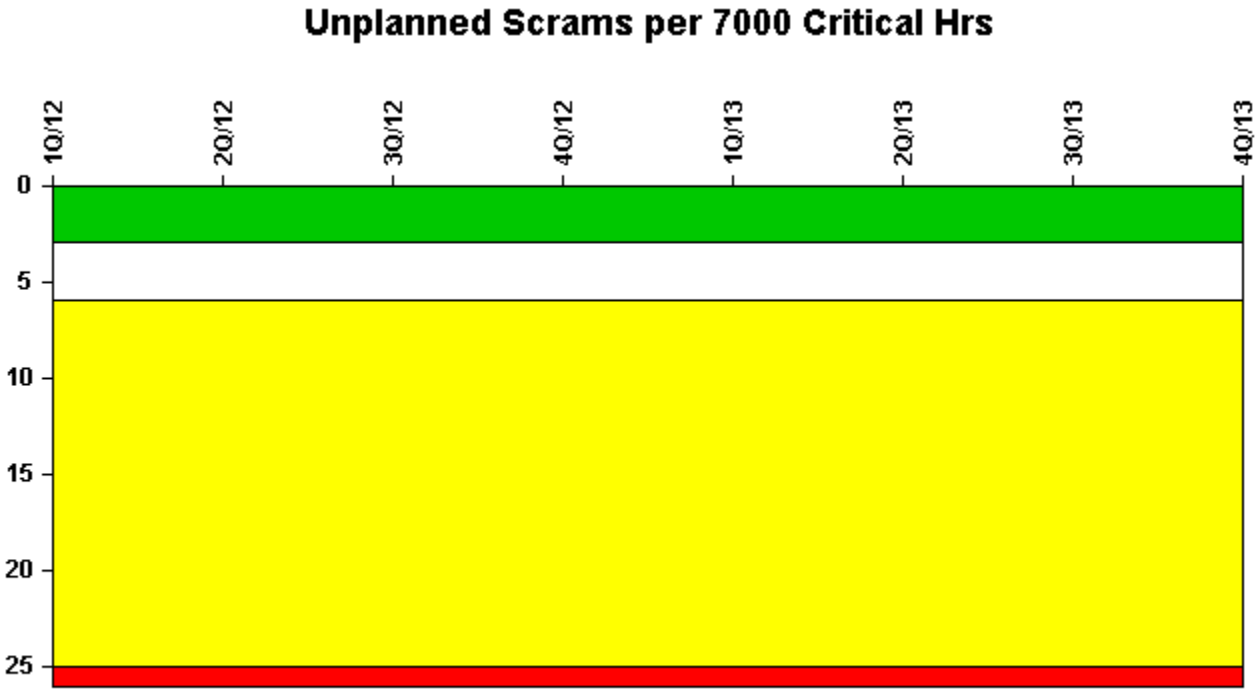
Fort Calhoun

4Q/2013 Performance Indicators

Fort Calhoun was shut down in April 2011 and subsequently commenced power operation in December 2013. Mitigating Systems Performance Index (MSPI) performance indicators (PIs) are heavily influenced by the operational status of the reactor, NRC staff has evaluated the validity of these PIs. The MSPI values can become skewed because of the low number of critical hours during the assessment period (3 years) of the PI. For these reasons, the staff has determined that these PIs currently do not provide valid indications of performance. The low critical hours are also causing other indicators at this site to be invalid, in accordance with NEI 99-02.

The solid trend line represents the current reporting period.

Licensee's General Comments: none



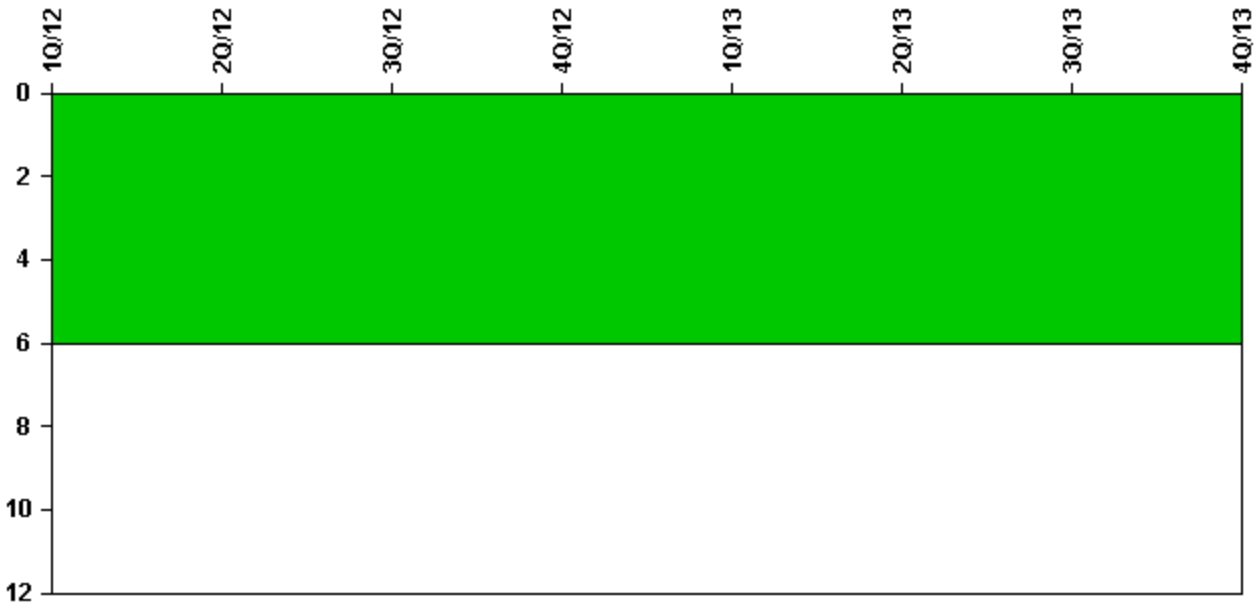
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

Unplanned Scrams per 7000 Critical Hrs	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Unplanned scrams	0	0	0	0	0	0	0	0
Critical hours	0	0	0	0	0	0	0	317.2
Indicator value	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs

