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Palo Verde 1 – Quarterly Performance Indicators

1Q/2017 Performance Indicators

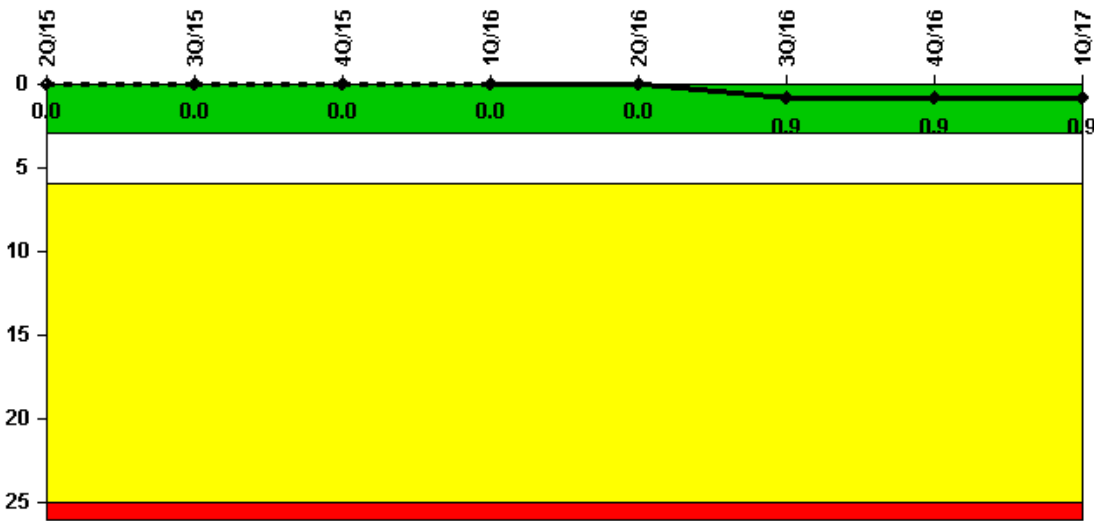
The solid trend line represents the current reporting period.

Licensee's General Comments: none

On this page:

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- Unplanned Power Changes per 7000 Critical Hours (IE03)
- Unplanned Scrams with Complications (IE04)
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- Residual Heat Removal Systems (MS09)
- Cooling Water Systems (MS10)
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Unplanned Scrams per 7000 Critical Hrs



Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

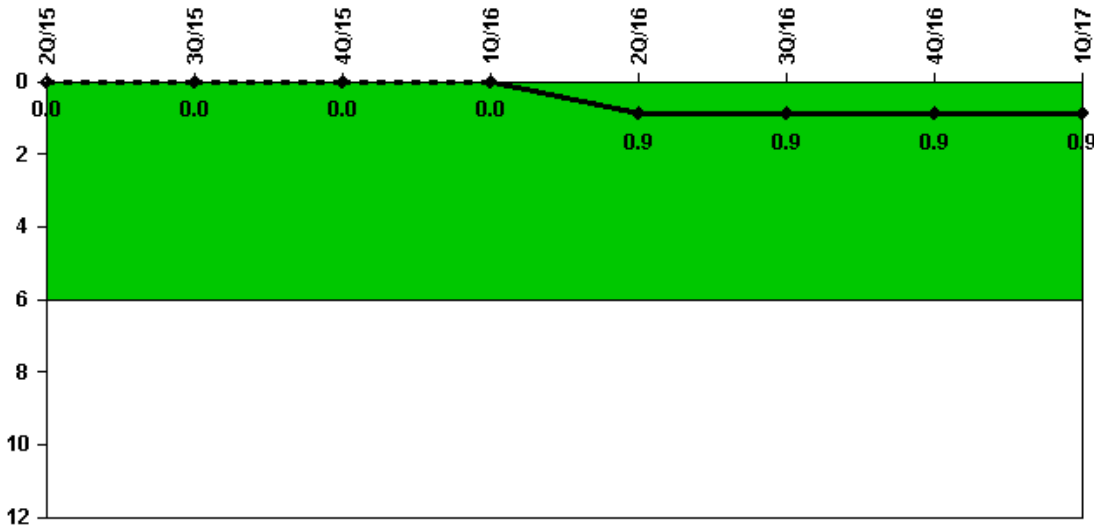
Notes

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	1.0	0	0
Critical hours	2184.0	2208.0	2208.0	2184.0	1346.9	2099.8	2208.0	2160.0
Indicator value	0	0	0	0	0	0.9	0.9	0.9

