



Home > Nuclear Reactors > Operating Reactors > Reactor Oversight Process > Plant Summaries> Byron 2 > Quarterly Plant Inspection Findings

Byron 2 – Quarterly Performance Indicators

1Q/2017 Performance Indicators

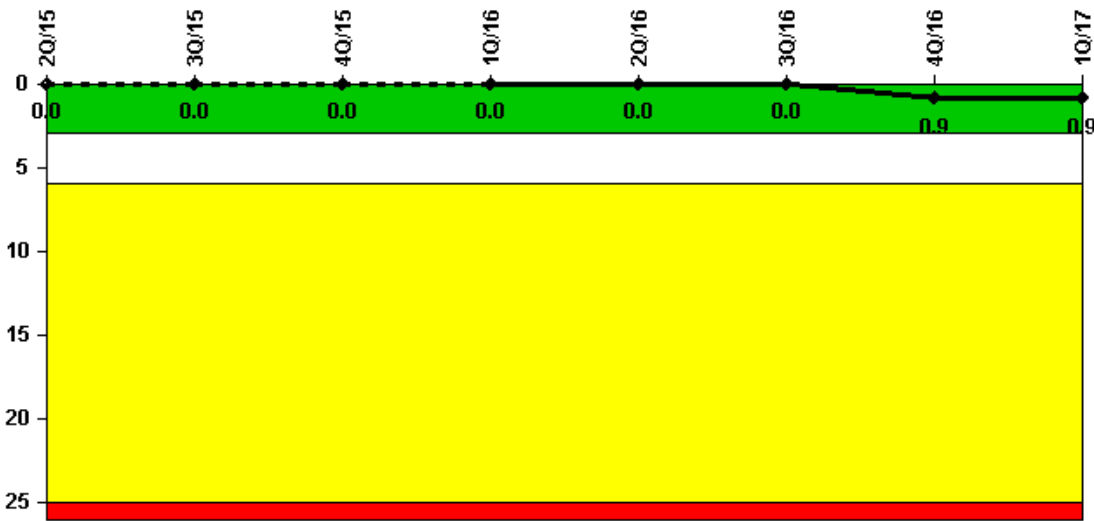
The solid trend line represents the current reporting period.

Licensee's General Comments: Byron Unit 2 1Q2017

On this page:

- Unplanned Scrams (IE01)
- Unplanned Power Changes per 7000 Critical Hours (IE03)
- Unplanned Scrams with Complications (IE04)
- Safety System Functional Failures (MS05)
- 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

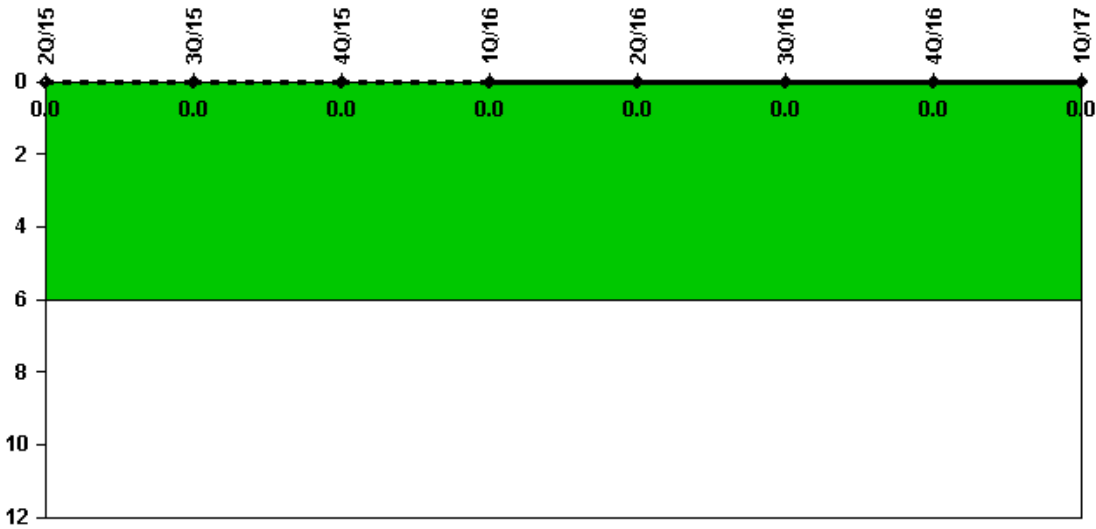
Unplanned Scrams per 7000 Critical Hrs	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Unplanned scrams	0	0	0	0	0	0	1.0	0
Critical hours	2184.0	2208.0	2209.0	2183.0	1492.7	2208.0	2194.7	2159.0
Indicator value	0	0	0	0	0	0	0.9	0.9

TOP

Licensee Comments:

4Q/16: U2 Reactor was manually tripped due to a loss of FW to the 'B' and 'C' steam generators. The loss of FW was caused by a water hammer prevention system (WHPS) actuation, which occurred when MCC 234V4 de-energized. MCC 234V4 feed breaker was replaced. ICES#324765

Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

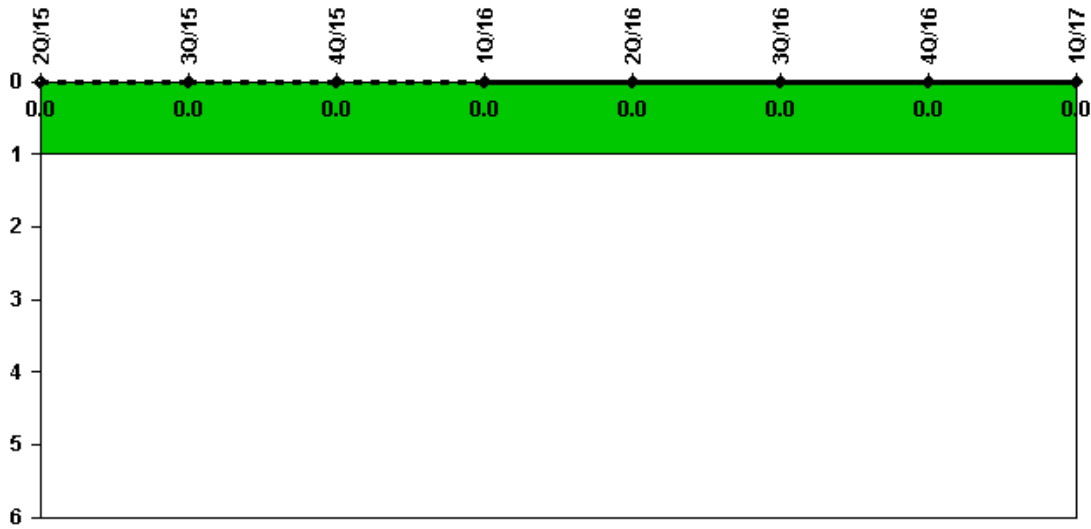
Notes

Unplanned Power Changes per 7000 Critical Hrs	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	2184.0	2208.0	2209.0	2183.0	1492.7	2208.0	2194.7	2159.0
Indicator value	0	0	0	0	0	0	0	0

TOP

Licensee Comments: none

Unplanned Scrams with Complications



Thresholds: White > 1.0

Notes

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

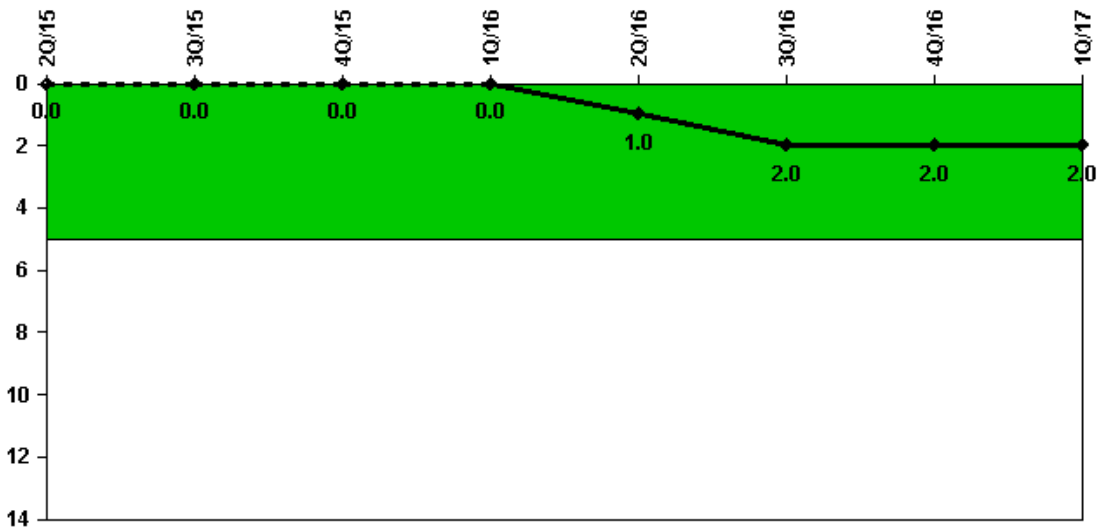
Scrams with complications 0 0 0 0 0 0 0 0

Indicator value 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

TOP

Licensee Comments: none

Safety System Functional Failures (PWR)