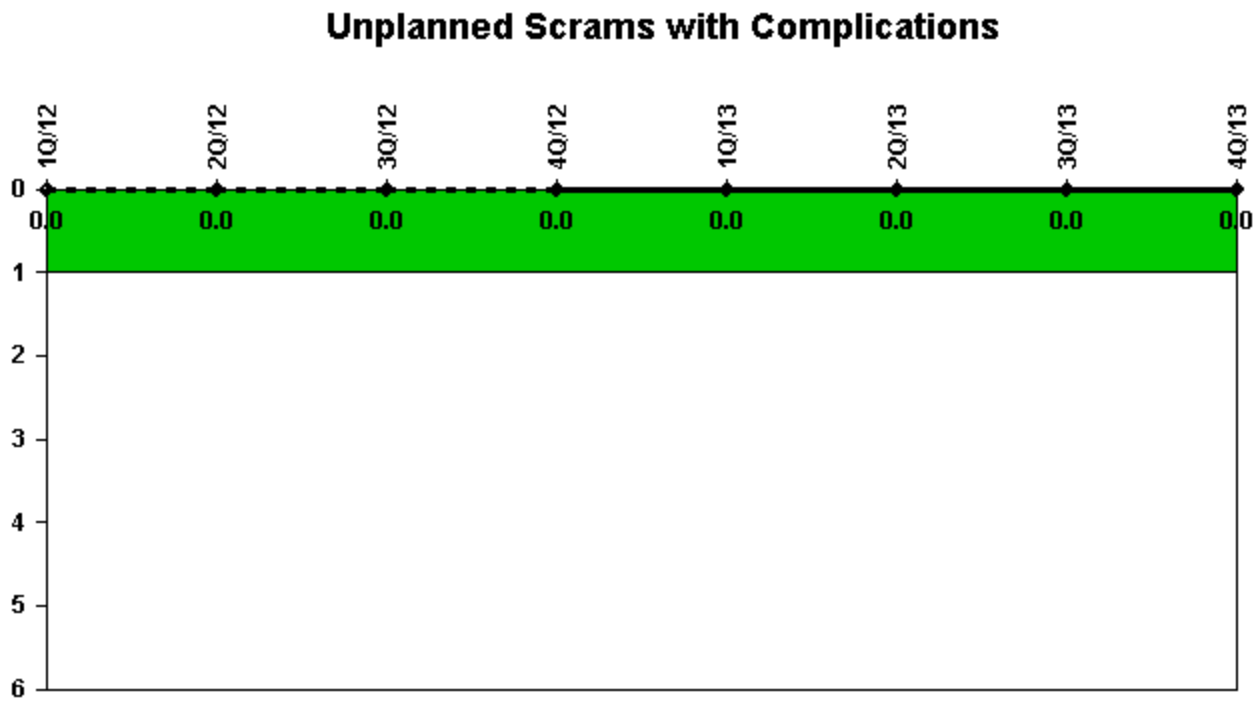


Thresholds: White > 6.0

Notes

Unplanned Power Changes per 7000 Critical Hrs	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	0	0	0	0	0	0	0	317.2
Indicator value	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Licensee Comments: none

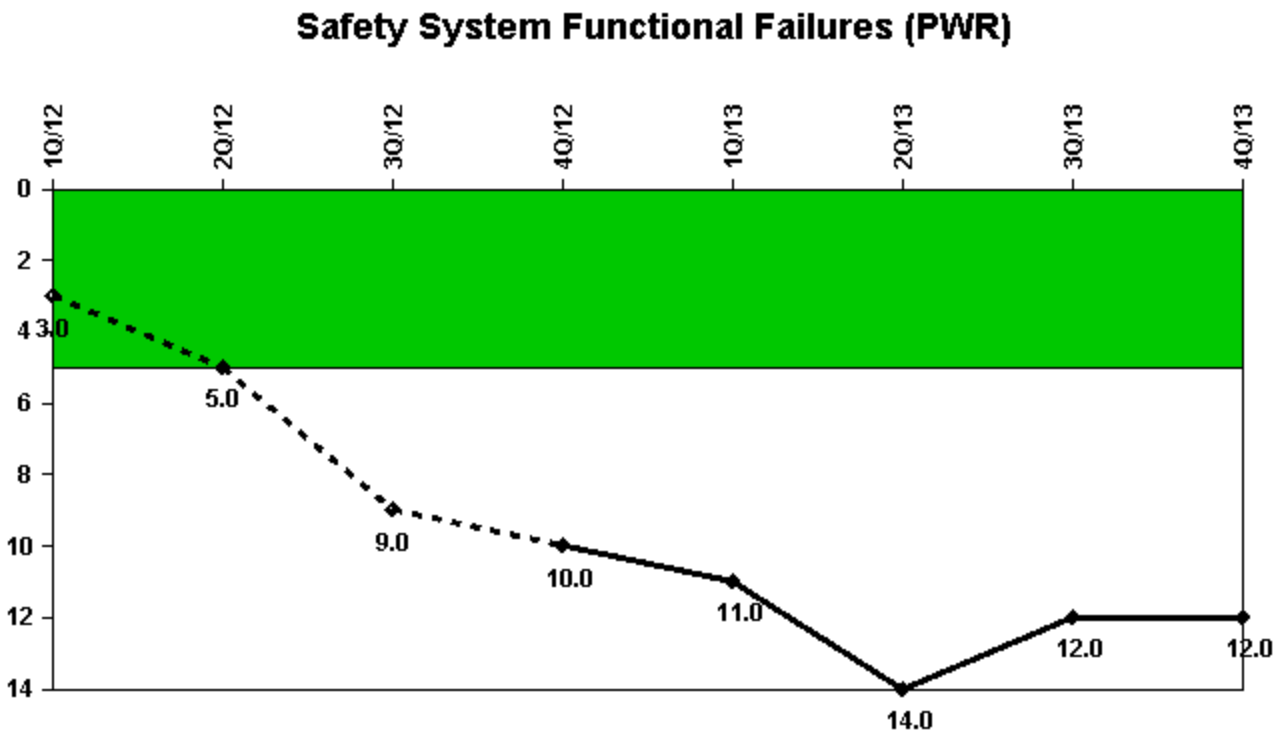


Thresholds: White > 1.0

Notes

Unplanned Scrams with Complications	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/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)	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Safety System Functional Failures	1	3	5	1	2	6	3	1
Indicator value	**3**	**5**	**9**	**10**	**11**	**14**	**12**	**12**

Licensee Comments:

4Q/13: LER 2013-017, Containment Spray Pump Design Documents do not Support Operation in Runout

3Q/13: LER 2013-010, "HPSI Pump Flow Imbalance," 2013-011 "Inadequate Design for High Energy Line Break in Rooms 13 and 19 of the Auxiliary Building," LER 2013-012, "Intake Structure Crane Seismic Qualification"

2Q/13: LER 2013-003, "Calculations Indicate the HPSI Pumps Operate in Run-out " LER 2013-004, "Inverters Inoperable During Emergency Diesel Generator Operation" LER 2013-005, "CRHVAC Mod Not Properly Evaluated" LER 2013-006, "Use of Teflon in LPSI and CS Pump Mechanical Seals" LER 2013-008, "Previously Installed GE IAV Relays Failed Seismic Testing"LER 2013-009, "Tornado Missile Vulnerabilities"

1Q/13: LER 2013-002, "CVCS Class 1 & 2 Charging Supports are Unanalyzed" LER 2012-021, "HCV-2987, HPSI Alternate Header Isolation Valve"

3Q/12: LER 2012-009, "Inoperable Equipment due to Lack of Environmental Qualifications" LER 2012-011, "Emergency Diesel Inoperability Due to Bus Loads During a LOOP(retracted)" LER2012-014, "Containment Beam 22 Loading Conditions Outside of the Allowable Limits" LER 2012-015, "Electrical Equipment Impacted by High Energy Line Break Outside of Containment" LER 2012-017, "Containment

Valve Actuators Design Temperature Ratings Below those Required for Design Basis Accidents" LER 2012-012, "Multiple Safety Injection Tanks Rendered Inoperable"