TOP

Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

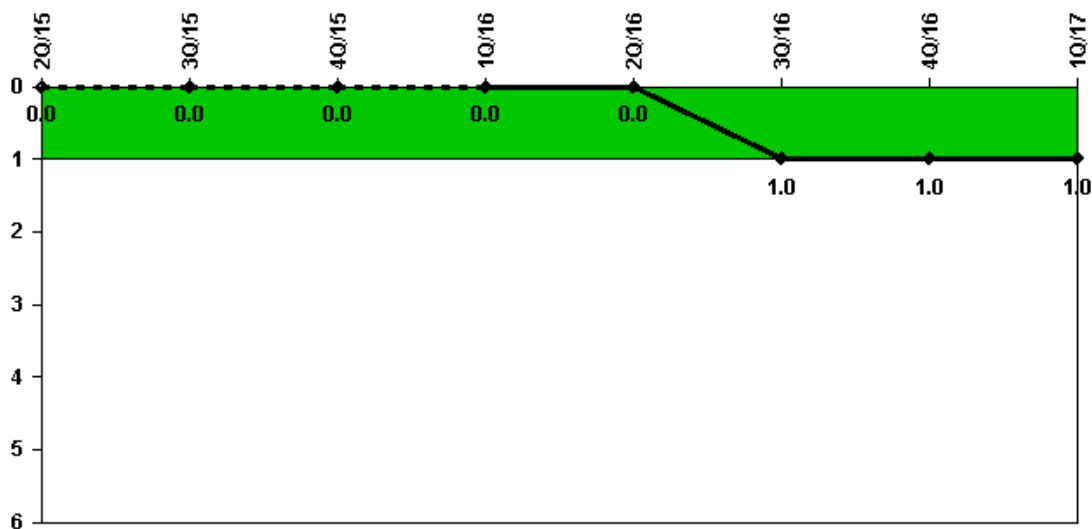
Notes

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	1.0	0	0	0
Critical hours	2184.0	2208.0	2208.0	2184.0	1346.9	2099.8	2208.0	2160.0
Indicator value	0	0	0	0	0.9	0.9	0.9	0.9

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Licensee Comments: none

Unplanned Scrams with Complications



Thresholds: White > 1.0

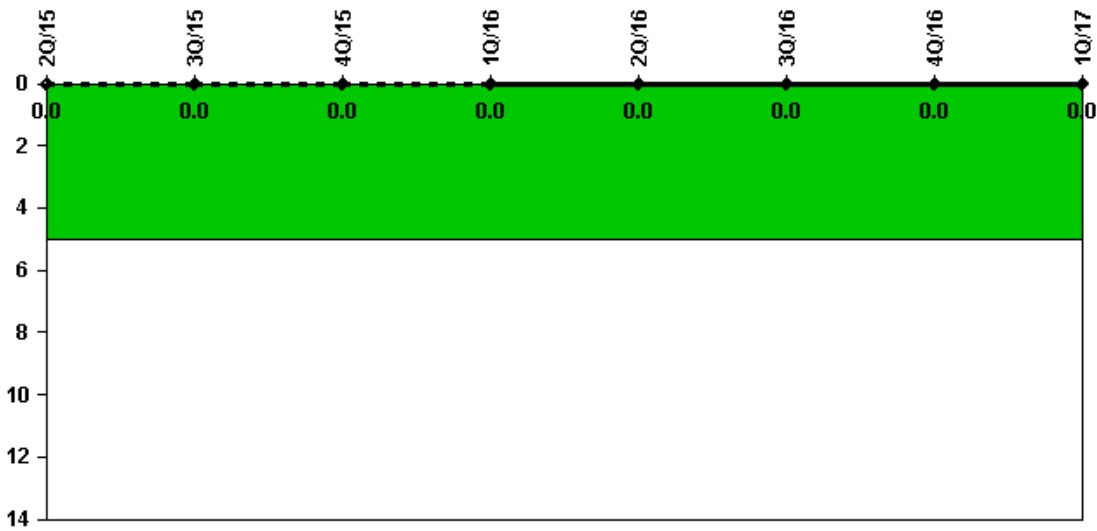
Notes

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	1.0	0	0
Indicator value	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0

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Licensee Comments: none

Safety System Functional Failures (PWR)