Thresholds: White > 5.0

Notes

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

Safety System Functional Failures 0 0 0 0 1 1 0 0

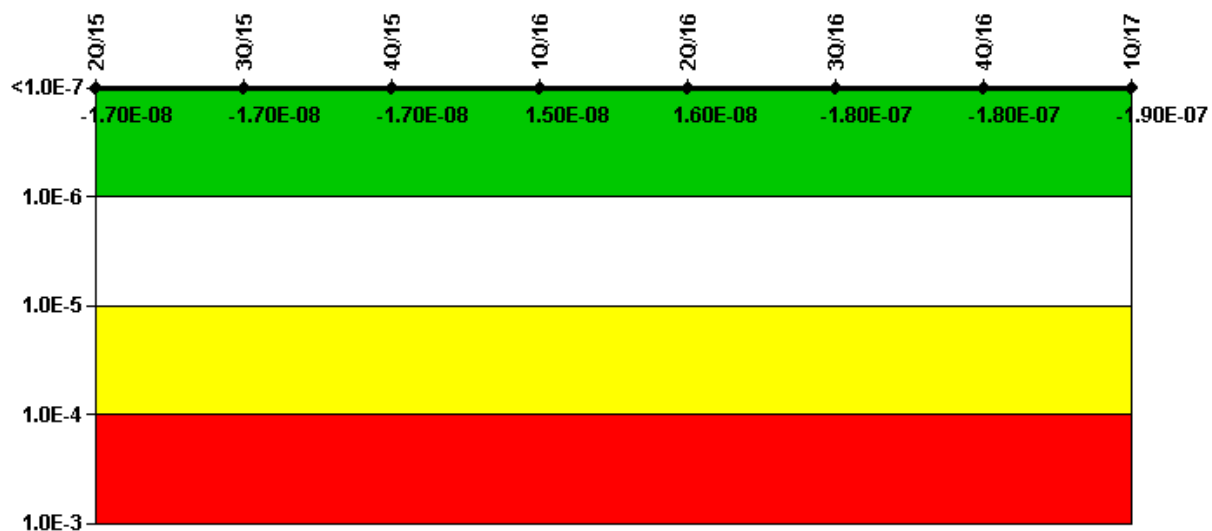
Indicator value 0 0 0 0 1 2 2 2

▲ TOP

Licensee Comments:

3Q/16: LER 2016-001-00, May 2016 AF Diesel Intake Design Deficiency Due to High Energy Line Break (HELB) Concerns. LER 2016-002-00 was issued 7/21/16, for Inadequate protection from Tornado Missiles Due to Non-conforming Design Conditions. 3Q16 U2 CDF and MSPI result were updated using the application specific model BB011b4, which takes credit for the Generation III Westinghouse RCP shutdown seals. The corresponding BY-MSPI-001 Rev 18 was approved in June 2016.

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

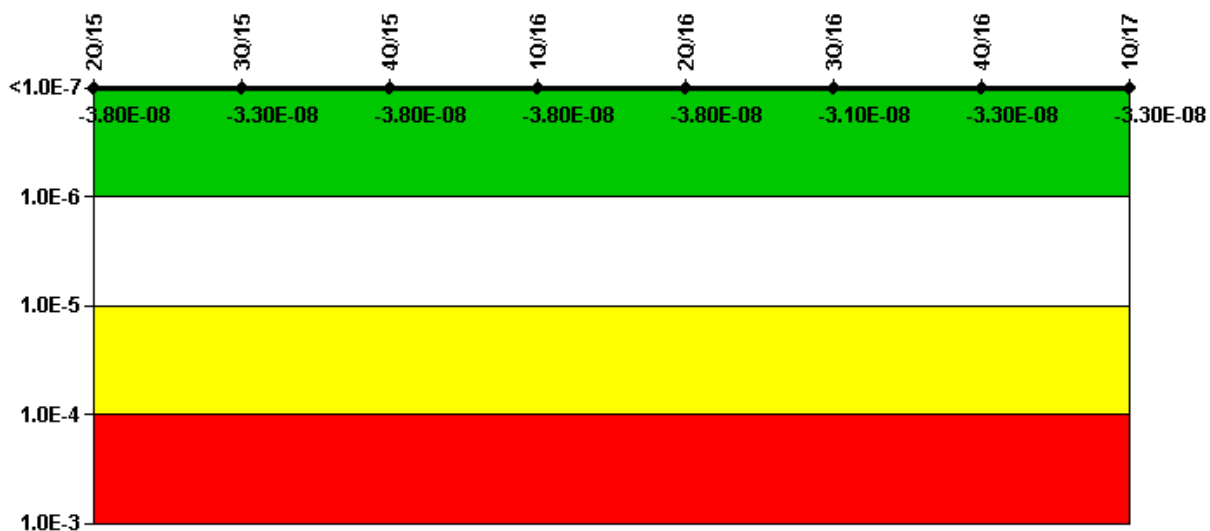
	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (Δ CDF)	-1.44E-08	-1.44E-08	-1.44E-08	1.73E-08	1.85E-08	6.70E-10	7.06E-10	-1.33E-08
URI (Δ CDF)	-2.75E-09	-2.75E-09	-2.75E-09	-2.75E-09	-2.75E-09	-1.81E-07	-1.81E-07	-1.81E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.70E-08	-1.70E-08	-1.70E-08	1.50E-08	1.60E-08	-1.80E-07	-1.80E-07	-1.90E-07

▲ TOP

Licensee Comments:

3Q/16: Changed PRA Parameter(s).