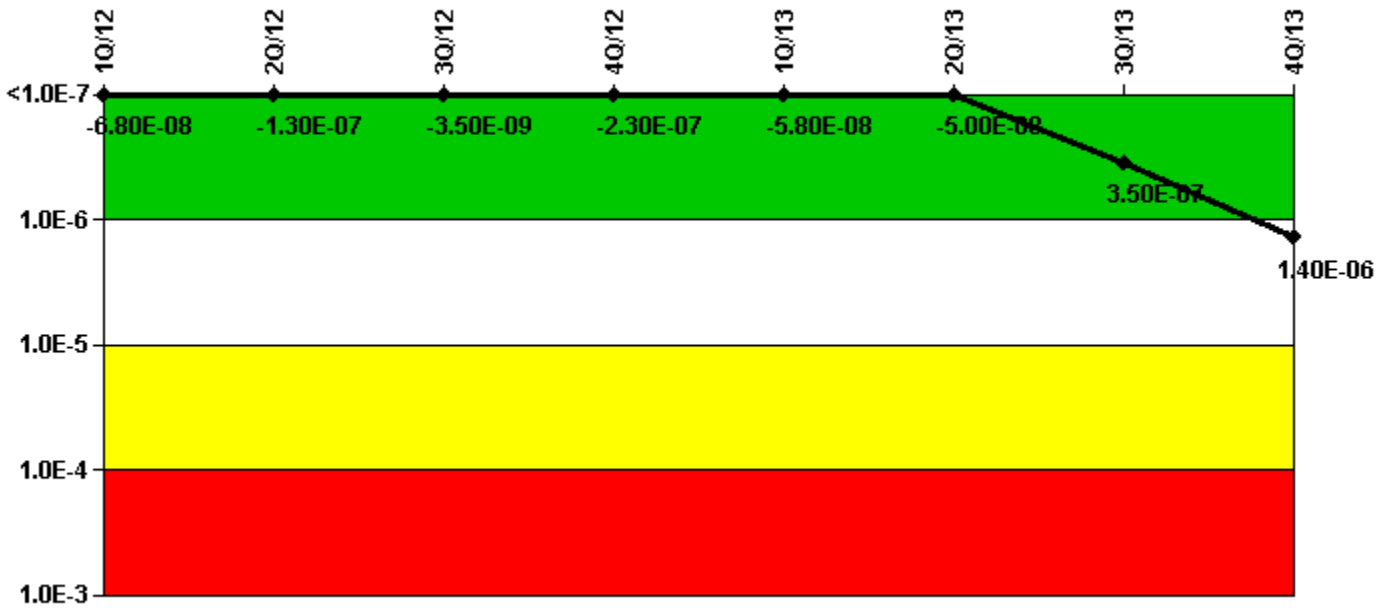
3Q/12: LER 2012-009, "Inoperable Equipment due to Lack of Environmental Qualifications" LER 2012-011. "Emergency Diesel Inoperability Due to Bus Loads During a LOOP"LER2012-014, "Containment Beam 22 Loading Conditions Outside of the Allowable Limits" LER 2012-015, "Electrical Equipment Impacted by High Energy Line Break Outside of Containment" LER 2012-017, "Containment Valve Actuators Design Temperature Ratings Below those Required for Design Basis Accidents"

3Q/12: LER 2012-009, "Inoperable Equipment due to Lack of Environmental Qualifications" LER 2012-011, "Emergency Diesel Inoperability Due to Bus Loads During a LOOP"LER2012-014, "Containment Beam 22 Loading Conditions Outside of the Allowable Limits" LER 2012-015, "Electrical Equipment Impacted by High Energy Line Break Outside of Containment" LER 2012-017, "Containment Valve Actuators Design Temperature Ratings Below those Required for Design Basis Accidents" LER 2012-012, "Multiple Safety Injection Tanks Rendered Inoperable"

2Q/12: LER 2012-001, Inadequate Flooding Protection Procedure; LER 2012-005, TS violation due to inadequate testing of DG fuel pumps; LER 2012-004, Inadequate Analysis of Drift Affects Safety Related Equipment

1Q/12: LER 2011-010, "Fire Causes a Circuit Breaker to Open Outside Design Assumptions" was issued January 2012 and LER 2011-006, "Inoperability of Both Trains of Containment Coolers Due to a Mispositioned Valve" was cancelled removing the item from earlier reporting.

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/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI (ΔCDF)	3.94E-07	3.09E-07	3.71E-07	1.66E-07	3.24E-07	3.13E-07	6.84E-07	1.68E-06
URI (ΔCDF)	-4.62E-07	-4.38E-07	-3.75E-07	-3.95E-07	-3.82E-07	-3.63E-07	-3.35E-07	-3.33E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**-6.80E-08**	**-1.30E-07**	**-3.50E-09**	**-2.30E-07**	**-5.80E-08**	**-5.00E-08**	**3.50E-07**	**1.40E-06**

Licensee Comments:

4Q/13: Risk Cap Invoked. The white performance indicator is due to 31 months without critical hours and normal diesel maintenance.

3Q/13: Risk Cap Invoked.

2Q/13: Risk Cap Invoked.

1Q/13: Risk Cap Invoked.

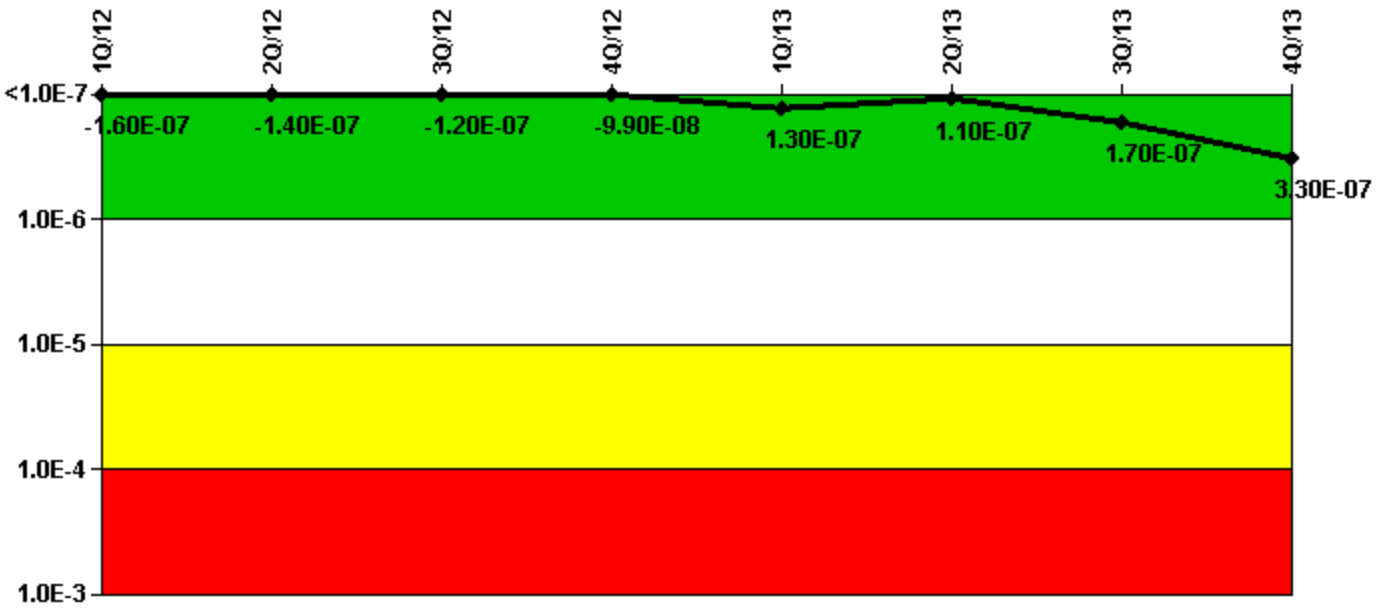
4Q/12: Risk Cap Invoked.