Thresholds: White > 5.0

Notes

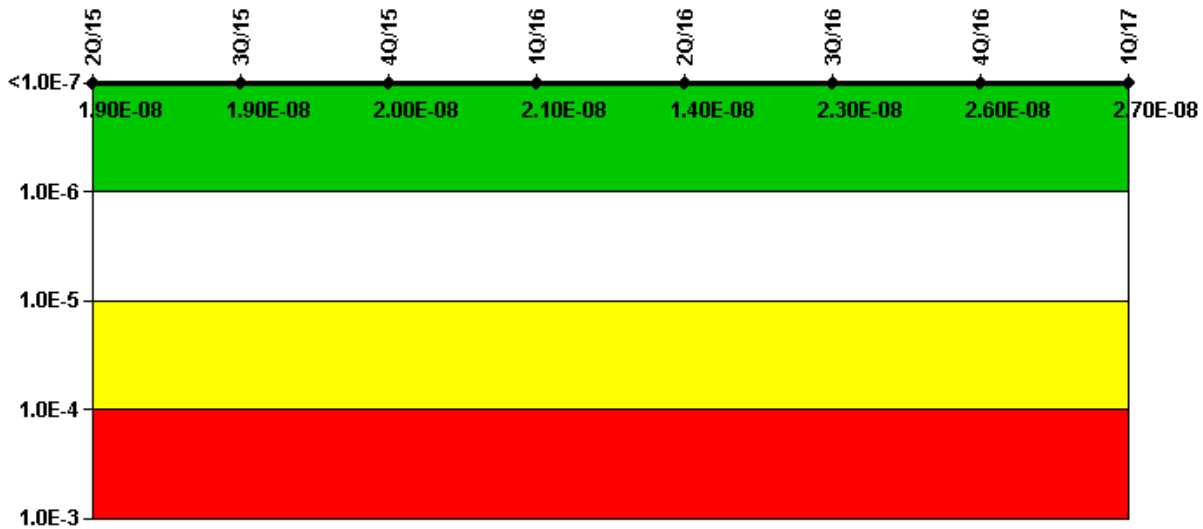
Safety System Functional Failures (PWR) 2Q/15 3Q/15 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17
 Safety System Functional Failures 0 0 0 0 0 0 0 0

Indicator value 0 0 0 0 0 0 0 0

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Licensee Comments: none

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 (ΔCDF)	3.58E-09	3.35E-09	4.40E-09	5.38E-09	-7.47E-10	8.26E-09	1.07E-08	1.16E-08
URI (ΔCDF)	1.52E-08	1.52E-08	1.52E-08	1.52E-08	1.52E-08	1.52E-08	1.52E-08	1.52E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	1.90E-08	1.90E-08	2.00E-08	2.10E-08	1.40E-08	2.30E-08	2.60E-08	2.70E-08

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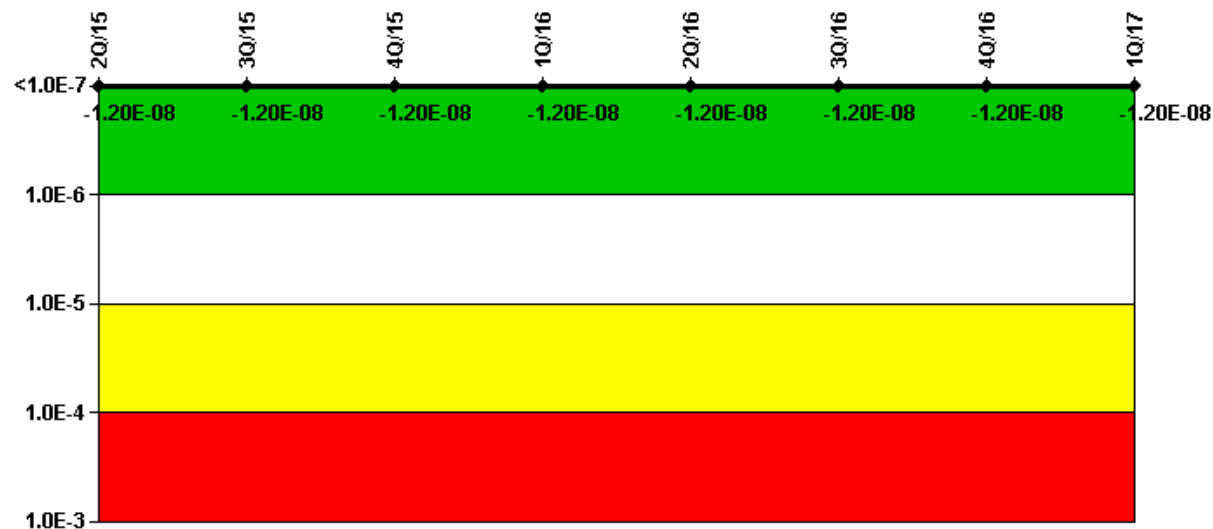
Licensee Comments:

3Q/15: In 3rd Quarter 2015, updated unavailability for EDG 1A for interval March 2013 - October 2014, net change was (-) 12.43 hours and EDG 1B for May 2013, net change was (-) 10.62 hours , no color change as a result.