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

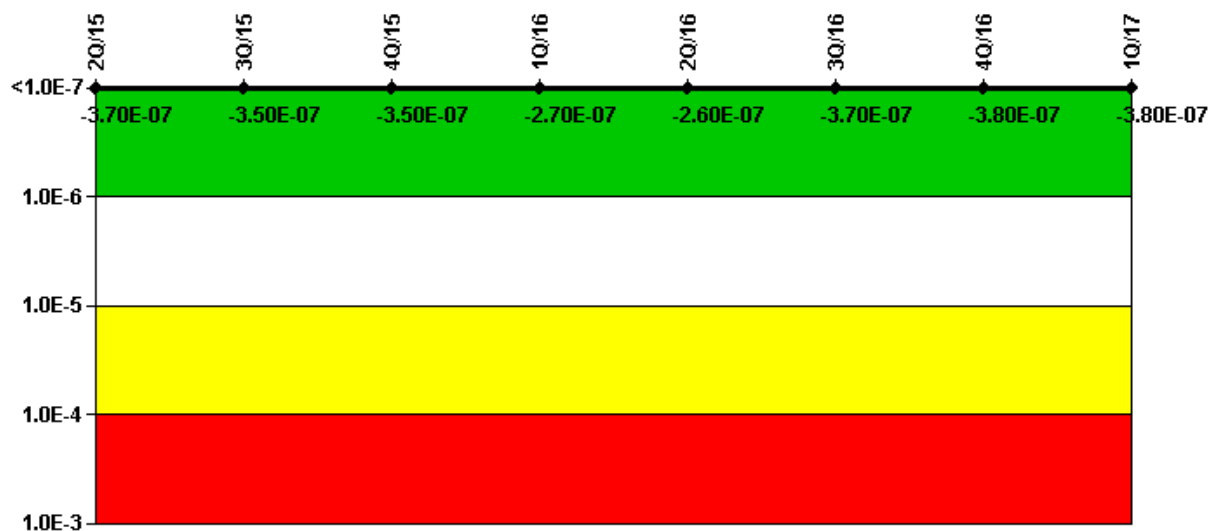
	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (Δ CDF)	-2.89E-08	-2.44E-08	-2.89E-08	-2.89E-08	-2.89E-08	-2.46E-08	-2.71E-08	-2.71E-08
URI (Δ CDF)	-8.61E-09	-8.61E-09	-8.61E-09	-8.61E-09	-8.61E-09	-6.17E-09	-6.17E-09	-6.17E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.80E-08	-3.30E-08	-3.80E-08	-3.80E-08	-3.80E-08	-3.10E-08	-3.30E-08	-3.30E-08

▲ TOP

Licensee Comments:

3Q/16: Changed PRA Parameter(s).

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/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (ΔCDF)	-1.06E-08	5.42E-09	4.62E-09	8.53E-08	8.41E-08	-1.04E-08	-1.29E-08	-1.33E-08
URI (ΔCDF)	-3.55E-07	-3.57E-07	-3.57E-07	-3.54E-07	-3.45E-07	-3.59E-07	-3.67E-07	-3.67E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.70E-07	-3.50E-07	-3.50E-07	-2.70E-07	-2.60E-07	-3.70E-07	-3.80E-07	-3.80E-07

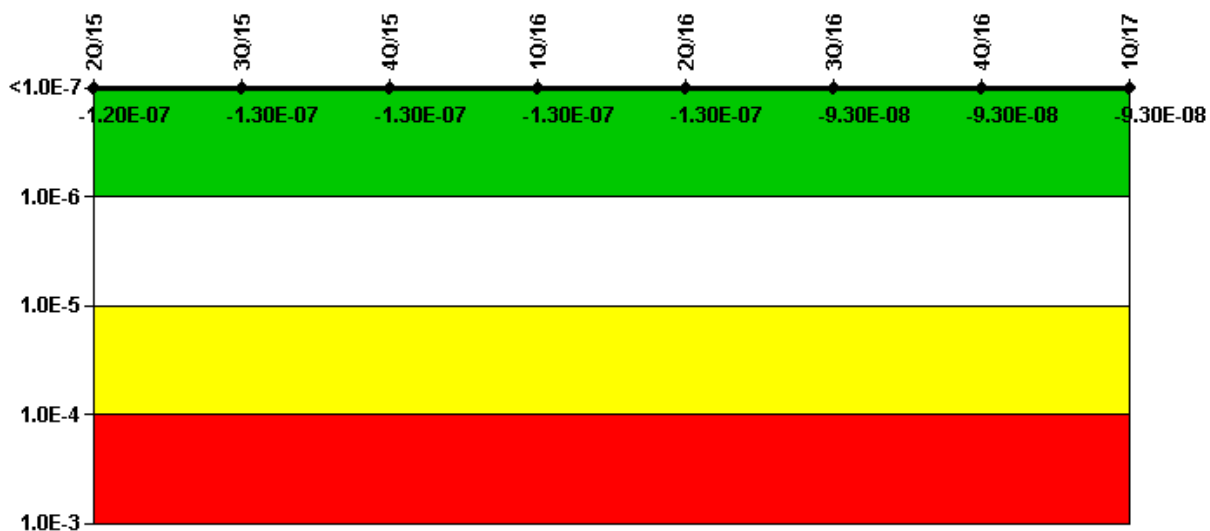
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Licensee Comments:

4Q/16: U1-U2 Train A crosstie considered unavailable starting 10/28/11 when standing order 11-057 and 1/2BFRH.1 procedure revisions were issued to remove procedural guidance on use of crosstie modification pending NRC approval. Reference IR 1257908

3Q/16: Changed PRA Parameter(s).

