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Calvert Cliffs 1 – Quarterly Performance Indicators

3Q/2017 Performance Indicators

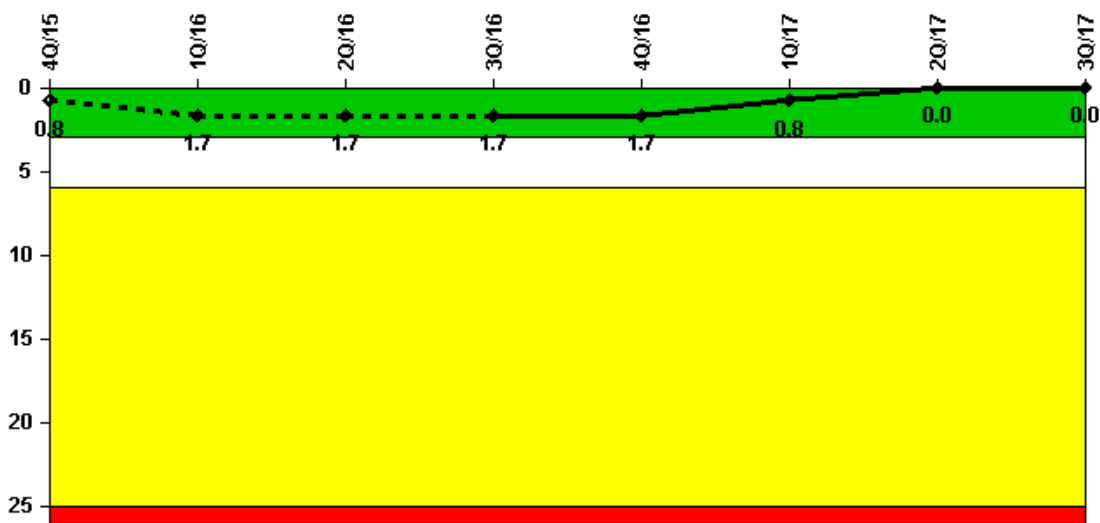
The solid trend line represents the current reporting period.

Licensee's General Comments: The Calvert Cliffs PRA model of record was updated in Dec 2015 as model revision CA015A. The MSPI Bases document was also revised in December 2015 (CA-MSPI-001 Rev 5). Revised PRA coefficients resulting from this update became effective in the 1st quarter of 2016.

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- Unplanned Scrams (IE01)
- Unplanned Power Changes per 7000 Critical Hours (IE03)
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- Emergency AC Power Systems (MS06)
- High Pressure Injection Systems (MS07)
- Heat Removal Systems (MS08)
- Residual Heat Removal Systems (MS09)
- Cooling Water Systems (MS10)
- Reactor Coolant System Activity (BI01)
- Reactor Coolant System Leakage (BI02)
- Drill/Exercise Performance (EP01)
- Emergency Response Organization Drill Participation (EP02)
- Alert and Notification System Reliability (EP03)
- Occupational Exposure Control Effectiveness (OR01)
- RETS/OCDM Radiological Effluent Occurrence (PR01)
- Protected Area Equipment (PP01)

Unplanned Scrams per 7000 Critical Hrs



Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

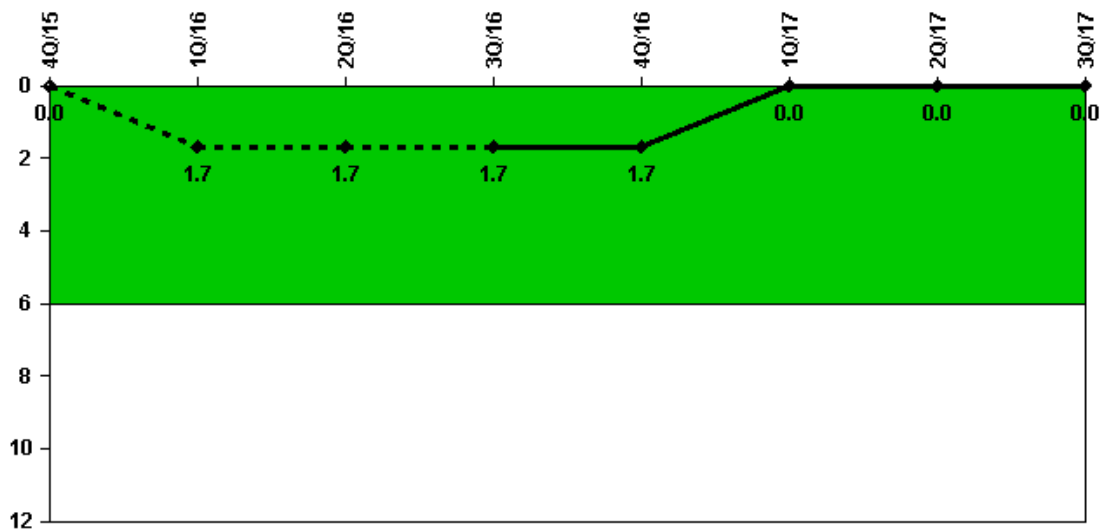
Unplanned Scrams per 7000 Critical Hrs	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Unplanned scrams	0	1.0	1.0	0	0	0	0	0
Critical hours	2209.0	1592.5	2157.6	2208.0	2209.0	2159.0	2184.0	2208.0