2Q/15: In May 2015, planned unavailability hours from March 2013 were adjusted resulting in a net decrease of 9.59 planned unavailability hours for the 3 year period ending in June 2015. The adjustments were made to account for hours unavailable vs. hours inoperable, previously recorded and not have resulted in a color change.

2Q/15: In May 2015, planned unavailability hours from March 2013 were adjusted resulting in a net decrease of 9.59 planned unavailability hours for the 3 year period ending in June 2015. The adjustments were made to account for hours unavailable vs. hours inoperable, previously recorded and not have resulted in a color change.

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

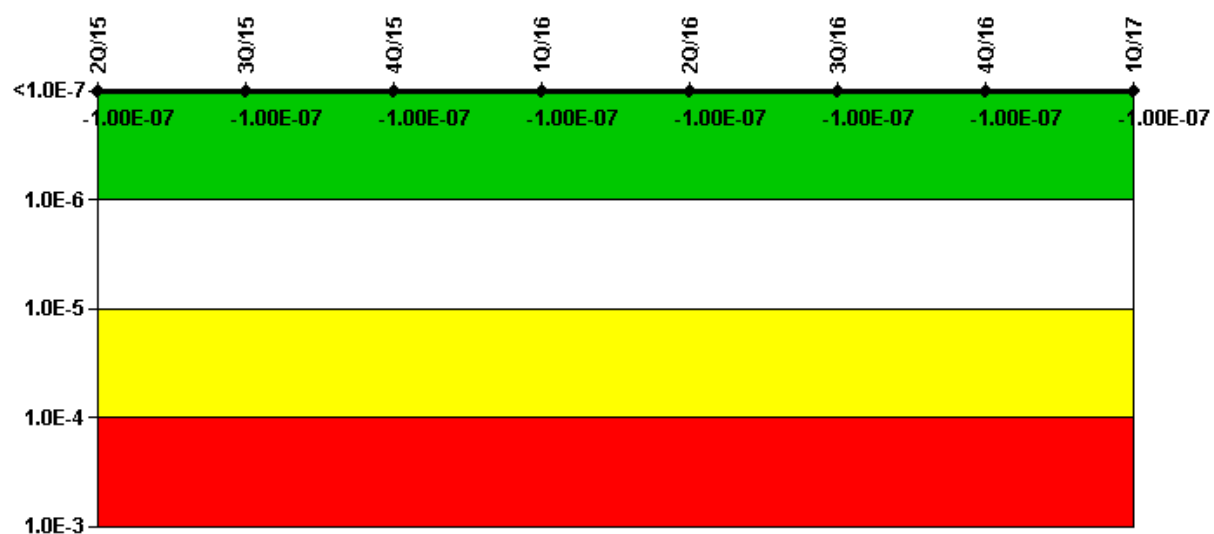
	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (ΔCDF)	-1.52E-09	-1.52E-09	-1.52E-09	-1.52E-09	-1.52E-09	-1.52E-09	-1.52E-09	-1.52E-09
URI (ΔCDF)								

	-1.03E-08	-1.03E-08	-1.03E-08	-1.03E-08	-1.03E-08	-1.03E-08	-1.03E-08	-1.03E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.20E-08	-1.20E-08	-1.20E-08	-1.20E-08	-1.20E-08	-1.20E-08	-1.20E-08	-1.20E-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

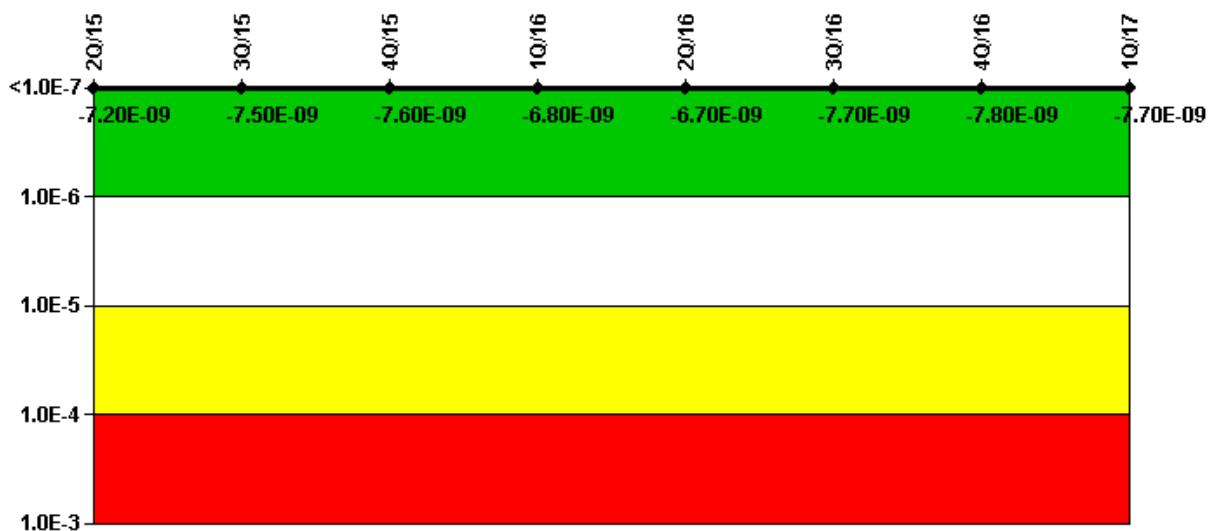
Mitigating Systems Performance Index, Heat Removal System