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

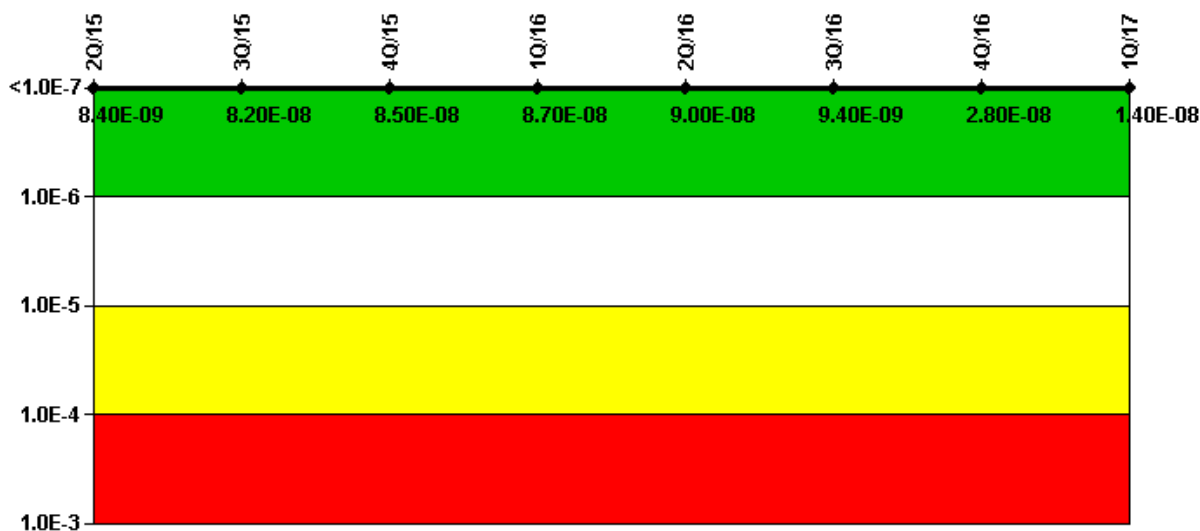
	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (Δ CDF)	-2.47E-08	-3.33E-08	-3.33E-08	-3.33E-08	-3.33E-08	-2.38E-08	-2.38E-08	-2.38E-08
URI (Δ CDF)	-9.77E-08	-9.77E-08	-9.77E-08	-9.77E-08	-9.77E-08	-6.92E-08	-6.92E-08	-6.92E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.20E-07	-1.30E-07	-1.30E-07	-1.30E-07	-1.30E-07	-9.30E-08	-9.30E-08	-9.30E-08

▲ TOP

Licensee Comments:

3Q/16: Changed PRA Parameter(s).

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

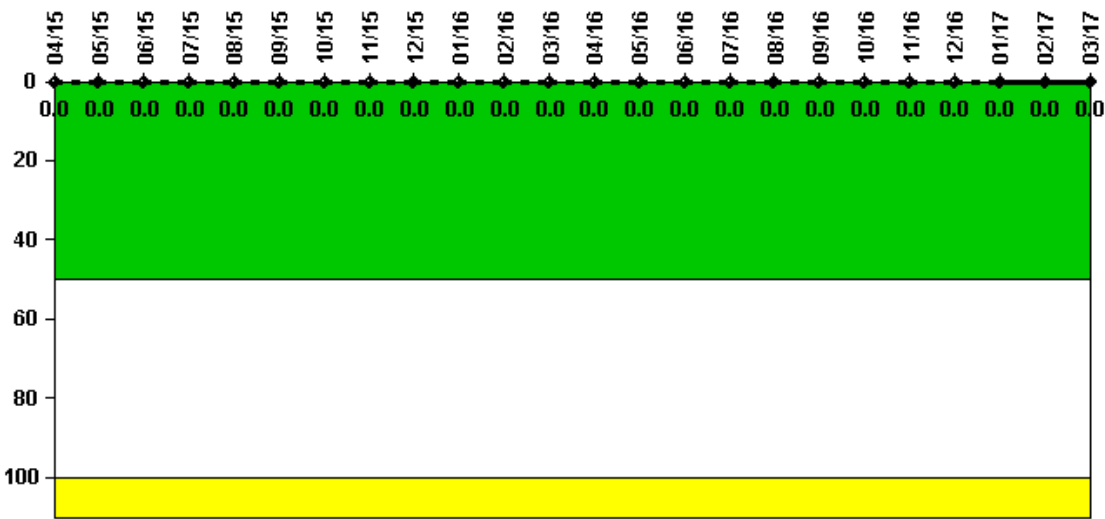
	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (ΔCDF)	1.01E-07	1.74E-07	1.78E-07	1.80E-07	1.82E-07	6.13E-08	7.98E-08	6.63E-08
URI (ΔCDF)	-9.23E-08	-9.23E-08	-9.23E-08	-9.23E-08	-9.23E-08	-5.20E-08	-5.20E-08	-5.20E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	8.40E-09	8.20E-08	8.50E-08	8.70E-08	9.00E-08	9.40E-09	2.80E-08	1.40E-08

▲ TOP

Licensee Comments:

3Q/16: Changed PRA Parameter(s).