Indicator value	0.8	1.7	1.7	1.7	1.7	0.8	0	0
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Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

Notes

Unplanned Power Changes per 7000 Critical Hrs	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Unplanned power changes	0	2.0	0	0	0	0	0	0
Critical hours	2209.0	1592.5	2157.6	2208.0	2209.0	2159.0	2184.0	2208.0

Indicator value	0	1.7	1.7	1.7	1.7	0	0	0
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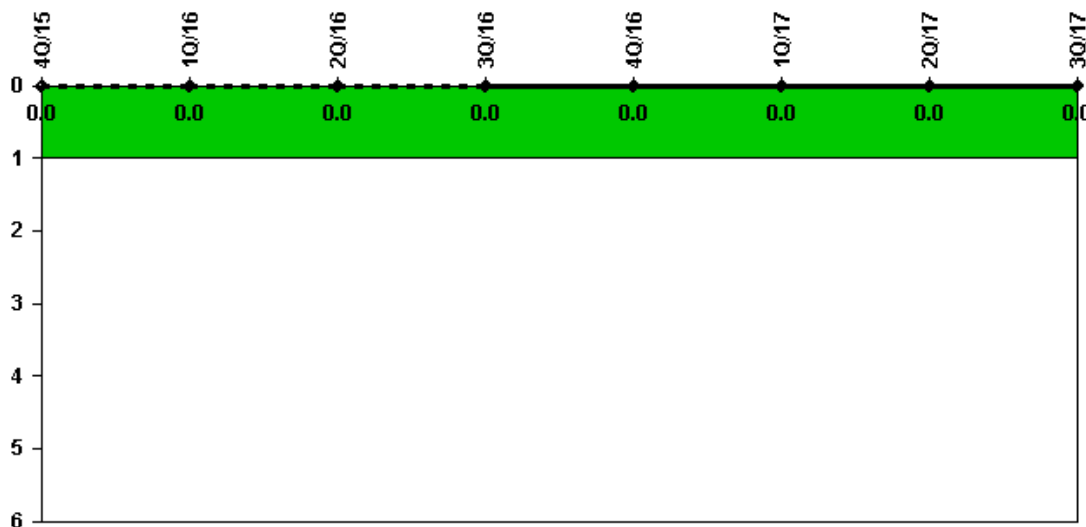
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Licensee Comments:

1Q/16: 1/10/17: This is a correction: This should have been counted in March as an unplanned power change per NEI 99-02 but was not counted in error. IR 3953568 documents this issue.

1Q/16: 3/12/2016 MSIV hydraulic leak downpower initially recorded as Unplanned Power Change. Corrected record in June for March, Unit SDs impacting this time period 16-003. IR 2671497/2639325

Unplanned Scrams with Complications



Thresholds: White > 1.0

Notes

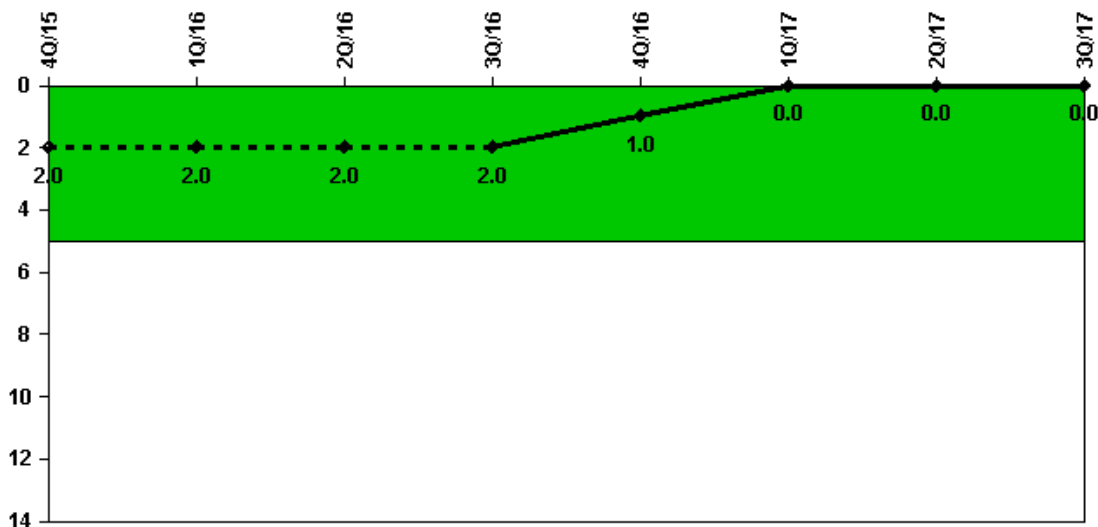
Unplanned Scrams with Complications	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Scrams with complications	0	0	0	0	0	0	0	0

Indicator value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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Licensee Comments: none

Safety System Functional Failures (PWR)