	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (ΔCDF)	-4.84E-08	-4.84E-08	-4.84E-08	-4.84E-08	-4.84E-08	-4.84E-08	-4.84E-08	-4.84E-08
URI (ΔCDF)	-5.15E-08	-5.15E-08	-5.15E-08	-5.15E-08	-5.15E-08	-5.15E-08	-5.15E-08	-5.15E-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

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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

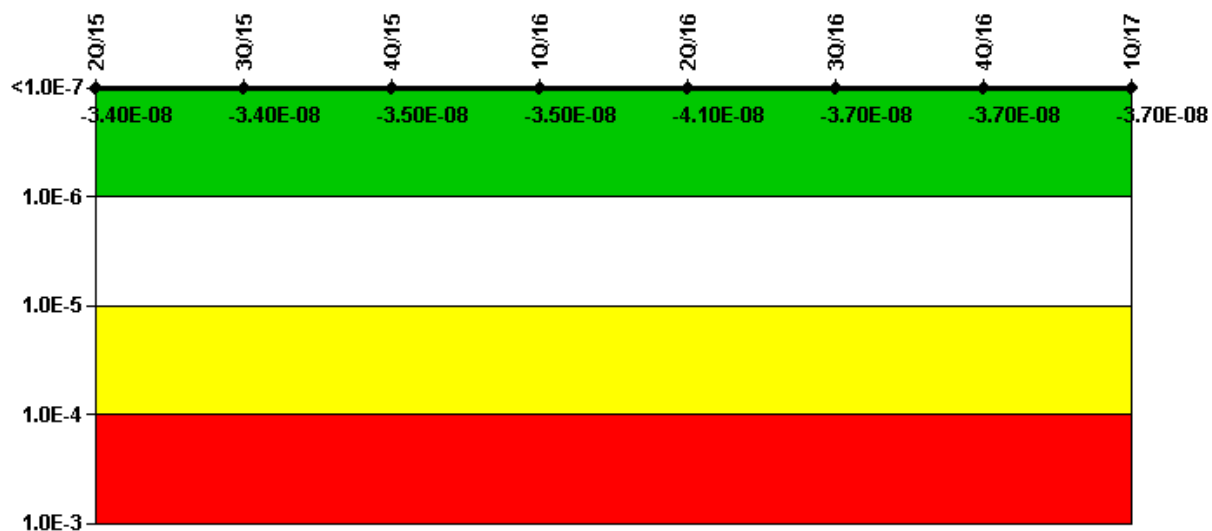
Mitigating Systems Performance Index, Residual Heat Removal System

	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (Δ CDF)	-7.93E-10	-1.16E-09	-1.19E-09	-4.58E-10	-2.81E-10	-1.28E-09	-1.38E-09	-1.29E-09
URI (Δ CDF)	-6.37E-09	-6.37E-09	-6.37E-09	-6.37E-09	-6.37E-09	-6.37E-09	-6.37E-09	-6.37E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-7.20E-09	-7.50E-09	-7.60E-09	-6.80E-09	-6.70E-09	-7.70E-09	-7.80E-09	-7.70E-09

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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