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

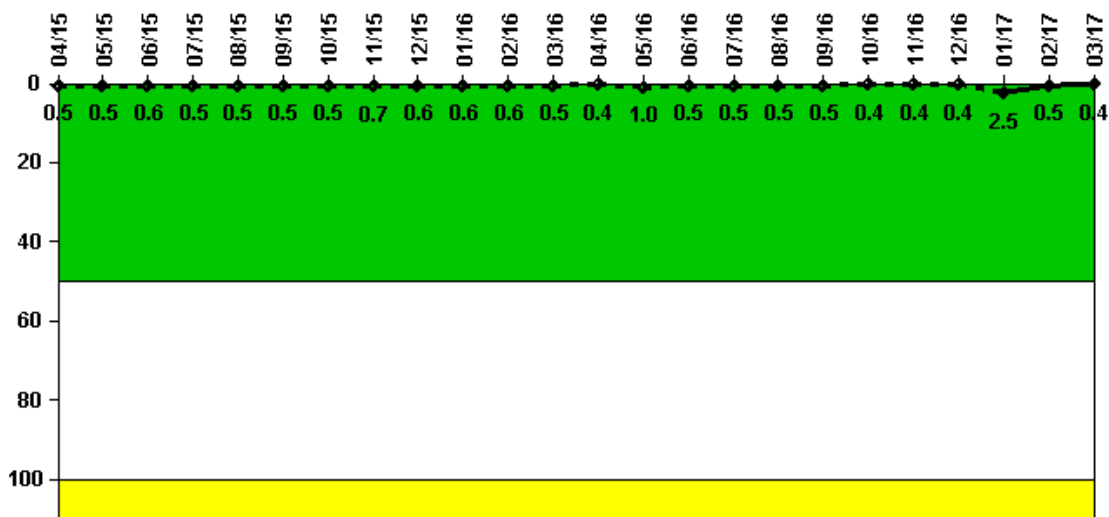
Notes

Reactor Coolant System Activity	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16
Maximum activity	0.000067	0.000065	0.000069	0.000076	0.000070	0.000071	0.000073	0.000070	0.000078	0.000080	0.000078	0.000092
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	0	0	0	0	0	0	0	0	0	0	0
Reactor Coolant System Activity	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16	1/17	2/17	3/17
Maximum activity	0.000079	0.000058	0.000050	0.000074	0.000049	0.000055	0.000054	0.000057	0.000061	0.000065	0.000063	0.000066
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	0	0	0	0	0	0	0	0	0	0	0

▲ TOP

Licensee Comments: none

Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

Notes

Reactor Coolant System Leakage	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16
Maximum leakage	0.050	0.050	0.060	0.050	0.050	0.050	0.050	0.070	0.060	0.060	0.060	0.050
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

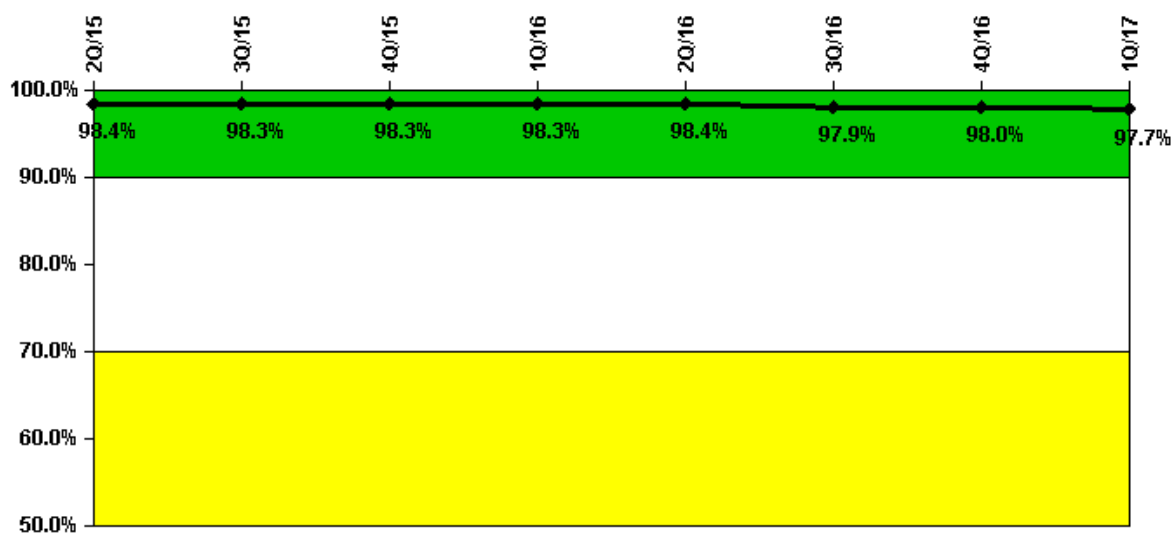
Indicator value	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.7	0.6	0.6	0.6	0.5
Reactor Coolant System Leakage	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16	1/17	2/17	3/17
Maximum leakage	0.040	0.100	0.050	0.050	0.050	0.050	0.040	0.040	0.040	0.250	0.050	0.040
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Indicator value	0.4	1.0	0.5	0.5	0.5	0.5	0.4	0.4	0.4	2.5	0.5	0.4
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TOP