Thresholds: White > 5.0

Notes

Safety System Functional Failures (PWR) 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17

Safety System Functional Failures	1	1	0	0	0	0	0
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Indicator value	2	2	2	2	1	0	0
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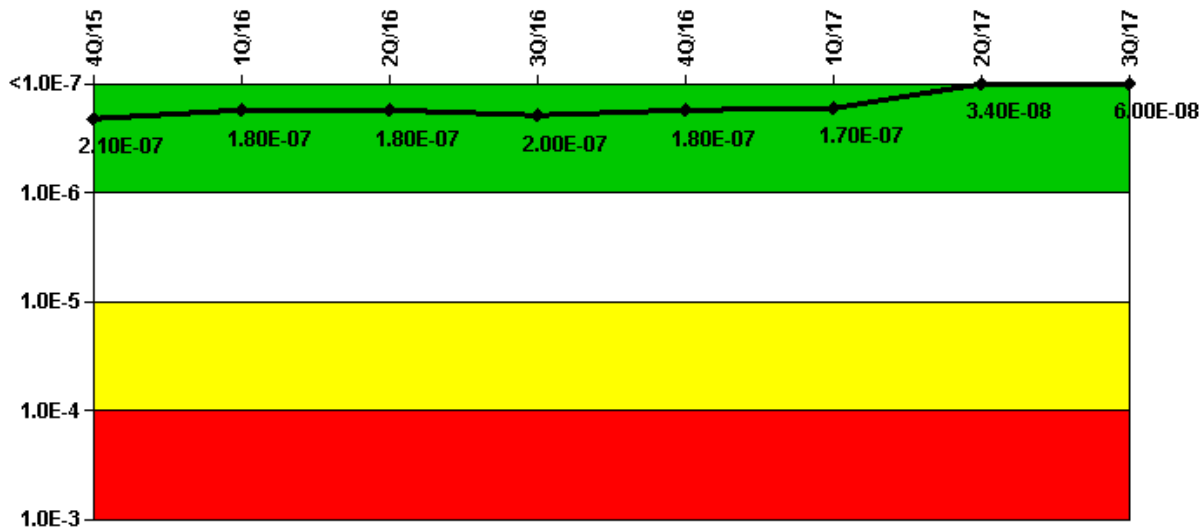
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Licensee Comments:

2Q/16: 8/2016: Changed CDE June 2016 value 1 to 0 for LER-2016-004. LER was submitted in June 2016 after the 60 report requirement (March) and counted in CDE in June. In August it was determined the SSFF should have been counted in March as that is the original 60 day LER report date.

1Q/16: 8/2016: Changed CDE March 2016 value 0 to 1 for LER-2016-004. LER was submitted in June 2016 after the 60 report requirement (March) and counted in CDE in June. In August it was determined the SSFF should have been counted in March as that is the original 60 day LER report date.

Mitigating Systems Performance Index, Emergency AC Power System



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

Notes

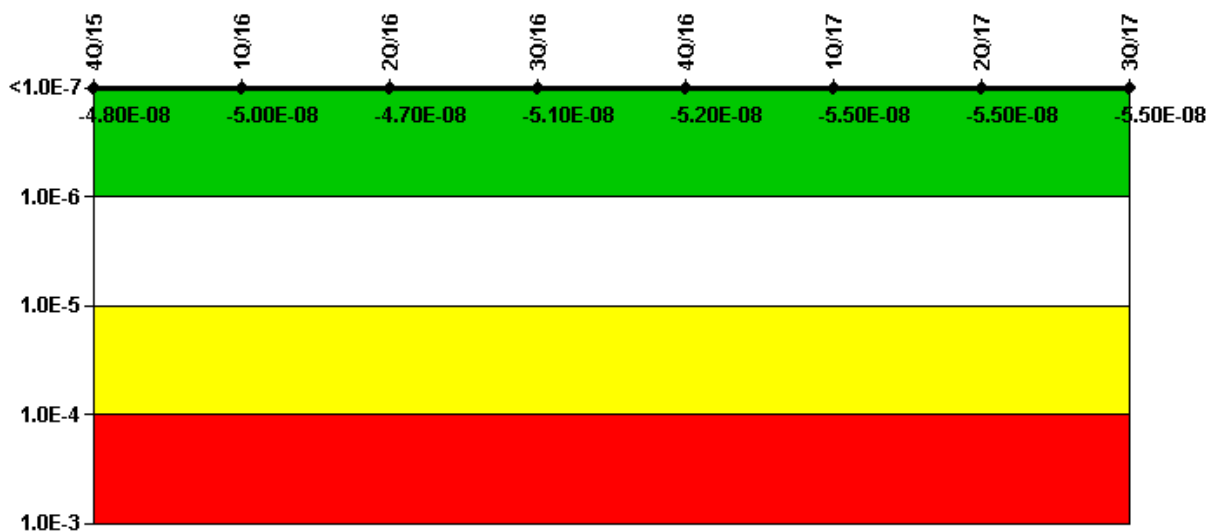
Mitigating Systems Performance Index, Emergency AC Power System