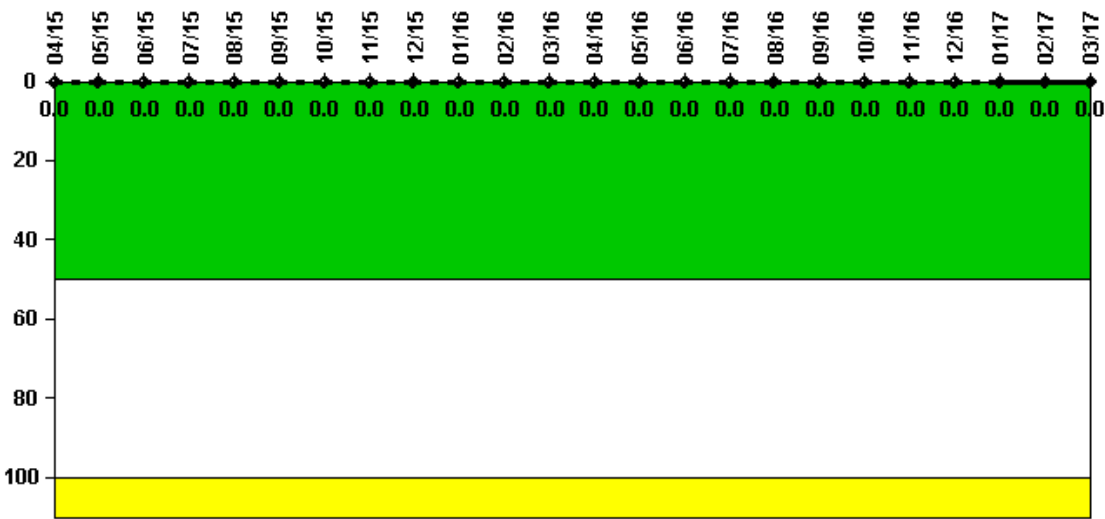
Mitigating Systems Performance Index, Cooling Water Systems

	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (Δ CDF)	1.14E-08	1.12E-08	1.11E-08	1.06E-08	4.84E-09	8.65E-09	8.53E-09	8.37E-09
URI (Δ CDF)	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.40E-08	-3.40E-08	-3.50E-08	-3.50E-08	-4.10E-08	-3.70E-08	-3.70E-08	-3.70E-08

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Licensee Comments: none

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

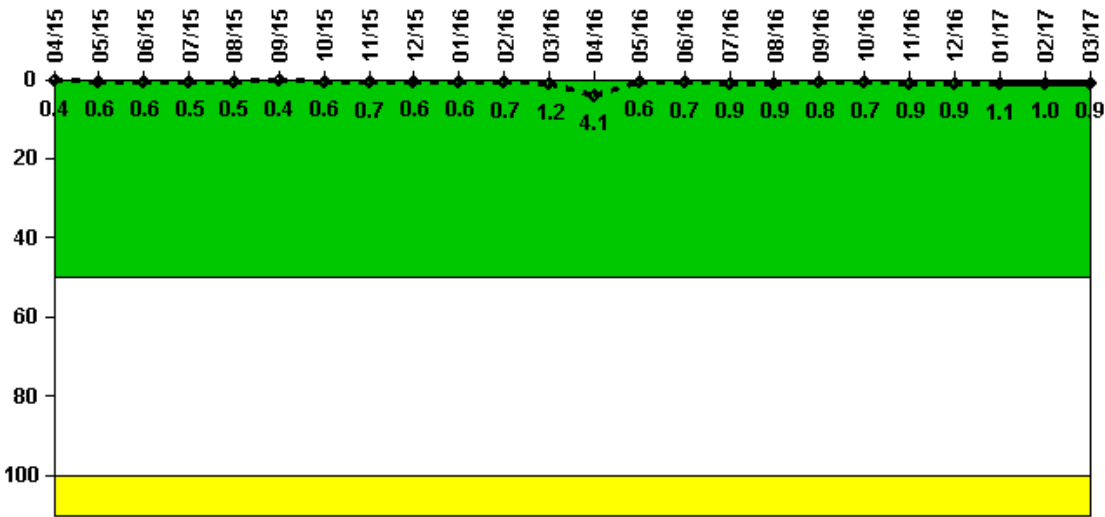
Notes

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	0.000190	0.000198	0.000212	0.000210	0.000230	0.000281	0.000257	0.000254	0.000278	0.000307	0.000286	0.000292
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	0.000314	0.000178	0.000182	0.000193	0.000306	0.000207	0.000216	0.000223	0.000225	0.000217	0.000248	0.000230
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

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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	0.044	0.064	0.055	0.052	0.046	0.036	0.058	0.068	0.056	0.060	0.071	0.122
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