Licensee Comments: none

Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

Notes

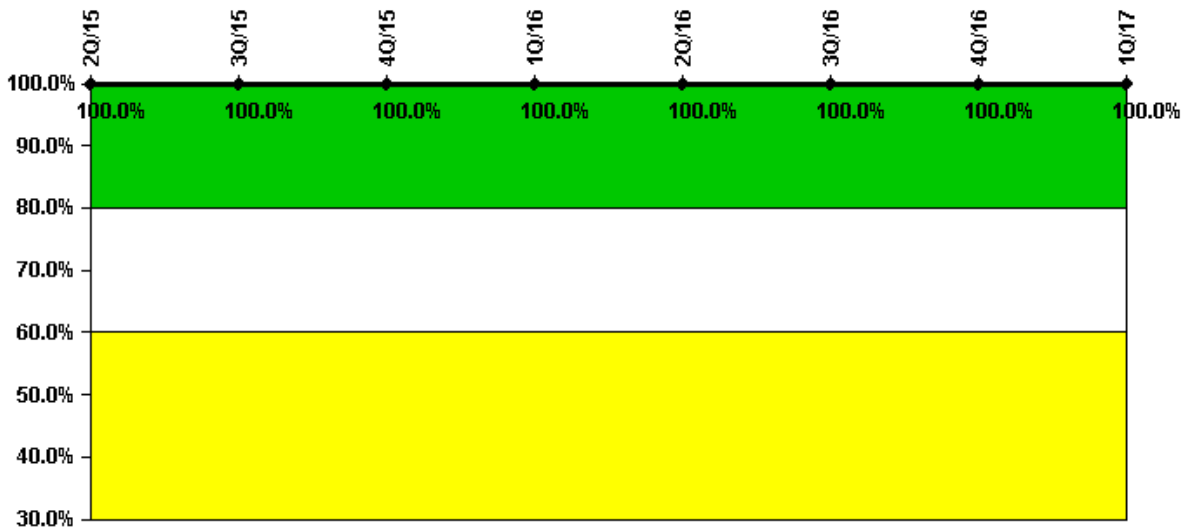
Drill/Exercise Performance	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Successful opportunities	41.0	27.0	32.0	106.0	44.0	29.0	34.0	28.0
Total opportunities	43.0	27.0	32.0	109.0	44.0	32.0	34.0	28.0

Indicator value 98.4% 98.3% 98.3% 98.3% 98.4% 97.9% 98.0% 97.7%

▲ TOP

Licensee Comments: none

ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

Notes

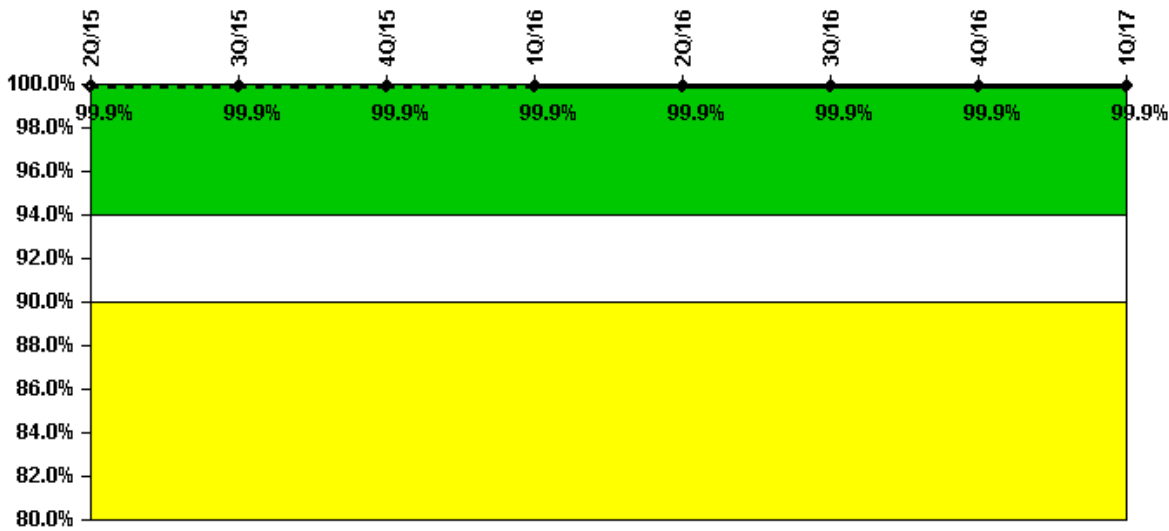
ERO Drill Participation	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Participating Key personnel	74.0	72.0	75.0	76.0	78.0	77.0	77.0	78.0
Total Key personnel	74.0	72.0	75.0	76.0	78.0	77.0	77.0	78.0