3Q/12: Risk Cap Invoked. Unavailability hours which were added to the MSPI Emergency AC Power System A to account for infrequent maintenance activities in Qtr 2, 2009 were removed in April 2012. This adjustment returns the unavailability coefficient to the baseline value.

2Q/12: Risk Cap Invoked.

1Q/12: Risk Cap Invoked.

Mitigating Systems Performance Index, High Pressure Injection System



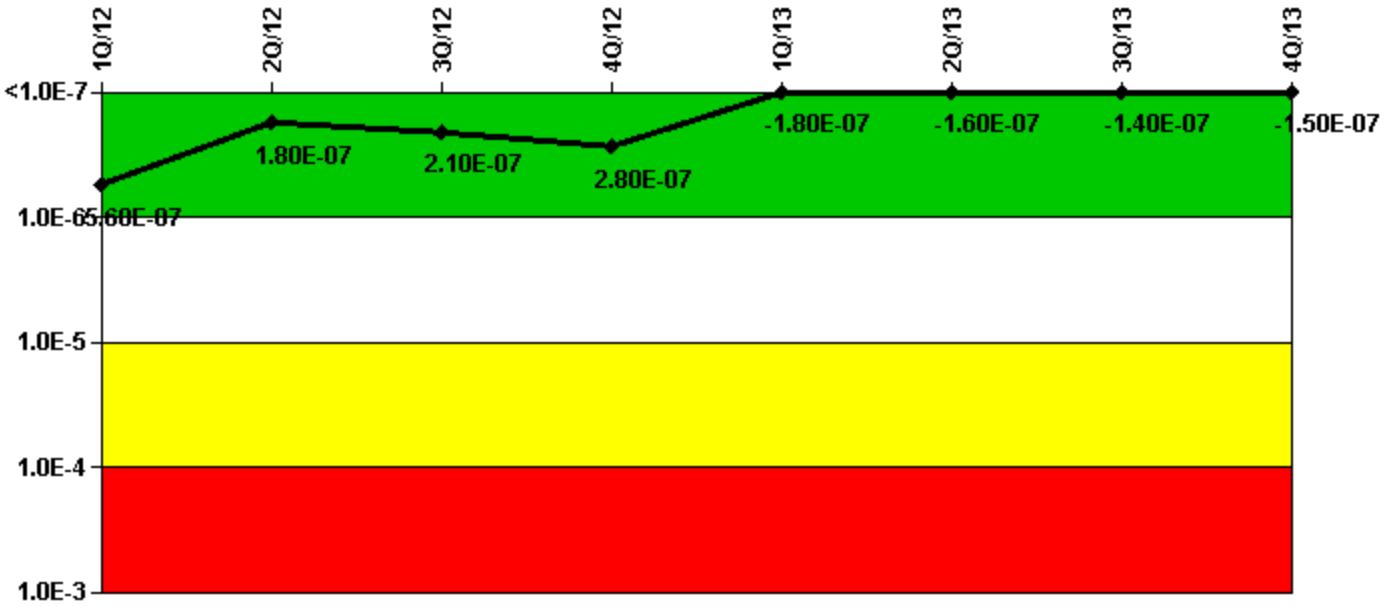
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, High Pressure Injection System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI (ΔCDF)	-7.03E-08	-5.54E-08	-2.97E-08	-3.46E-08	-3.97E-08	-5.11E-08	1.30E-08	1.61E-07
URI (ΔCDF)	-8.93E-08	-8.89E-08	-8.82E-08	-6.42E-08	1.66E-07	1.65E-07	1.61E-07	1.71E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**-1.60E-07**	**-1.40E-07**	**-1.20E-07**	**-9.90E-08**	**1.30E-07**	**1.10E-07**	**1.70E-07**	**3.30E-07**

Licensee Comments: none

Mitigating Systems Performance Index, Heat Removal System



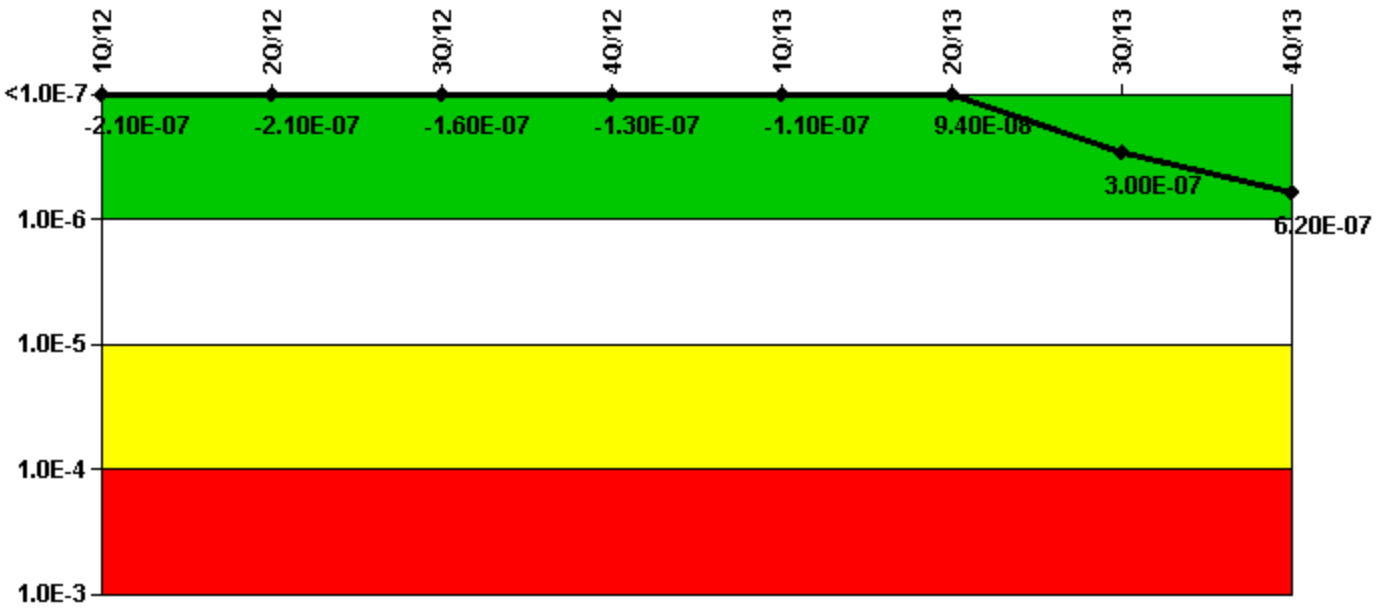
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Heat Removal System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI (ΔCDF)	-3.05E-08	-7.37E-08	-7.37E-08	-7.37E-08	-7.37E-08	-7.37E-08	-7.37E-08	-7.37E-08
URI (ΔCDF)	5.92E-07	2.55E-07	2.87E-07	3.51E-07	-1.10E-07	-8.67E-08	-6.47E-08	-8.10E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**5.60E-07**	**1.80E-07**	**2.10E-07**	**2.80E-07**	**-1.80E-07**	**-1.60E-07**	**-1.40E-07**	**-1.50E-07**

