

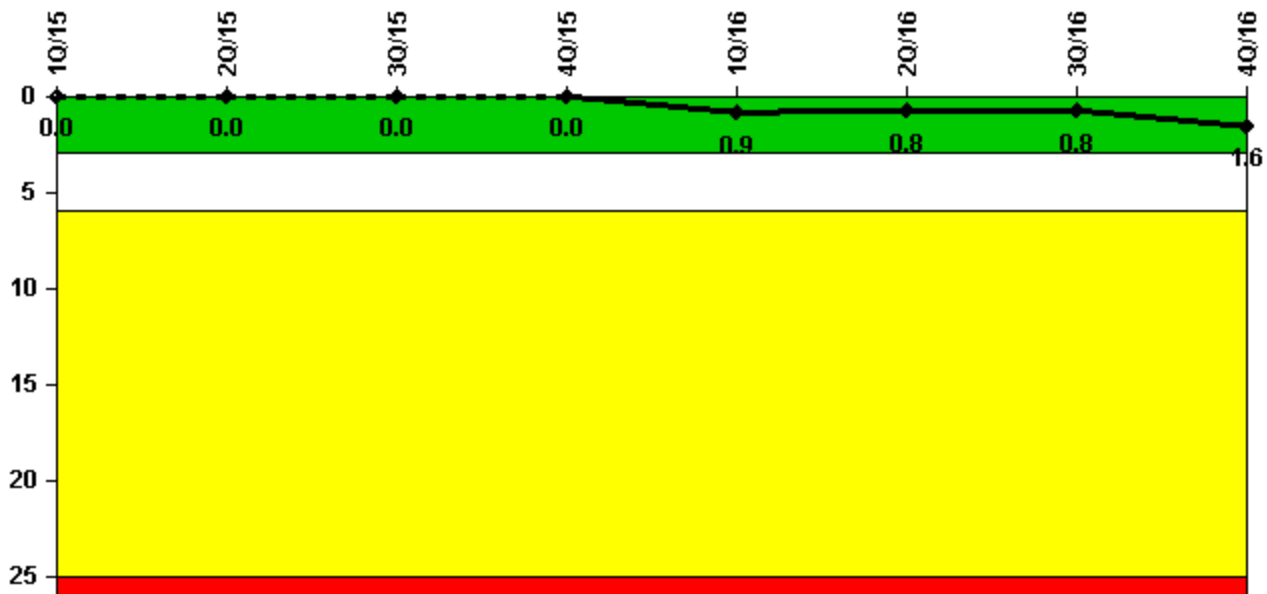
Columbia Generating Station

4Q/2016 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: none

Unplanned Scrams per 7000 Critical Hrs



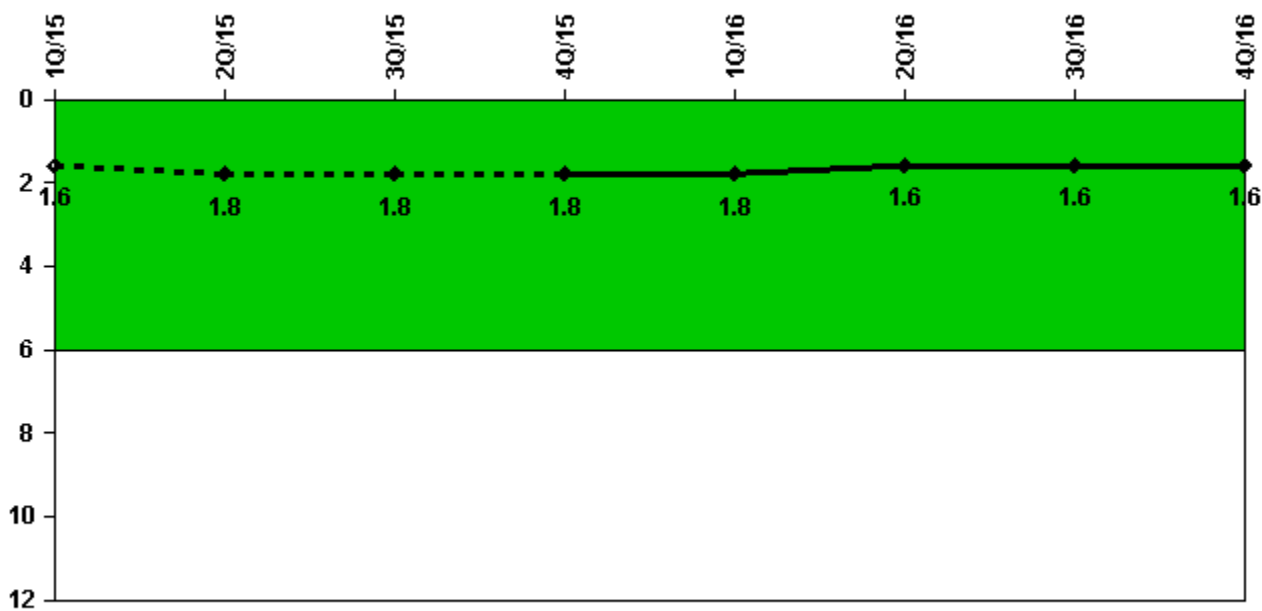
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

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	1.0	0	0	1.0
Critical hours	2159.0	1046.6	2208.0	2209.0	2135.8	2184.0	2208.0	2067.2
Indicator value	0	0	0	0	0.9	0.8	0.8	1.6

Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs



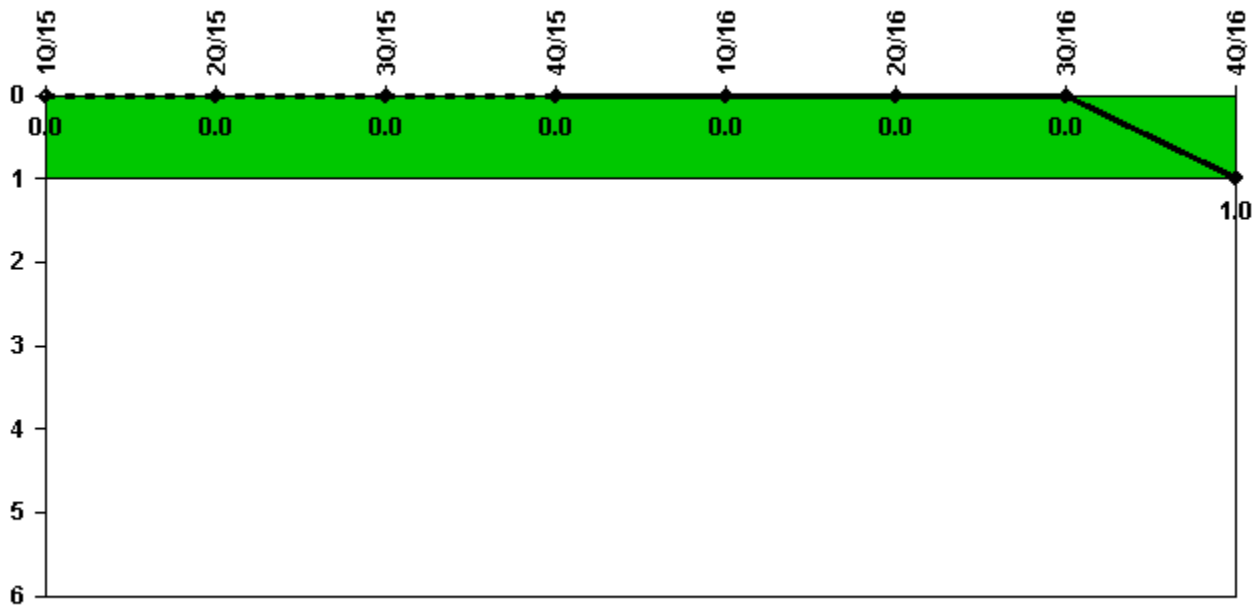
Thresholds: White > 6.0

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	2.0	0	0	0	2.0	0
Critical hours	2159.0	1046.6	2208.0	2209.0	2135.8	2184.0	2208.0	2067.2
Indicator value	1.6	1.8	1.8	1.8	1.8	1.6	1.6	1.6

Licensee Comments: none

Unplanned Scrams with Complications



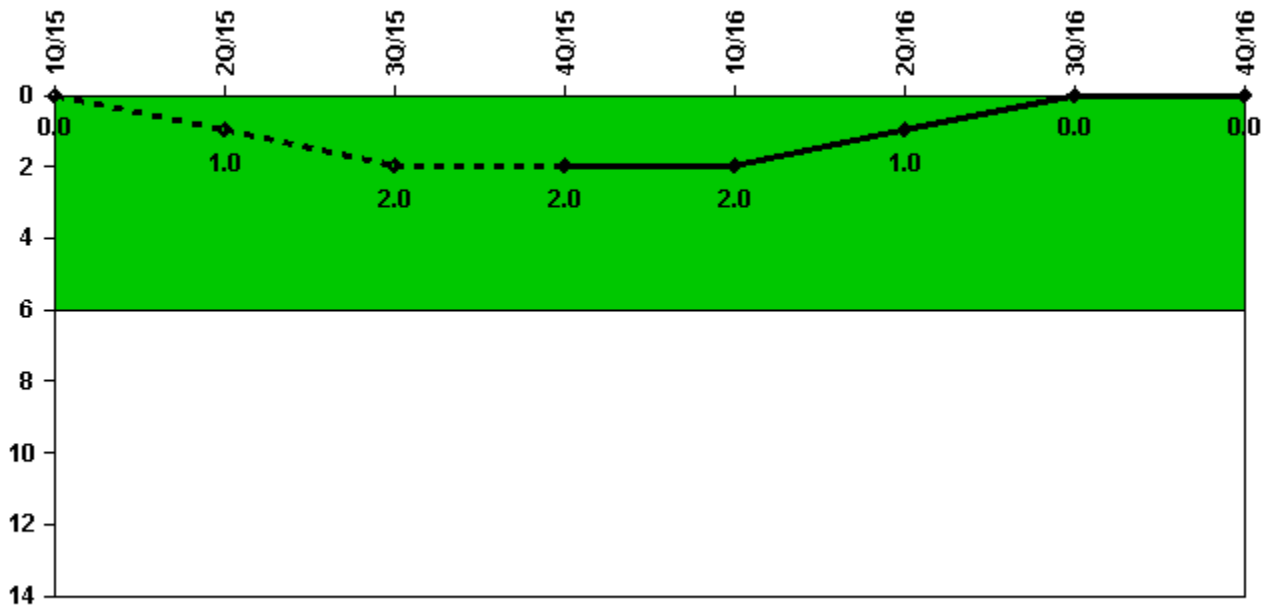
Thresholds: White > 1.0

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	1.0
Indicator value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0

Licensee Comments: none

Safety System Functional Failures (BWR)



Thresholds: White > 6.0

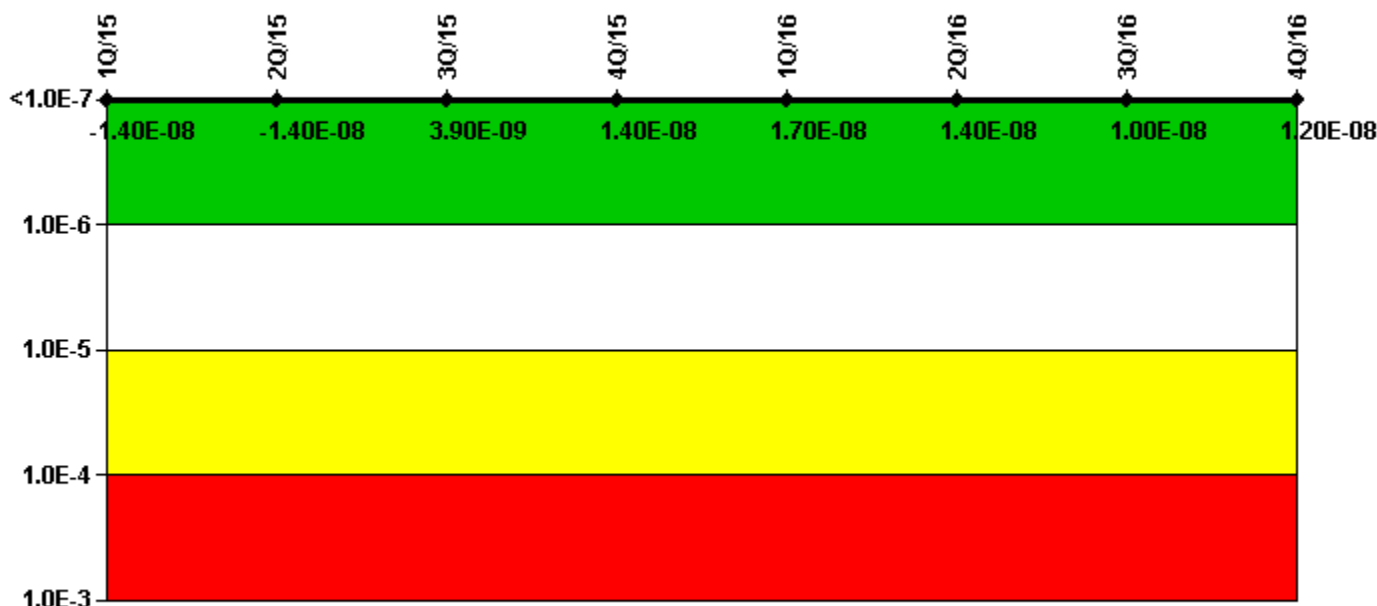
Notes

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	0	0	0
Indicator value	0	1	2	2	2	1	0	0