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

▲ TOP

Licensee Comments: none

Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

Notes

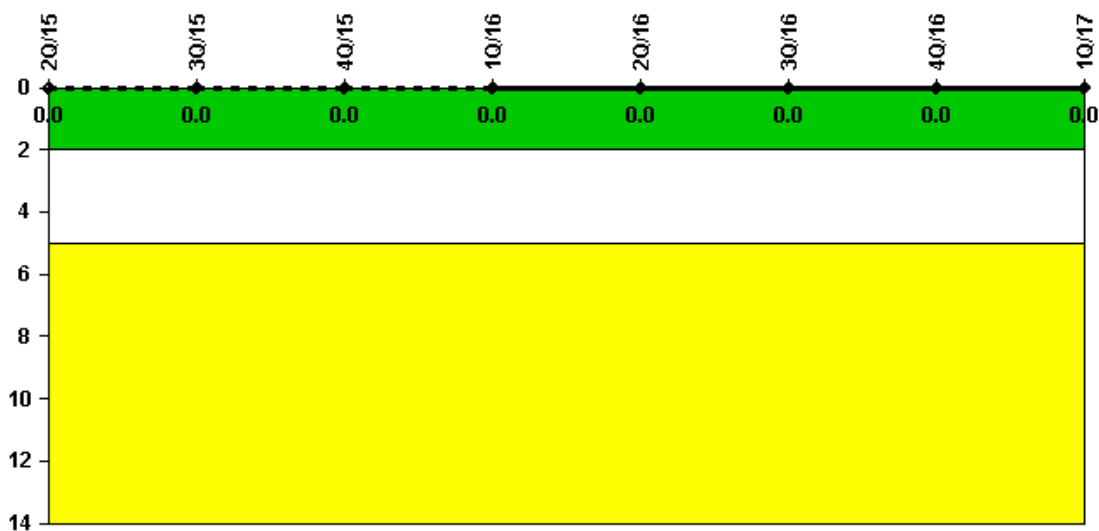
Alert & Notification System	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Successful siren-tests	3902	3962	3903	3897	3902	3900	3780	3964
Total sirens-tests	3904	3965	3904	3904	3904	3904	3782	3965

Indicator value 99.9% 99.9% 99.9% 99.9% 99.9% 99.9% 99.9% 99.9%

▲ TOP

Licensee Comments: none

Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

Notes

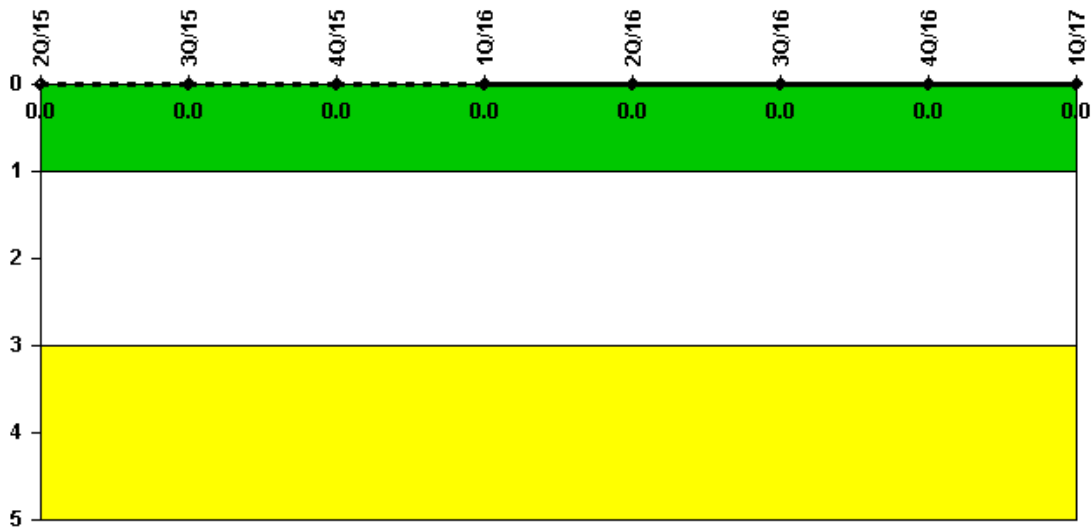
Occupational Exposure Control Effectiveness 2Q/15 3Q/15 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17

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

TOP

Licensee Comments: none

RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

Notes

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

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

Indicator value 0 0 0 0 0 0 0 0

[TOP](#)

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: May 5, 2017

Page Last Reviewed/Updated Wednesday, June 07, 2017