	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	-1.88E-09	1.55E-08	1.56E-08	3.93E-08	2.27E-08	1.66E-08	4.41E-08	6.93E-08
URI (ΔCDF)	2.10E-07	1.68E-07	1.60E-07	1.58E-07	1.56E-07	1.52E-07	-9.61E-09	-9.38E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	2.10E-07	1.80E-07	1.80E-07	2.00E-07	1.80E-07	1.70E-07	3.40E-08	6.00E-08

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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

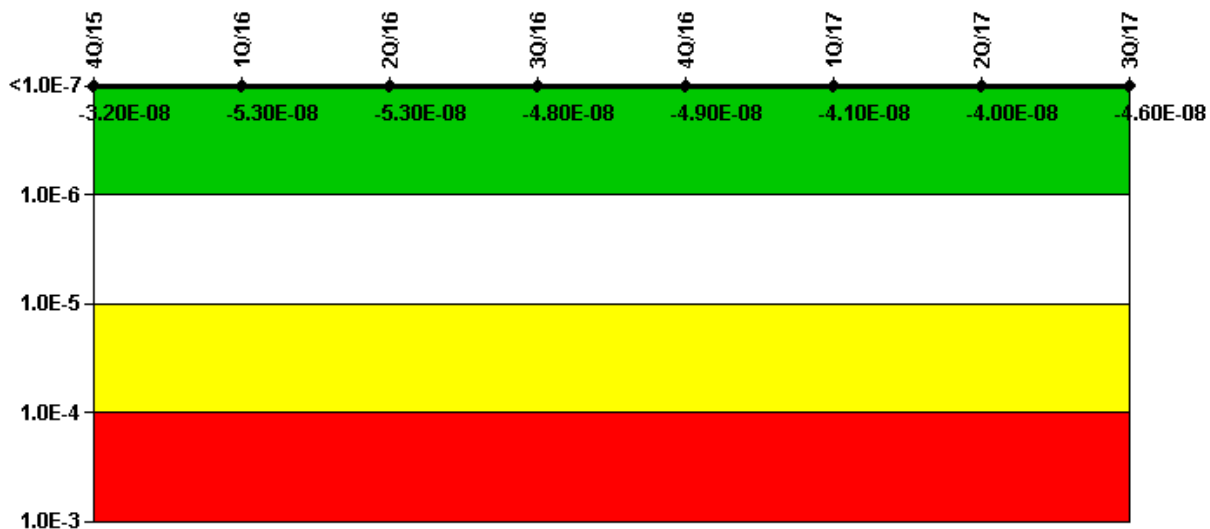
Mitigating Systems Performance Index, High Pressure Injection System

	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	-2.27E-08	-2.52E-08	-2.01E-08	-2.03E-08	-2.03E-08	-2.52E-08	-2.52E-08	-2.52E-08
URI (ΔCDF)	-2.54E-08	-2.46E-08	-2.65E-08	-3.03E-08	-3.17E-08	-3.00E-08	-3.00E-08	-2.99E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-4.80E-08	-5.00E-08	-4.70E-08	-5.10E-08	-5.20E-08	-5.50E-08	-5.50E-08	-5.50E-08

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Licensee Comments: none

Mitigating Systems Performance Index, Heat Removal System



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

Notes

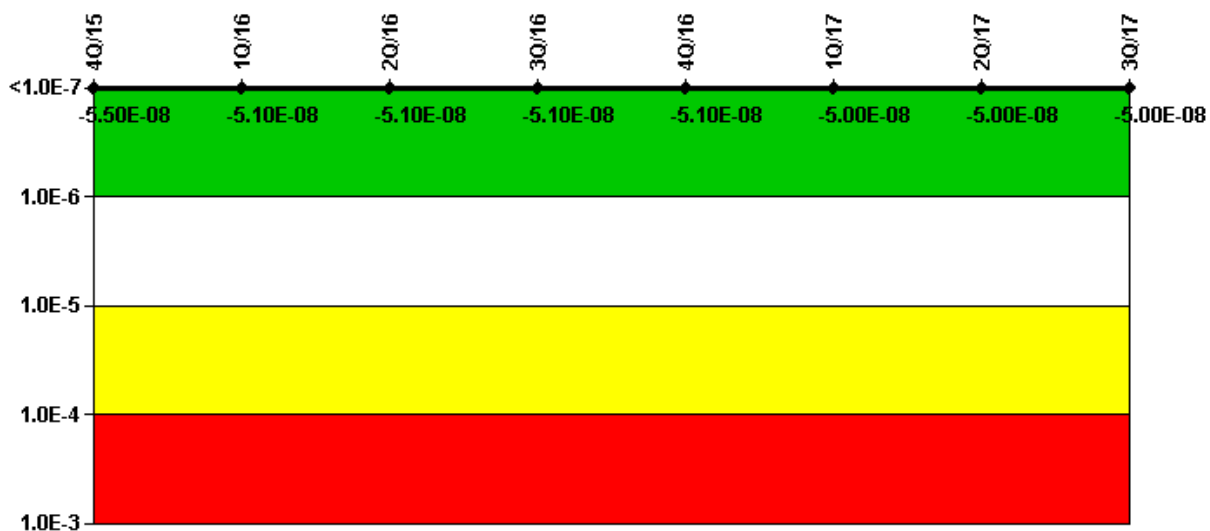
Mitigating Systems Performance Index, Heat Removal System