Licensee Comments:

3Q/15: LER 2015-005-00 Reactor Pressure Vessel Level Indication Switch Failures

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)	5.74E-09	6.20E-09	7.10E-09	1.75E-08	1.98E-08	1.69E-08	1.33E-08	1.56E-08
URI (ΔCDF)	-2.02E-08	-2.02E-08	-3.22E-09	-3.22E-09	-3.22E-09	-2.87E-09	-2.87E-09	-3.23E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.40E-08	-1.40E-08	3.90E-09	1.40E-08	1.70E-08	1.40E-08	1.00E-08	1.20E-08

Licensee Comments:

4Q/15: Additional the CDE is being revised to remove the MSPI failure for the DG-1 event date 12/10/15) and Unplanned unavailability (Dec) was adjusted (MSPI) associated with the event. Engineering completed evaluation under EC 15426 and determined that even with the observed load oscillations that DG1 was still available. Changed previously submitted data regarding Diesel generator fuel oil pump (DO-P-3A2) failure due to broken lug in fused disconnect, event date May 26, 2013 is also being revised to indicate that this was not an MSPI failure. Engineer evaluation (EC 13256) determined that engine driven fuel pump was adequate to run the diesel generator.

3Q/15: Changed previously submitted data regarding Diesel generator fuel oil pump (DO-P-3A2) failure due to broken lug in fused disconnect, event date May 26, 2013 is also being revised to indicate that this was not an MSPI failure. Engineer evaluation (EC 13256) determined that engine driven fuel pump was adequate to run the diesel generator.

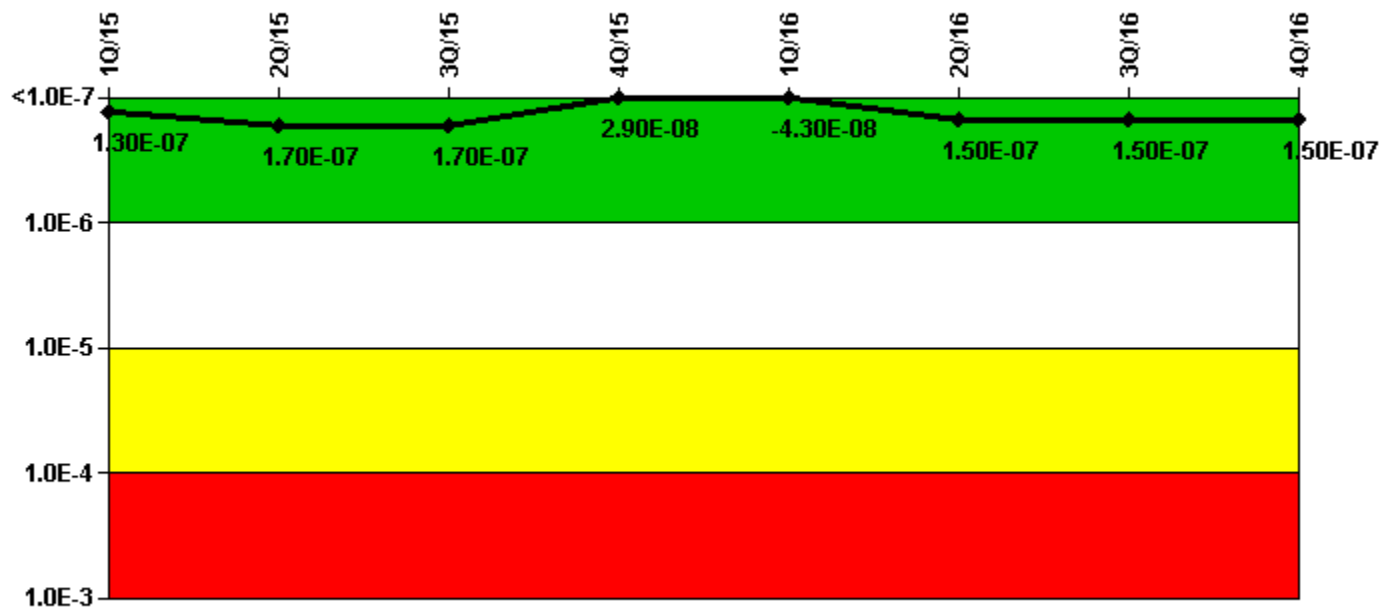
2Q/15: Changed previously submitted data regarding Diesel generator fuel oil pump (DO-P-3A2) failure due to broken lug in fused disconnect, event date May 26, 2013 is also being revised to indicate that this was not an

MSPI failure. Engineer evaluation (EC 13256) determined that engine driven fuel pump was adequate to run the diesel generator.

1Q/15: Changed previously submitted data regarding Diesel generator fuel oil pump (DO-P-3A2) failure due to broken lug in fused disconnect, event date May 26, 2013 is also being revised to indicate that this was not an MSPI failure. Engineer evaluation (EC 13256) determined that engine driven fuel pump was adequate to run the diesel generator. The MSPI coefficients were revised due to PRA updates. The MSPI Bases document was revised in December 2014 due to the PRA update. CDE was revised using the override function in January for the PRA updates that occurred in 4th quarter 2014.

1Q/15: Changed PRA Parameter(s). The MSPI coefficients were revised due to PRA updates. The MSPI Bases document was revised in December 2014 due to the PRA update. CDE was revised using the override function in January for the PRA updates that occurred in 4th quarter 2014.