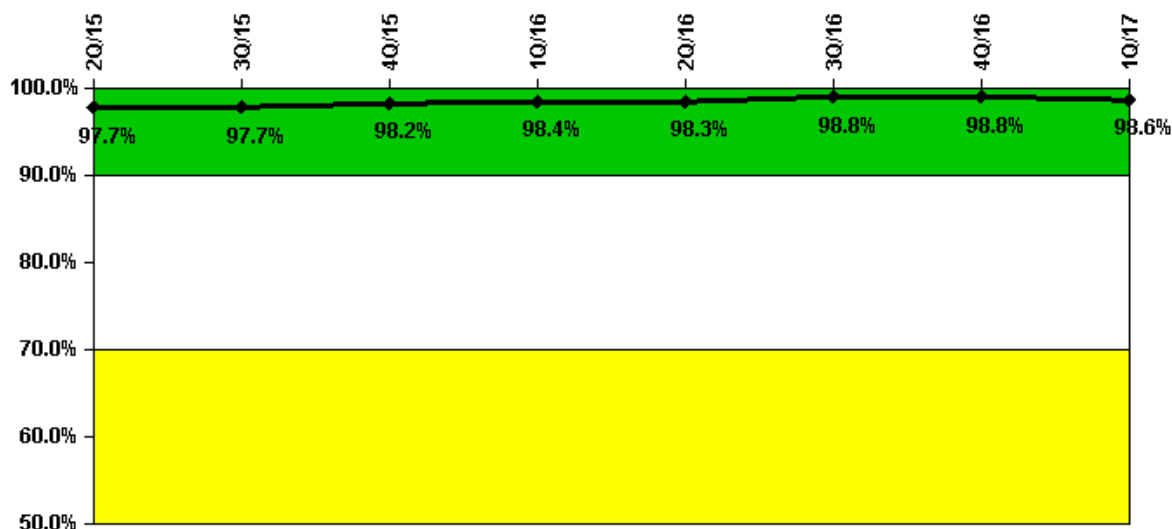
Indicator value	0.4	0.6	0.6	0.5	0.5	0.4	0.6	0.7	0.6	0.6	0.7	1.2
Reactor Coolant System Leakage	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16	1/17	2/17	3/17
Maximum leakage	0.411	0.062	0.072	0.085	0.087	0.084	0.065	0.088	0.093	0.110	0.096	0.085
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Indicator value	4.1	0.6	0.7	0.9	0.9	0.8	0.7	0.9	0.9	1.1	1.0	0.9
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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	38.0	50.0	163.0	203.0	3.0	46.0	51.0	80.0
Total opportunities	38.0	50.0	164.0	206.0	3.0	48.0	52.0	82.0

Indicator value **97.7% 97.7% 98.2% 98.4% 98.3% 98.8% 98.8% 98.6%**

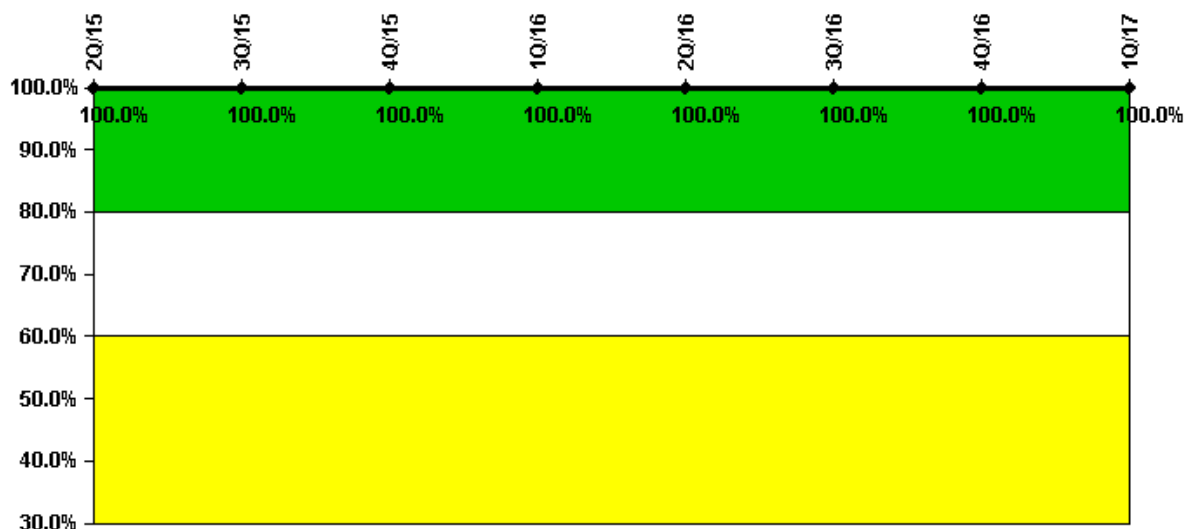
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Licensee Comments:

1Q/16: On March 29, 2016, a new shift manager became qualified in two key ERO positions and completed two opportunities and successes which were not included in the previously submitted data. No color change.

4Q/15: The total number of drill / exercise opportunities and successes was revised from 87 to 86 each (no additional failures). No color change resulted.