	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	2.10E-10	-1.06E-08	-1.01E-08	-4.17E-09	-6.06E-09	-1.67E-09	-2.87E-09	-9.28E-09
URI (ΔCDF)	-3.23E-08	-4.27E-08	-4.34E-08	-4.39E-08	-4.31E-08	-3.93E-08	-3.70E-08	-3.72E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.20E-08	-5.30E-08	-5.30E-08	-4.80E-08	-4.90E-08	-4.10E-08	-4.00E-08	-4.60E-08

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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

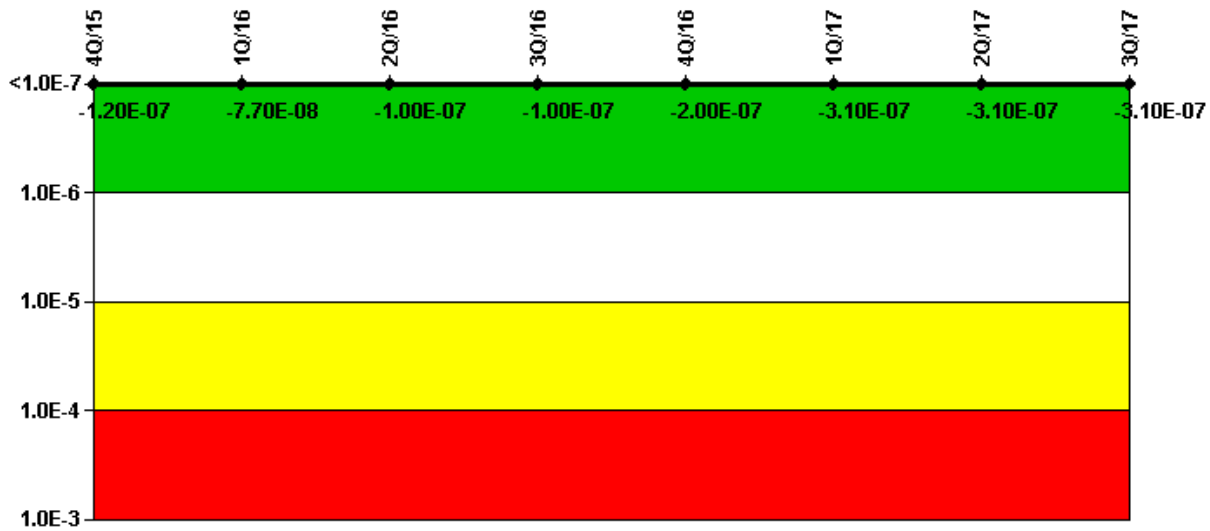
Mitigating Systems Performance Index, Residual Heat Removal System

	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	-5.09E-08	-4.54E-08	-4.54E-08	-4.54E-08	-4.54E-08	-4.54E-08	-4.54E-08	-4.54E-08
URI (ΔCDF)	-4.15E-09	-5.76E-09	-5.84E-09	-5.82E-09	-5.79E-09	-4.99E-09	-4.99E-09	-5.04E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-5.50E-08	-5.10E-08	-5.10E-08	-5.10E-08	-5.10E-08	-5.00E-08	-5.00E-08	-5.00E-08

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Licensee Comments: none

Mitigating Systems Performance Index, Cooling Water Systems



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

Notes

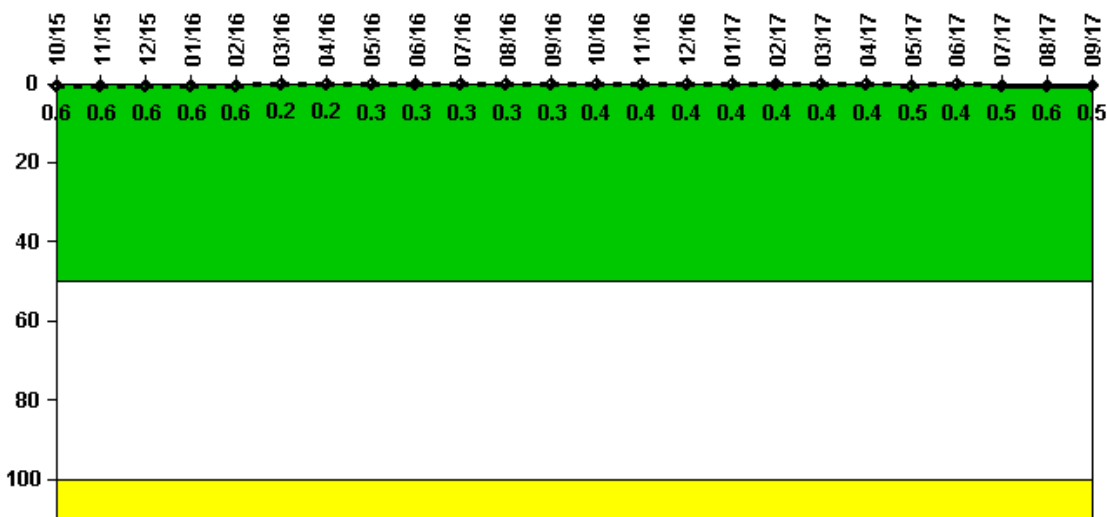
Mitigating Systems Performance Index, Cooling Water Systems