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 (ΔCDF)	4.09E-07	4.51E-07	4.48E-07	3.02E-07	2.32E-07	4.29E-07	4.32E-07	4.34E-07
URI (ΔCDF)	-2.78E-07	-2.76E-07	-2.74E-07	-2.73E-07	-2.75E-07	-2.77E-07	-2.79E-07	-2.84E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO

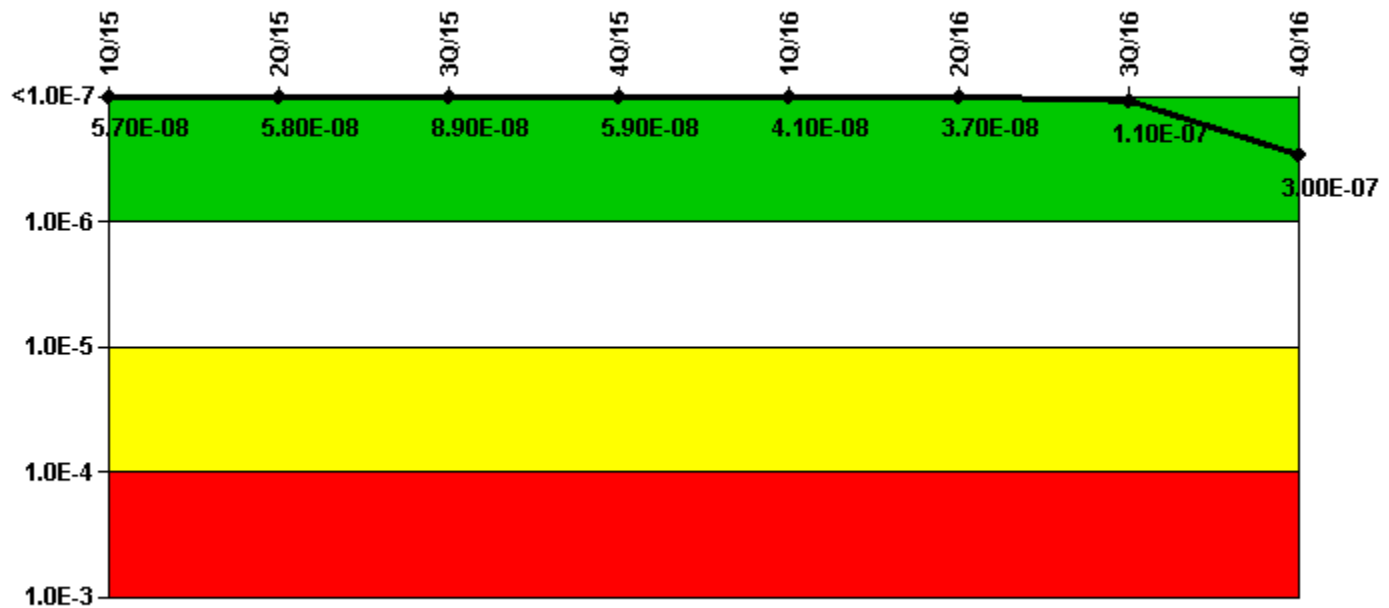
Indicator value	1.30E-07	1.70E-07	1.70E-07	2.90E-08	-4.30E-08	1.50E-07	1.50E-07	1.50E-07
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Licensee Comments:

4Q/15: MSPI basis document revised HPCS runtimes and demands to reflect changes greater than 25% per NEI 99-02 Rev 7, Section F 2.2.1.

1Q/15: Changed PRA Parameter(s). The MSPI coefficients where revised due to PRA updates. The MSPI Bases document was revised in December 2014 due to the PRA update. CDE PRA parameters were changed in January to support the Basis update for the 4th quarter.

Mitigating Systems Performance Index, Heat Removal System



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

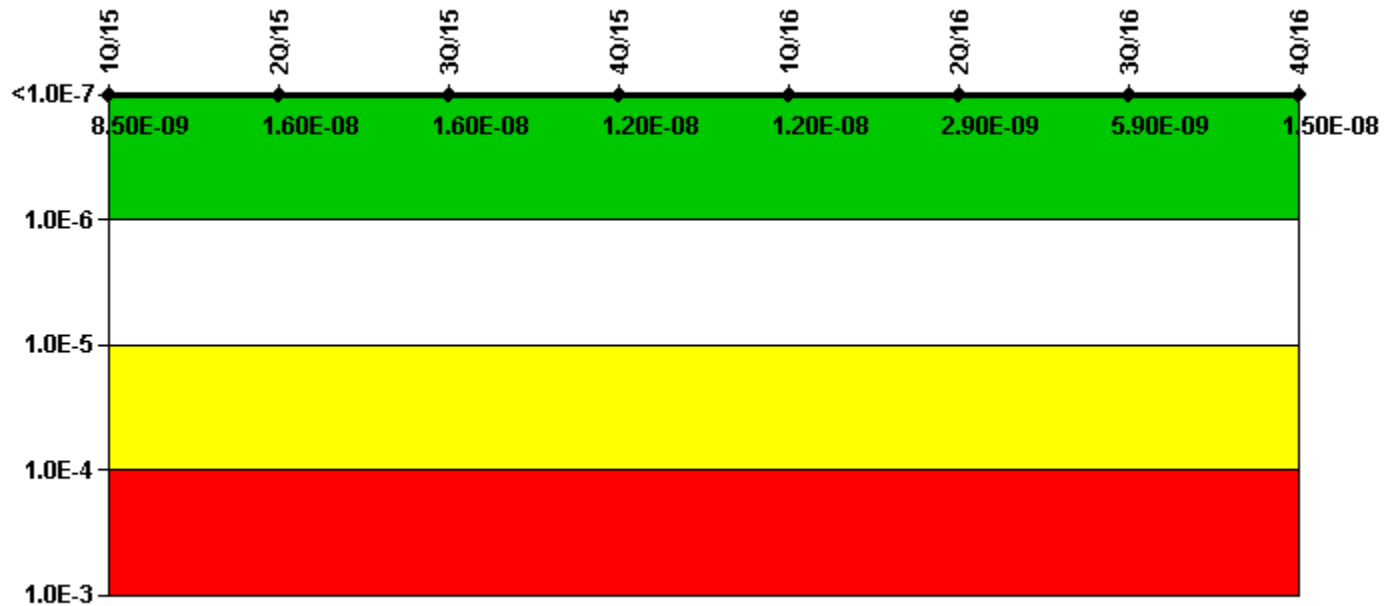
Notes

Mitigating Systems Performance Index, Heat Removal System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (ΔCDF)	2.43E-08	2.33E-08	5.34E-08	2.08E-08	3.53E-09	-1.40E-09	6.74E-08	6.61E-08
URI (ΔCDF)	3.25E-08	3.43E-08	3.61E-08	3.80E-08	3.80E-08	3.80E-08	3.80E-08	2.34E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	5.70E-08	5.80E-08	8.90E-08	5.90E-08	4.10E-08	3.70E-08	1.10E-07	3.00E-07

Licensee Comments:

1Q/15: Changed PRA Parameter(s). The MSPI coefficients were revised due to PRA updates. The MSPI Bases document was revised in December 2014 due to the PRA update. CDE PRA parameters were changed in January to support the Basis update for the 4th quarter.