Licensee Comments: none

Mitigating Systems Performance Index, Residual Heat Removal System



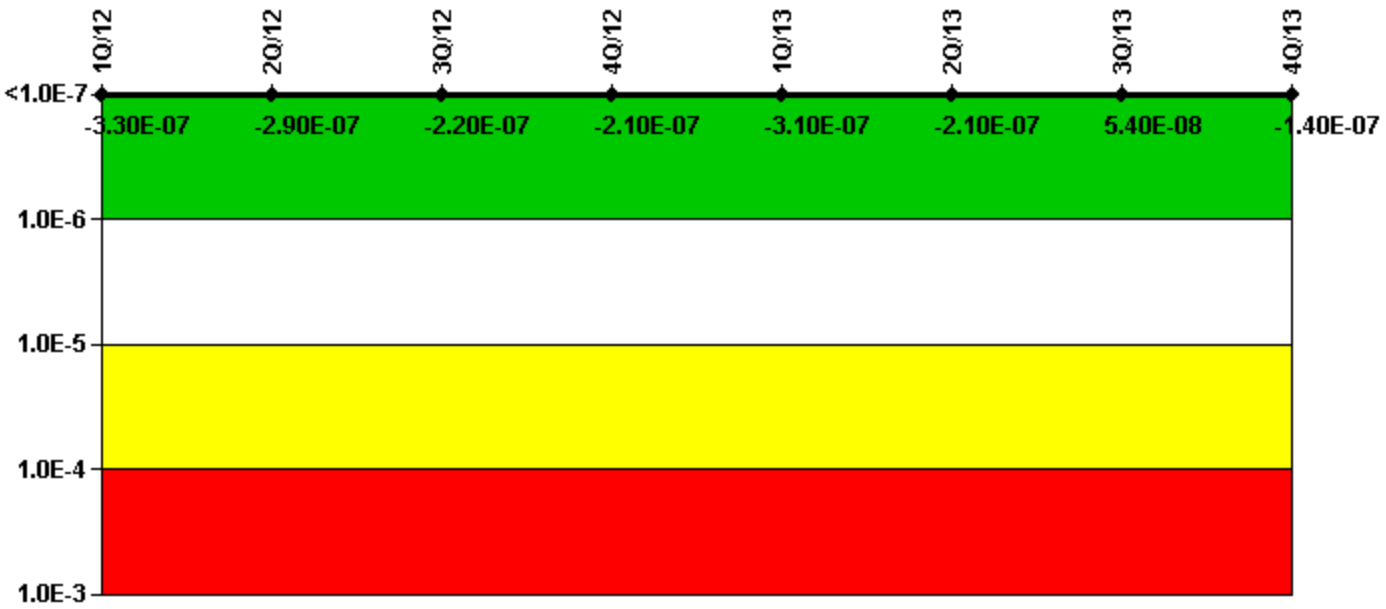
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Residual Heat Removal System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI (ΔCDF)	-1.43E-07	-1.39E-07	-8.61E-08	-9.21E-08	-6.84E-08	1.33E-07	3.46E-07	6.70E-07
URI (ΔCDF)	-6.99E-08	-7.22E-08	-7.27E-08	-3.38E-08	-3.80E-08	-3.94E-08	-4.16E-08	-4.57E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**-2.10E-07**	**-2.10E-07**	**-1.60E-07**	**-1.30E-07**	**-1.10E-07**	**9.40E-08**	**3.00E-07**	**6.20E-07**

Licensee Comments: none

Mitigating Systems Performance Index, Cooling Water Systems



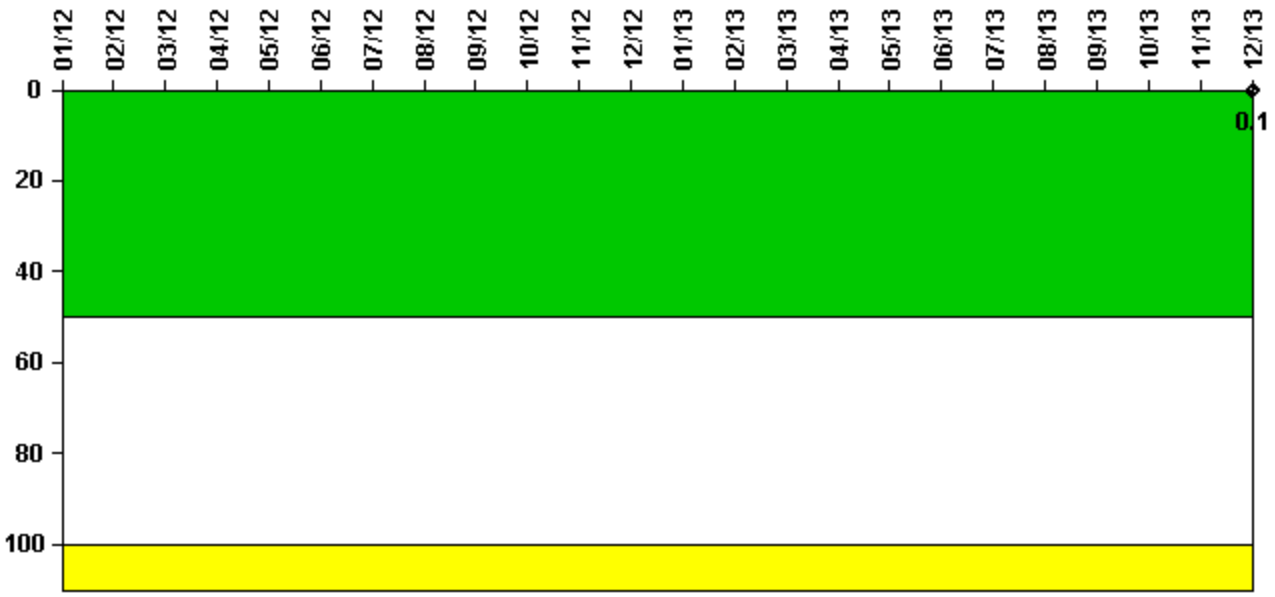
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Cooling Water Systems	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI (ΔCDF)	-2.85E-07	-2.46E-07	-1.91E-07	-1.79E-07	-2.74E-07	-1.77E-07	8.36E-08	-1.08E-07
URI (ΔCDF)	-4.51E-08	-4.45E-08	-3.37E-08	-3.26E-08	-3.16E-08	-3.09E-08	-2.97E-08	-2.94E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	**-3.30E-07**	**-2.90E-07**	**-2.20E-07**	**-2.10E-07**	**-3.10E-07**	**-2.10E-07**	**5.40E-08**	**-1.40E-07**