	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	8.12E-08	1.36E-07	1.11E-07	1.11E-07	1.24E-08	-1.01E-07	-1.01E-07	-1.01E-07
URI (ΔCDF)	-2.06E-07	-2.13E-07	-2.13E-07	-2.12E-07	-2.12E-07	-2.12E-07	-2.12E-07	-2.12E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.20E-07	-7.70E-08	-1.00E-07	-1.00E-07	-2.00E-07	-3.10E-07	-3.10E-07	-3.10E-07

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Licensee Comments: none

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

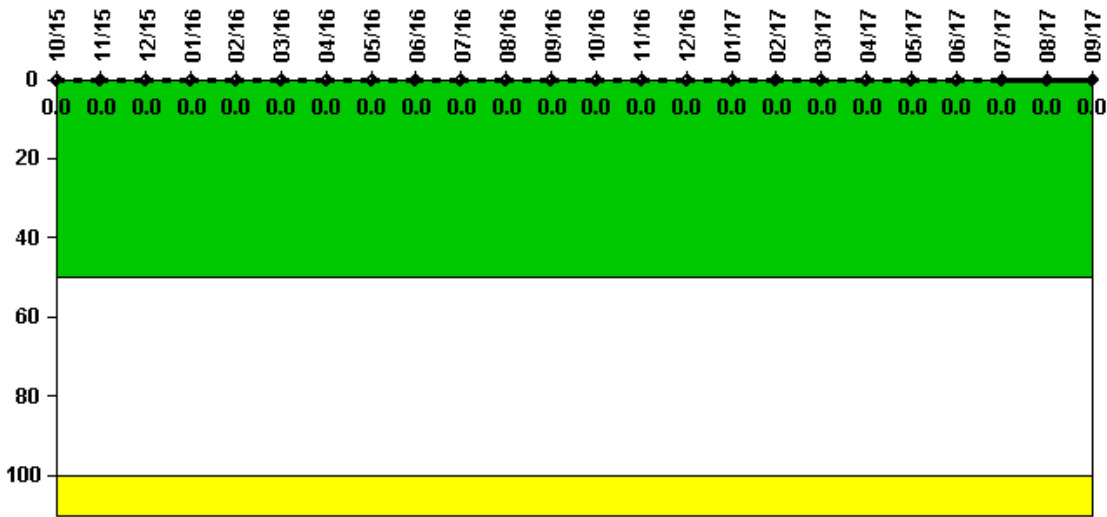
Notes

Reactor Coolant System Activity	10/15	11/15	12/15	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16
Maximum activity	0.003010	0.002870	0.003150	0.003050	0.002970	0.001070	0.000828	0.001430	0.001450	0.001530	0.001650	0.001700
Technical specification limit	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Indicator value	0.6	0.6	0.6	0.6	0.6	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Reactor Coolant System Activity	10/16	11/16	12/16	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17
Maximum activity	0.001820	0.001850	0.001920	0.001920	0.001960	0.001960	0.002080	0.002270	0.002220	0.002310	0.003000	0.002550
Technical specification limit	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Indicator value	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.6	0.5

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Licensee Comments: none

Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

Notes

Reactor Coolant System Leakage	10/15	11/15	12/15	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16
Maximum leakage	0	0	0	0	0	0	0	0	0	0	0	0
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 0 0 0 0 0 0 0 0 0 0 0 0

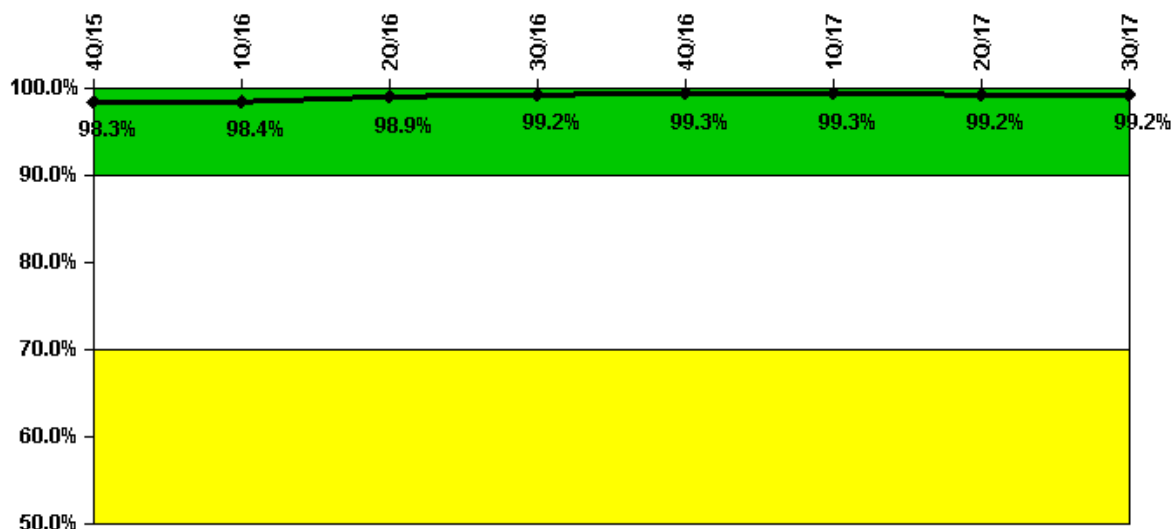
Reactor Coolant System Leakage	10/16	11/16	12/16	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17
Maximum leakage	0	0	0	0	0	0	0	0	0	0	0	0
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Indicator value 0 0 0 0 0 0 0 0 0 0 0 0 0