Mitigating Systems Performance Index, Residual Heat Removal System



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

Notes

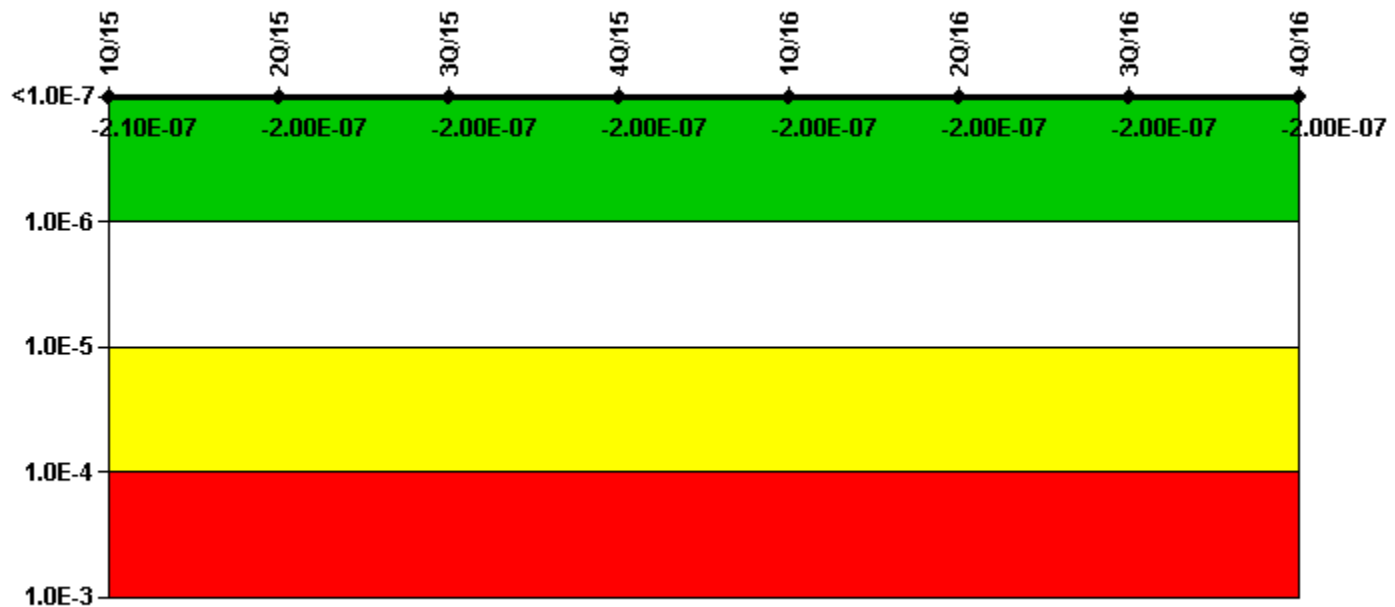
Mitigating Systems Performance Index, Residual Heat Removal System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (ΔCDF)	3.30E-08	3.93E-08	3.78E-08	3.21E-08	3.22E-08	2.32E-08	2.61E-08	3.60E-08
URI (ΔCDF)	-2.46E-08	-2.34E-08	-2.20E-08	-2.03E-08	-2.03E-08	-2.03E-08	-2.03E-08	-2.05E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	8.50E-09	1.60E-08	1.60E-08	1.20E-08	1.20E-08	2.90E-09	5.90E-09	1.50E-08

Licensee Comments:

1Q/16: The MSPI Bases Document was revised to remove the remove 130 Planned UA hours from RHR-SYS-B as these hour will no longer be applicable. These hours were added when planned maintenance was performed to replace the pump in May 2013. The CDE was updated to reflected the original UABLP value.

1Q/15: Changed PRA Parameter(s). The MSPI coefficients were revised due to PRA updates. The MSPI Bases document was revised in December 2014 due to the PRA update. CDE PRA parameters were changed in January to support the Basis update for the 4th quarter.