Licensee Comments: none

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

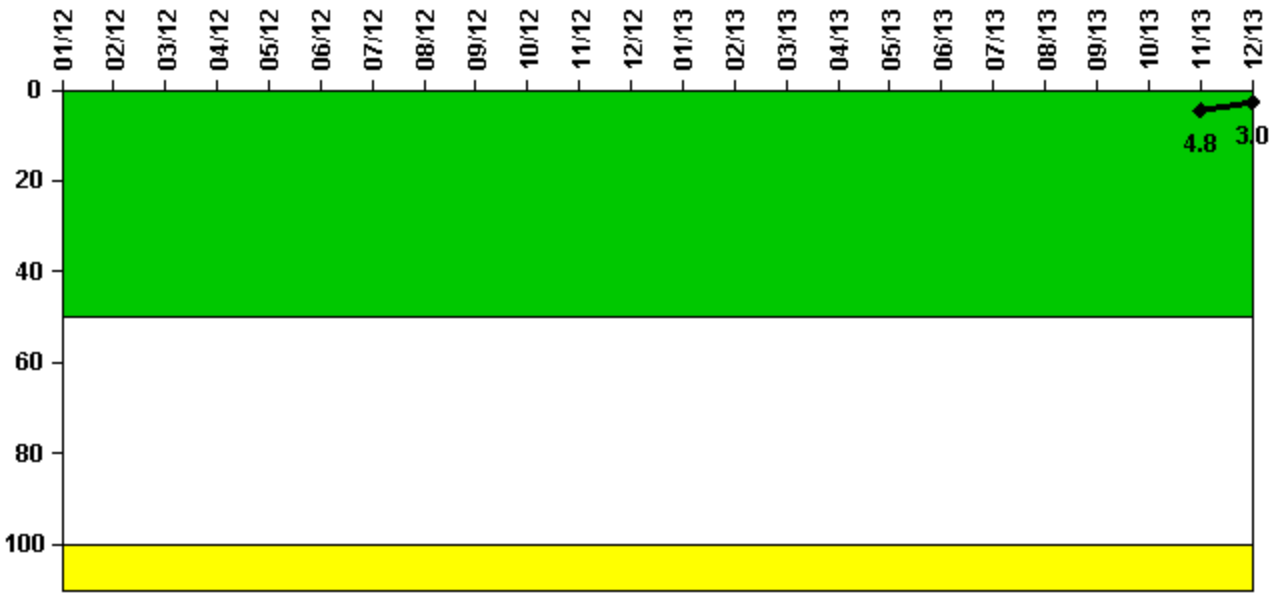
Notes

Reactor Coolant System Activity	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12
Maximum activity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Reactor Coolant System Activity	1/13	2/13	3/13	4/13	5/13	6/13	7/13	8/13	9/13	10/13	11/13	12/13
Maximum activity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.000837
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	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**0.1**

Licensee Comments: none

Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

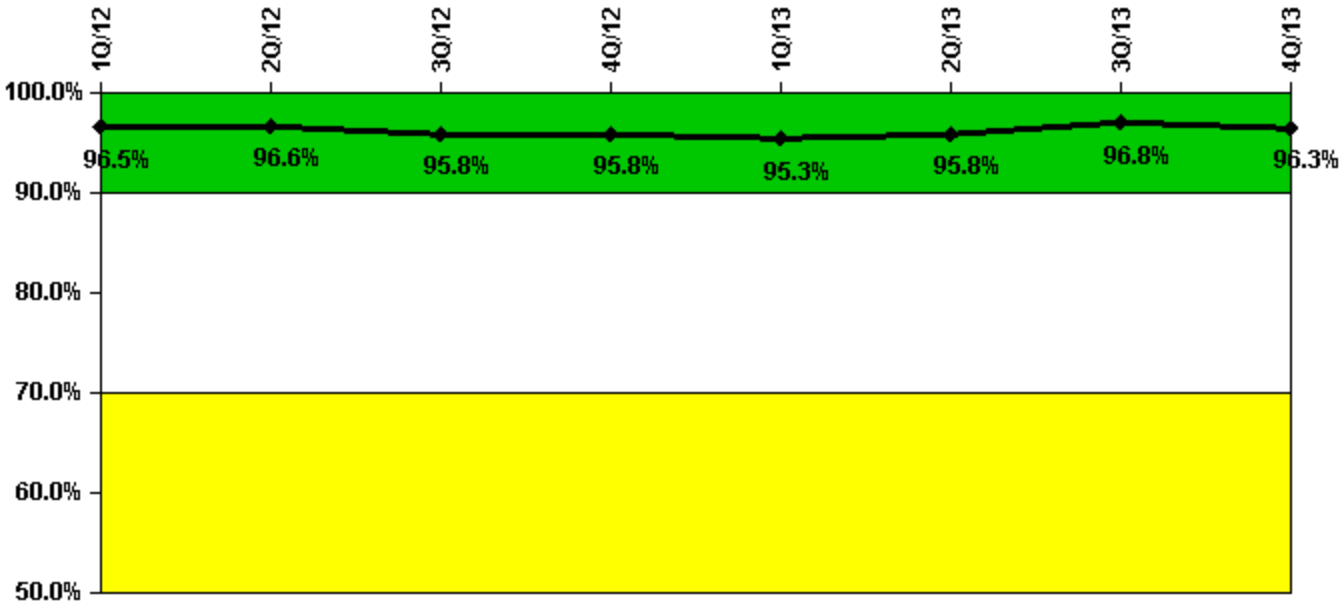
Notes

Reactor Coolant System Leakage	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12
Maximum leakage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

Reactor Coolant System Leakage	1/13	2/13	3/13	4/13	5/13	6/13	7/13	8/13	9/13	10/13	11/13	12/13
Maximum leakage	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.484	0.299
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	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**4.8**	**3.0**