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Licensee Comments: none

Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

Notes

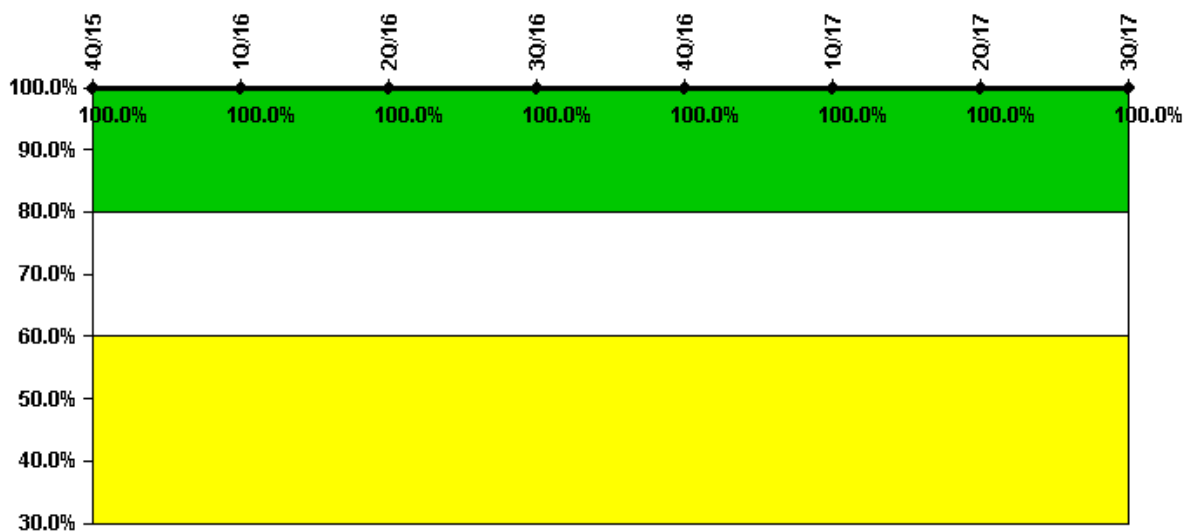
Drill/Exercise Performance	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Successful opportunities	60.0	42.0	30.0	74.0	71.0	8.0	45.0	63.0
Total opportunities	60.0	42.0	30.0	74.0	72.0	8.0	46.0	64.0

Indicator value **98.3% 98.4% 98.9% 99.2% 99.3% 99.3% 99.2% 99.2%**

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Licensee Comments: none

ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

Notes

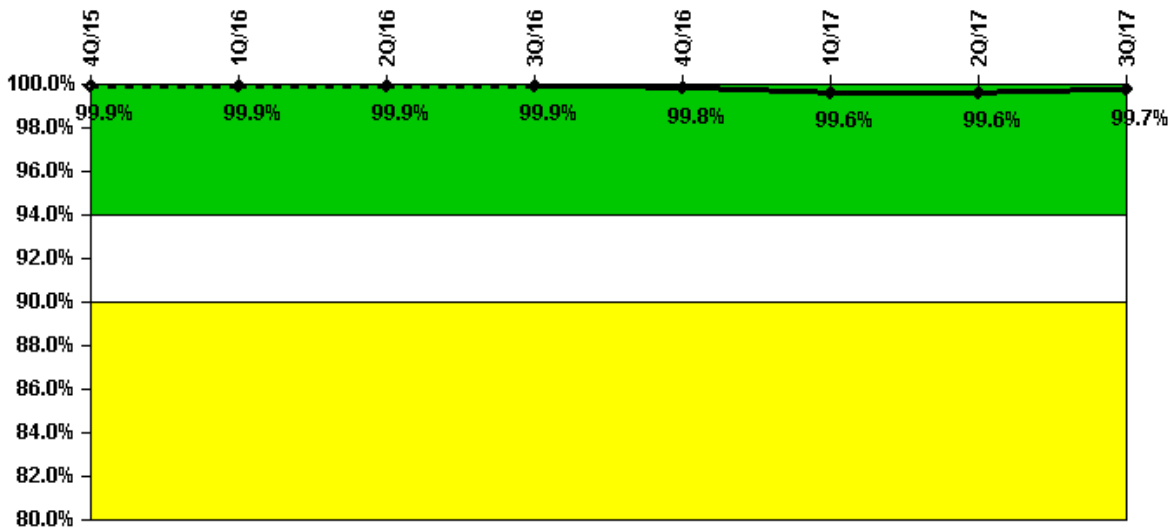
ERO Drill Participation	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Participating Key personnel	46.0	52.0	55.0	51.0	52.0	48.0	50.0	49.0
Total Key personnel	46.0	52.0	55.0	51.0	52.0	48.0	50.0	49.0