Mitigating Systems Performance Index, Cooling Water Systems



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

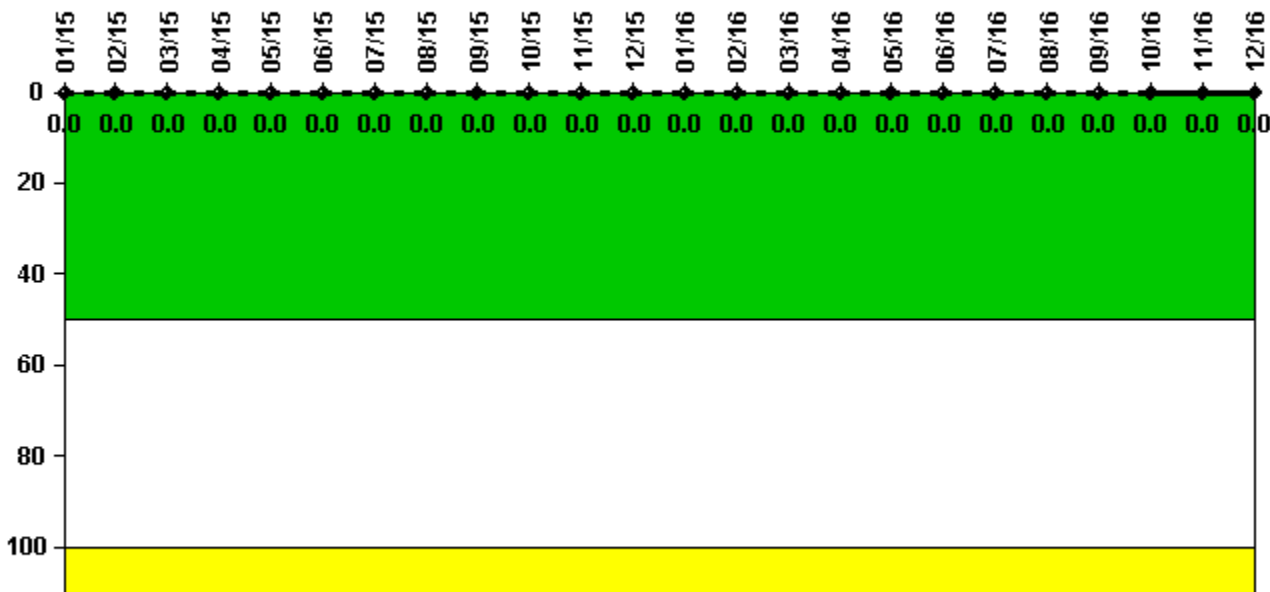
Notes

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)	-3.88E-08	-3.88E-08	-3.88E-08	-3.88E-08	-3.88E-08	-3.88E-08	-3.88E-08	-3.88E-08
URI (ΔCDF)	-1.66E-07	-1.66E-07	-1.65E-07	-1.64E-07	-1.64E-07	-1.64E-07	-1.64E-07	-1.64E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-2.10E-07	-2.00E-07	-2.00E-07	-2.00E-07	-2.00E-07	-2.00E-07	-2.00E-07	-2.00E-07

Licensee Comments:

1Q/15: Changed PRA Parameter(s). The MSPI coefficients were revised due to PRA updates. The MSPI Bases document was revised in December 2014 due to the PRA update. CDE PRA parameters were changed in January to support the Basis update for the 4th quarter.

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

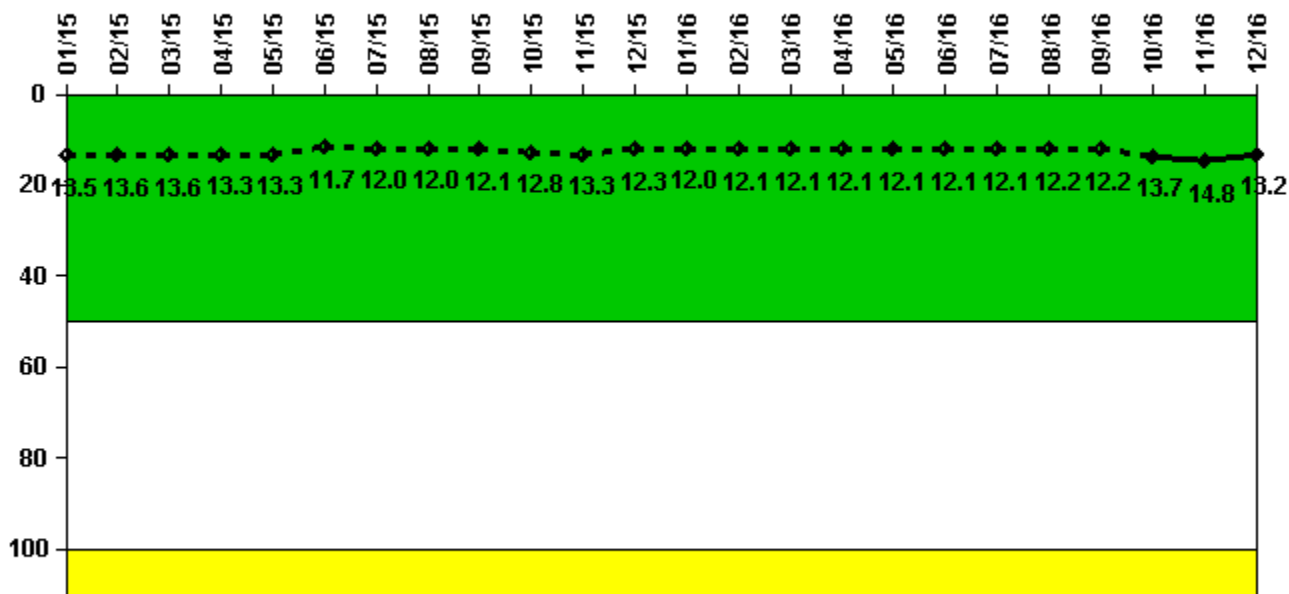
Notes

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	0.000002	0.000001	0.000001	0	0	0.000003	0.000003	0.000001	0.000001	0.000001	0.000002	0.000001
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	0	0	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	0.000003	0.000002	0.000002	0.000048	0.000011	0.000009	0.000030	0.000019	0.000015	0.000009	0.000009	0.000008
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	0	0	0	0	0	0	0	0	0	0	0