Licensee Comments: none

Drill/Exercise Performance

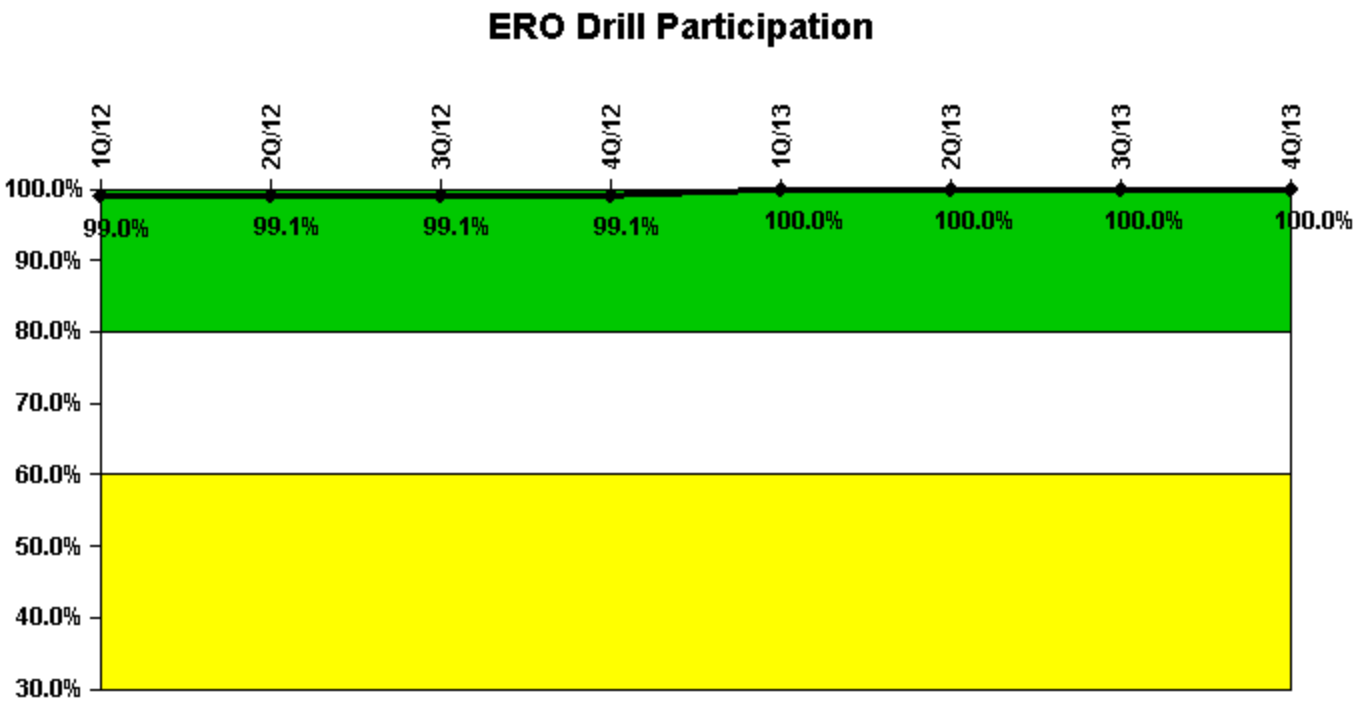


Thresholds: White < 90.0% Yellow < 70.0%

Notes

Drill/Exercise Performance	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Successful opportunities	59.0	41.0	8.0	24.0	16.0	83.0	30.0	27.0
Total opportunities	62.0	43.0	8.0	24.0	16.0	87.0	30.0	29.0
Indicator value	**96.5%**	**96.6%**	**95.8%**	**95.8%**	**95.3%**	**95.8%**	**96.8%**	**96.3%**

Licensee Comments: none

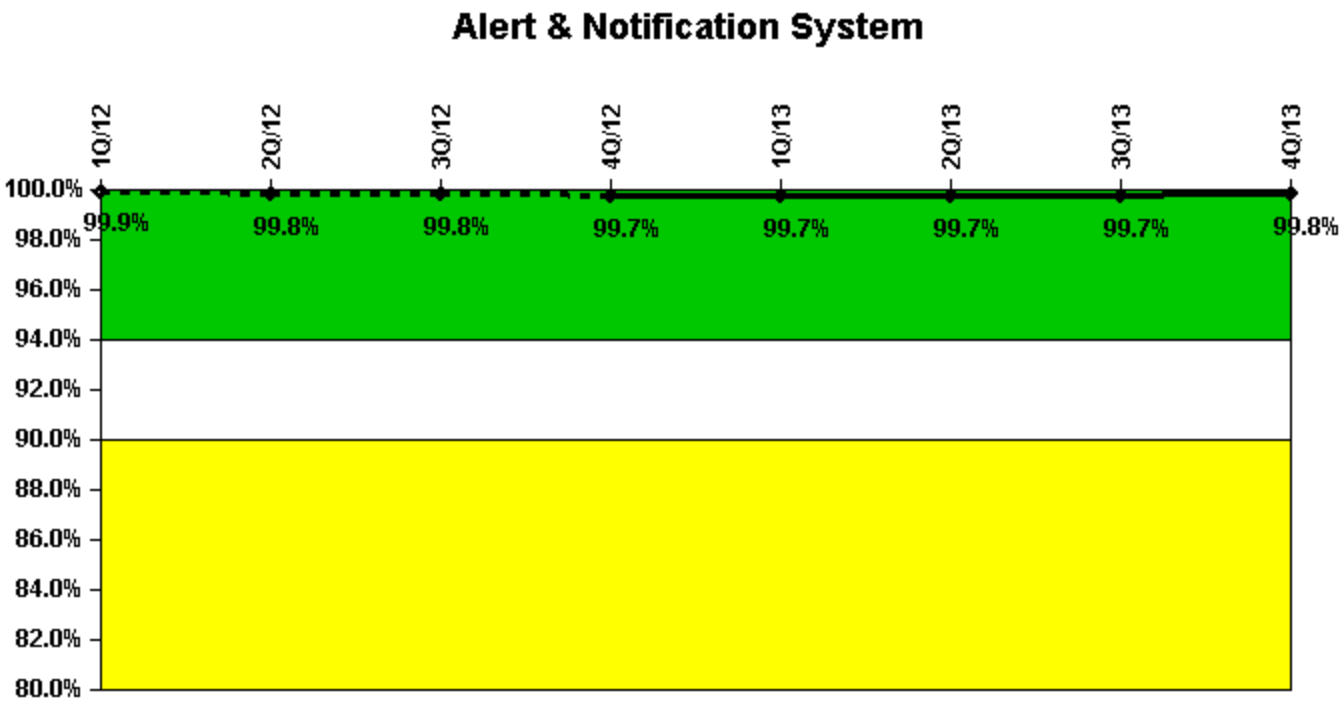


Thresholds: White < 80.0% Yellow < 60.0%

Notes

ERO Drill Participation	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Participating Key personnel	102.0	107.0	108.0	108.0	109.0	105.0	105.0	109.0
Total Key personnel	103.0	108.0	109.0	109.0	109.0	105.0	105.0	109.0
Indicator value	**99.0%**	**99.1%**	**99.1%**	**99.1%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Licensee Comments: none



Thresholds: White < 94.0% Yellow < 90.0%

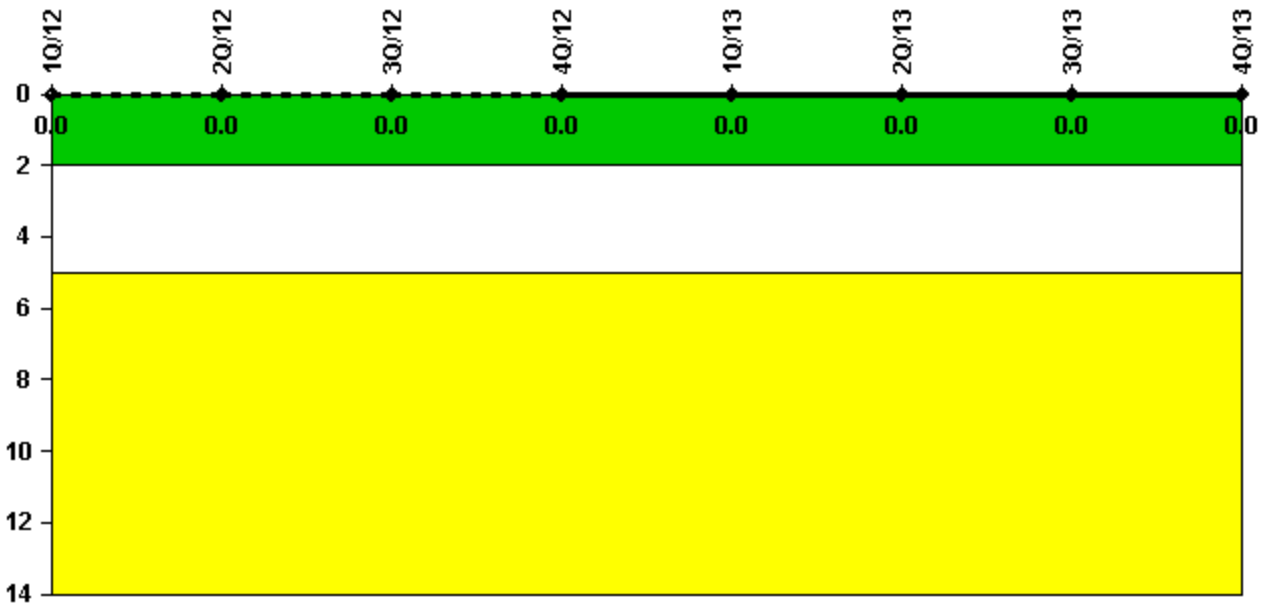
Notes

Alert & Notification System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Successful siren-tests	706	806	808	803	704	807	908	706
Total sirens-tests	707	808	808	808	707	808	909	707
Indicator value	**99.9%**	**99.8%**	**99.8%**	**99.7%**	**99.7%**	**99.7%**	**99.7%**	**99.8%**

Licensee Comments:

1Q/12: This corrects a small math error.