Indicator value **100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%**

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Licensee Comments: none

Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

Notes

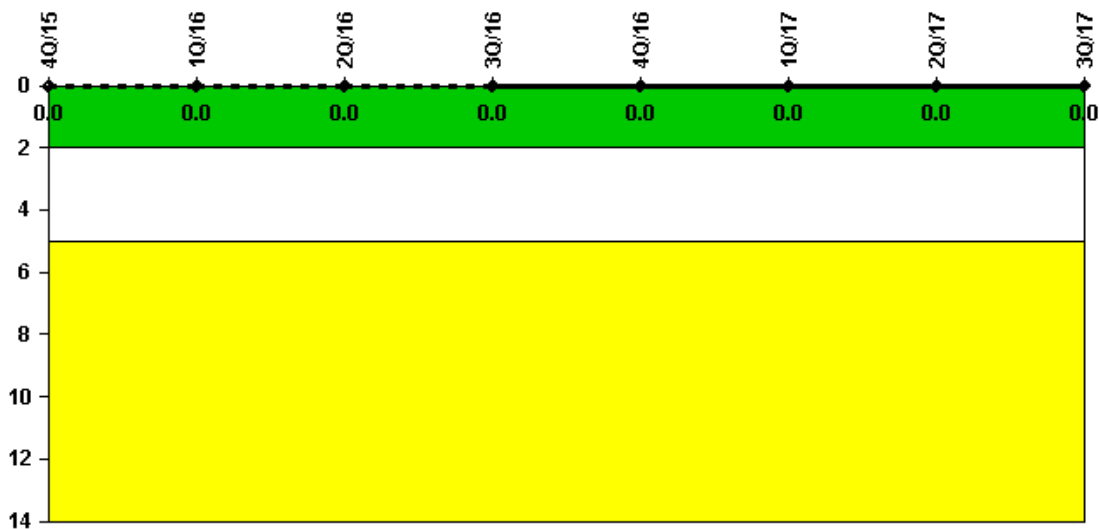
Alert & Notification System	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Successful siren-tests	948	949	948	946	945	943	947	949
Total sirens-tests	949	949	949	949	949	949	949	949

Indicator value 99.9% 99.9% 99.9% 99.9% 99.8% 99.6% 99.6% 99.7%

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Licensee Comments: none

Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

Notes

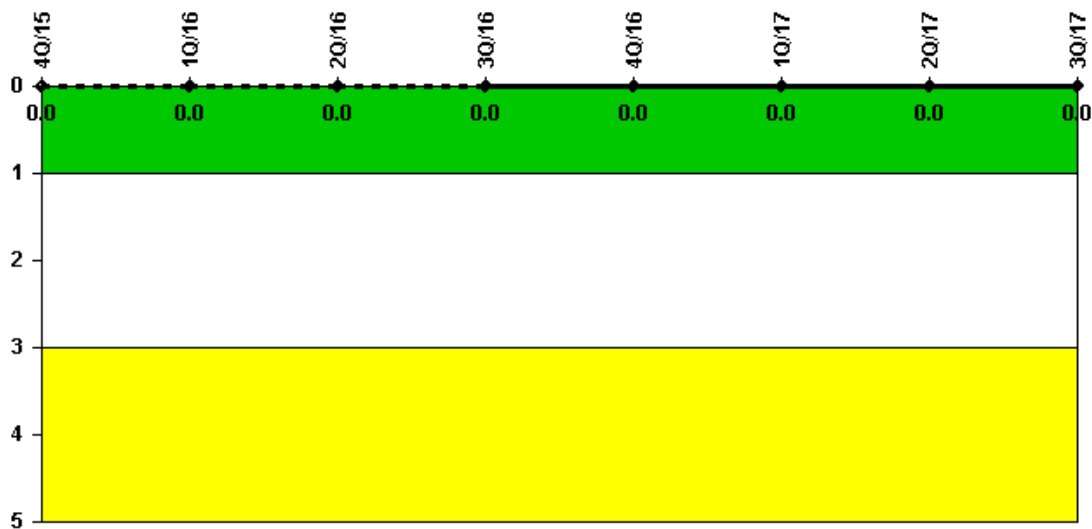
Occupational Exposure Control Effectiveness 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17

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

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Licensee Comments: none

RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17

RETS/ODCM occurrences 0 0 0 0 0 0 0 0

Indicator value 0 0 0 0 0 0 0 0

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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.

Current data as of: October 31, 2017

Page Last Reviewed/Updated Monday, November 06, 2017