Licensee Comments: none

Reactor Coolant System Leakage



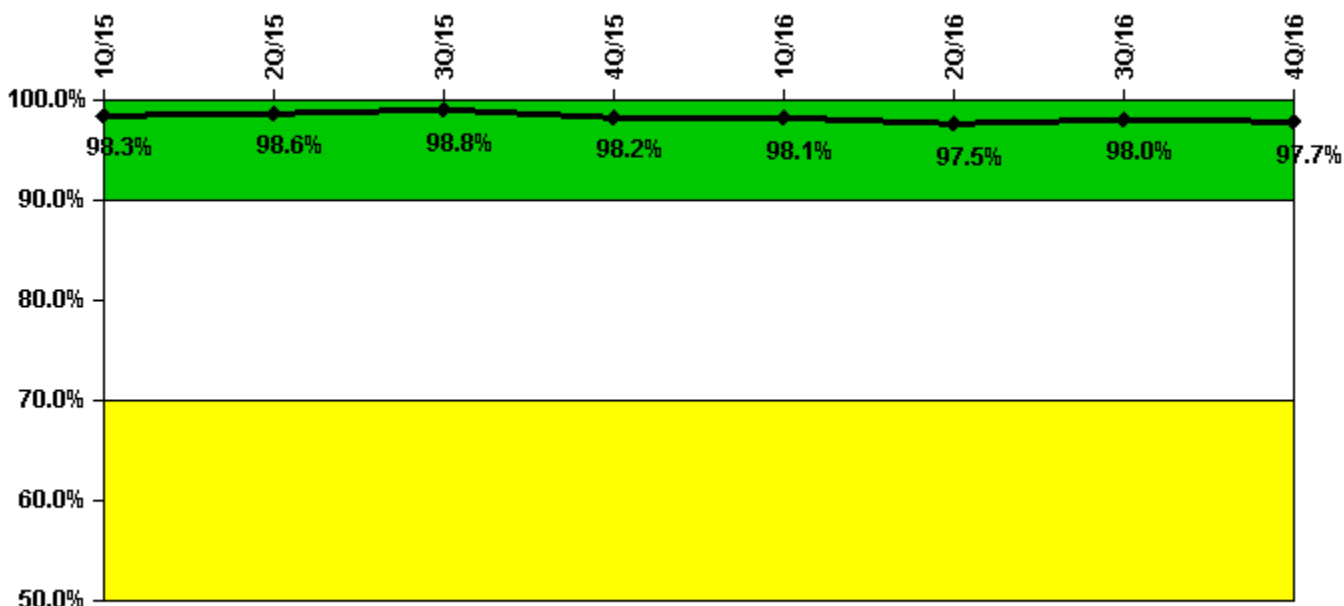
Thresholds: White > 50.0 Yellow > 100.0

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	3.370	3.390	3.400	3.330	3.320	2.930	2.990	3.010	3.020	3.210	3.320	3.070
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	13.5	13.6	13.6	13.3	13.3	11.7	12.0	12.0	12.1	12.8	13.3	12.3
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	3.010	3.020	3.030	3.030	3.030	3.030	3.030	3.040	3.040	3.430	3.710	3.310
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	12.0	12.1	12.1	12.1	12.1	12.1	12.1	12.2	12.2	13.7	14.8	13.2

Licensee Comments: none

Drill/Exercise Performance



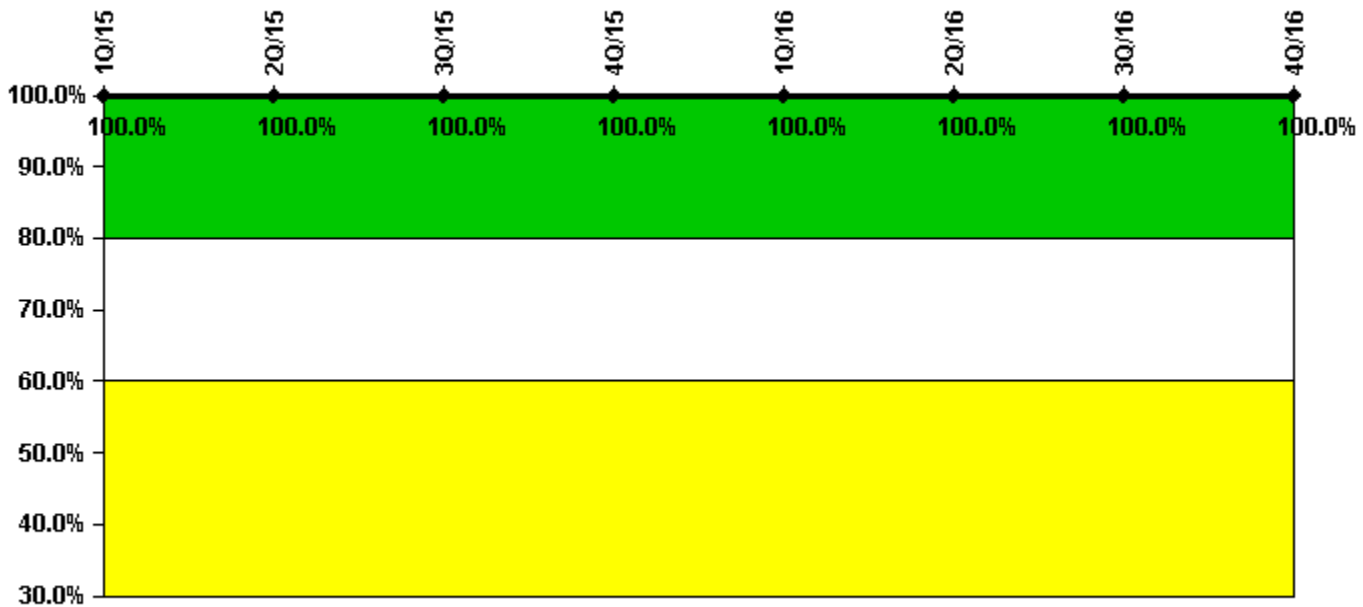
Thresholds: White < 90.0% Yellow < 70.0%

Notes

Drill/Exercise Performance	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Successful opportunities	33.0	4.0	68.0	30.0	44.0	39.0	24.0	54.0
Total opportunities	34.0	4.0	68.0	33.0	44.0	41.0	24.0	55.0
Indicator value	98.3%	98.6%	98.8%	98.2%	98.1%	97.5%	98.0%	97.7%

Licensee Comments: none

ERO Drill Participation



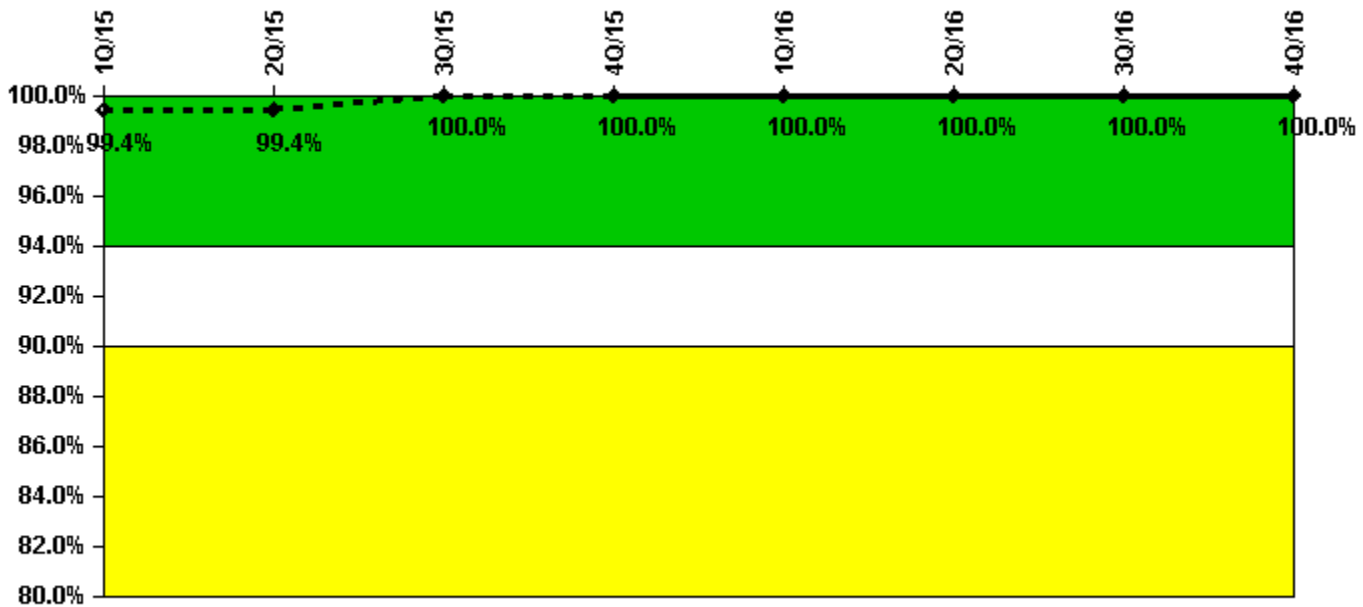
Thresholds: White < 80.0% Yellow < 60.0%