Occupational Exposure Control Effectiveness

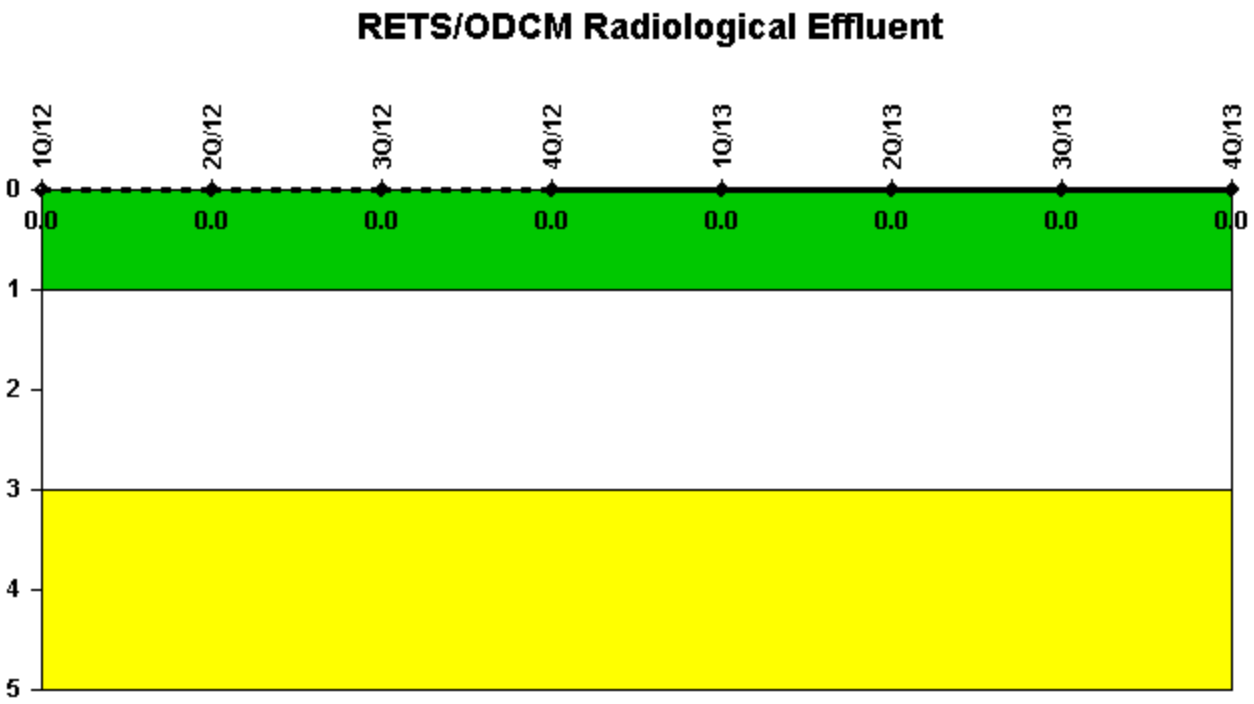


Thresholds: White > 2.0 Yellow > 5.0

Notes

Occupational Exposure Control Effectiveness	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/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

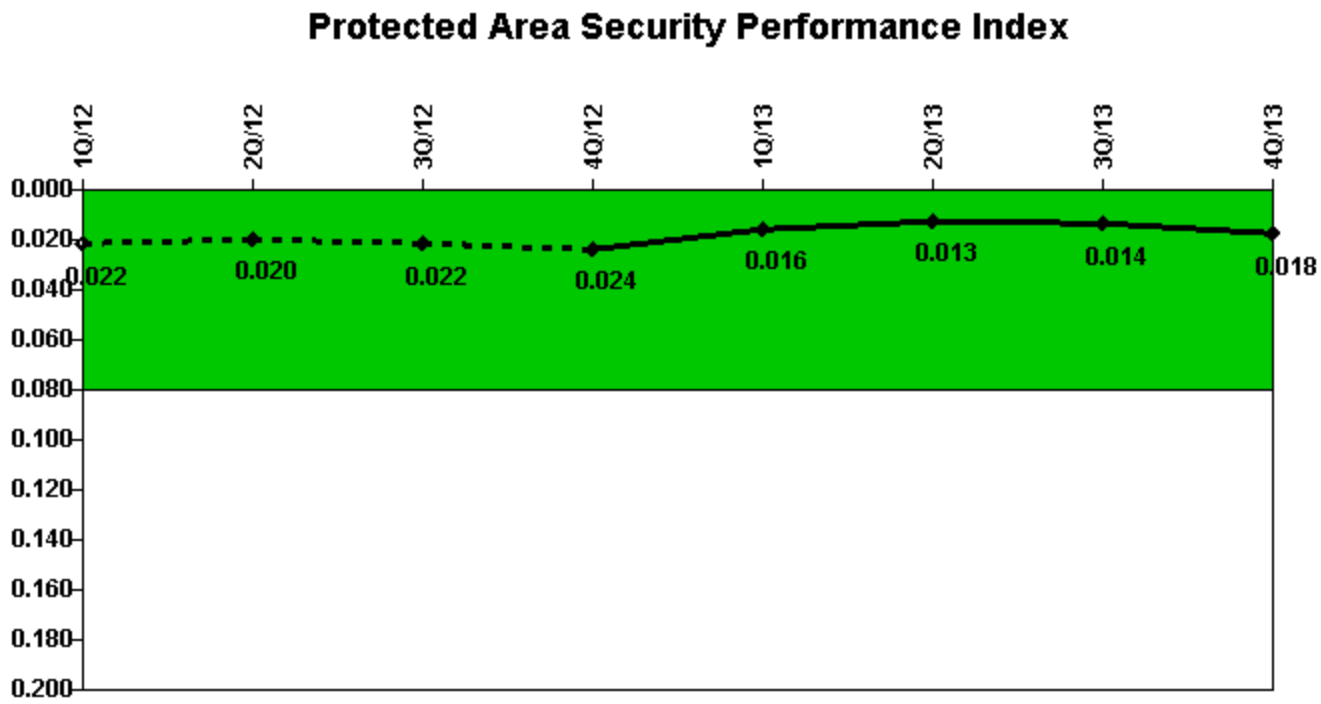


Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/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



Thresholds: White > 0.080

Notes

Protected Area Security Performance Index	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
IDS compensatory hours	407.60	83.00	45.10	192.20	146.90	14.30	65.50	312.70
CCTV compensatory hours	0	0	0	0	0	0.3	0	0
IDS normalization factor	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
CCTV normalization factor	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Index Value	**0.022**	**0.020**	**0.022**	**0.024**	**0.016**	**0.013**	**0.014**	**0.018**

Licensee Comments: none

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

Last Modified: January 22, 2014