Notes

ERO Drill Participation	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Participating Key personnel	45.0	46.0	46.0	42.0	39.0	43.0	44.0	42.0
Total Key personnel	45.0	46.0	46.0	42.0	39.0	43.0	44.0	42.0
Indicator value	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Licensee Comments: none

Alert & Notification System



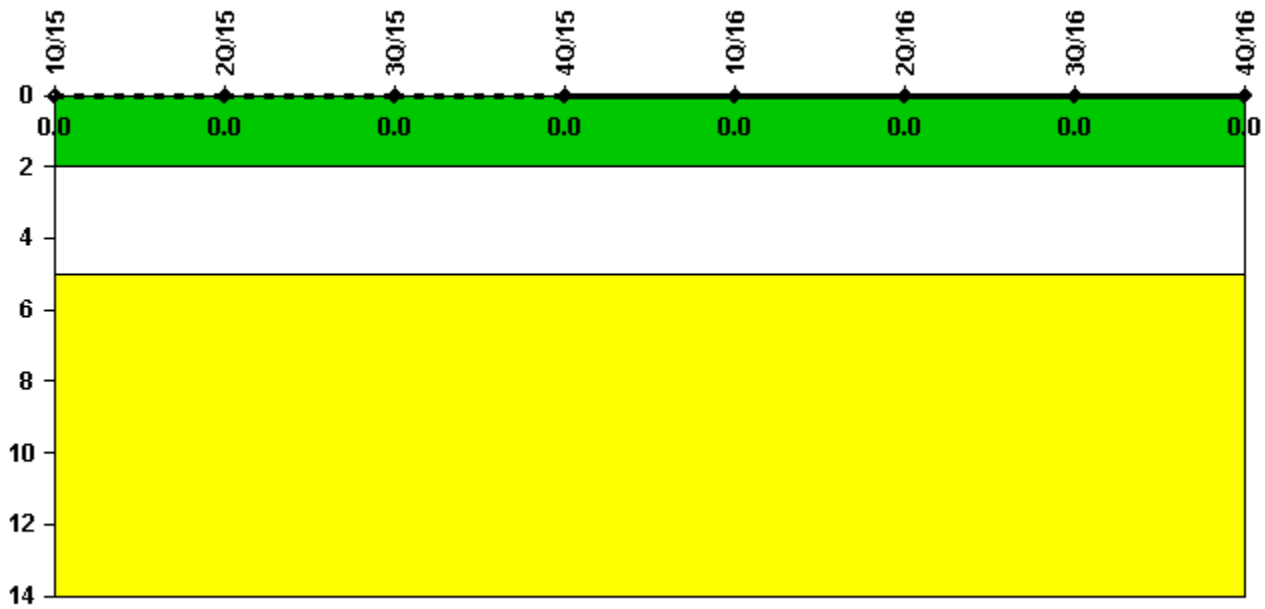
Thresholds: White < 94.0% Yellow < 90.0%

Notes

Alert & Notification System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Successful siren-tests	156	182	182	182	182	169	169	182
Total sirens-tests	156	182	182	182	182	169	169	182
Indicator value	99.4%	99.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Licensee Comments: none

Occupational Exposure Control Effectiveness



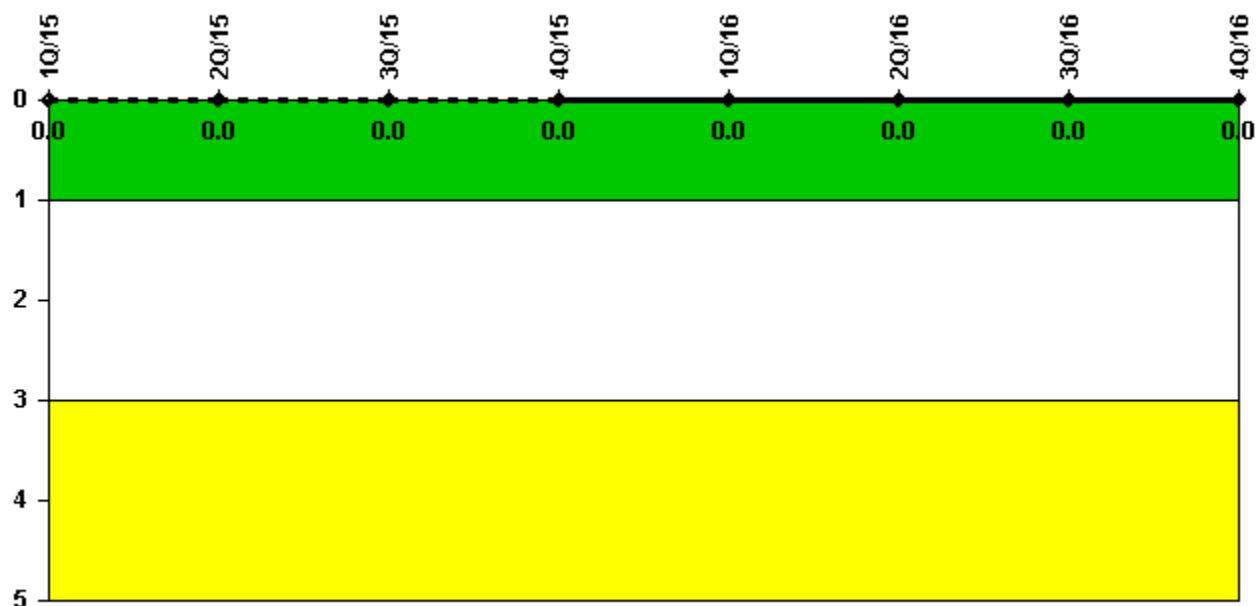
Thresholds: White > 2.0 Yellow > 5.0

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