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	91.0	95.0	91.0	91.0	95.0	93.0	94.0	91.0
Total Key personnel	91.0	95.0	91.0	91.0	95.0	93.0	94.0	91.0

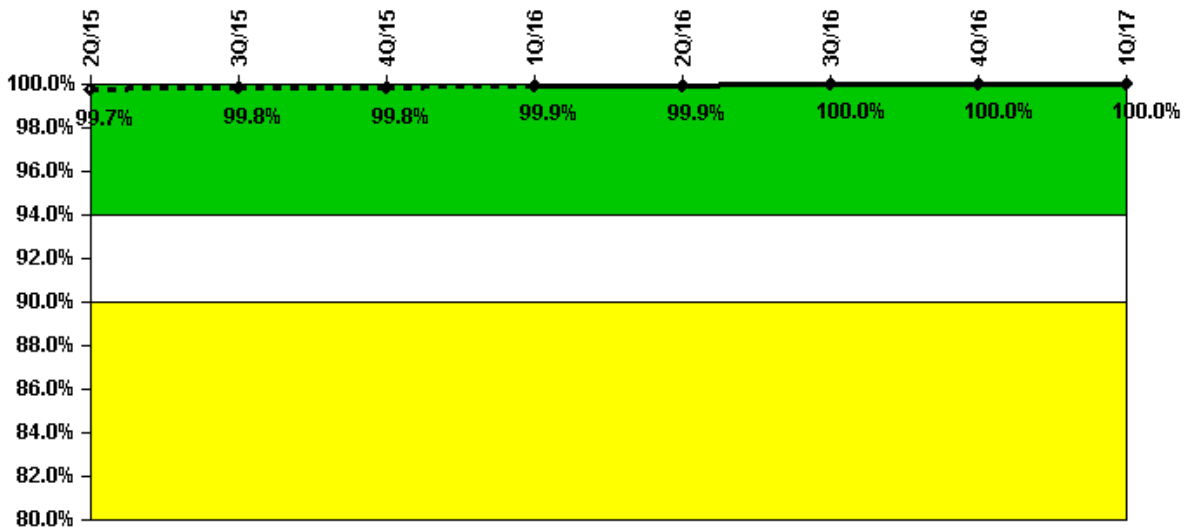
Indicator value **100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%**

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Licensee Comments:

1Q/16: On March 29, 2016, a new shift manager became qualified in two key ERO positions which were not included in the previously submitted data. No color change.

Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

Notes

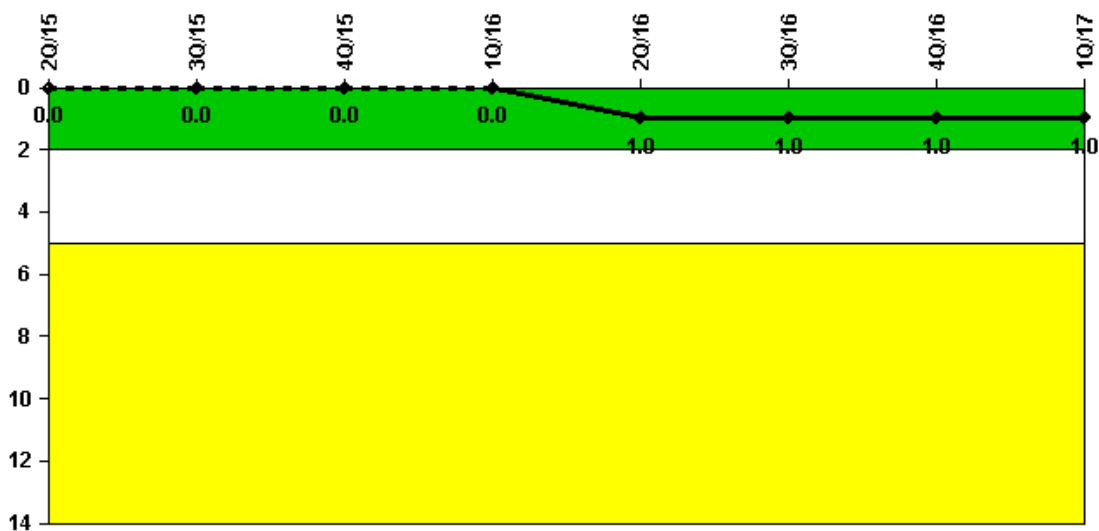
Alert & Notification System	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Successful siren-tests	912	909	1008	1102	1044	1102	1218	1102
Total sirens-tests	912	912	1008	1102	1044	1102	1218	1102

Indicator value 99.7% 99.8% 99.8% 99.9% 99.9% 100.0% 100.0% 100.0%

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Licensee Comments: none

Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

Notes

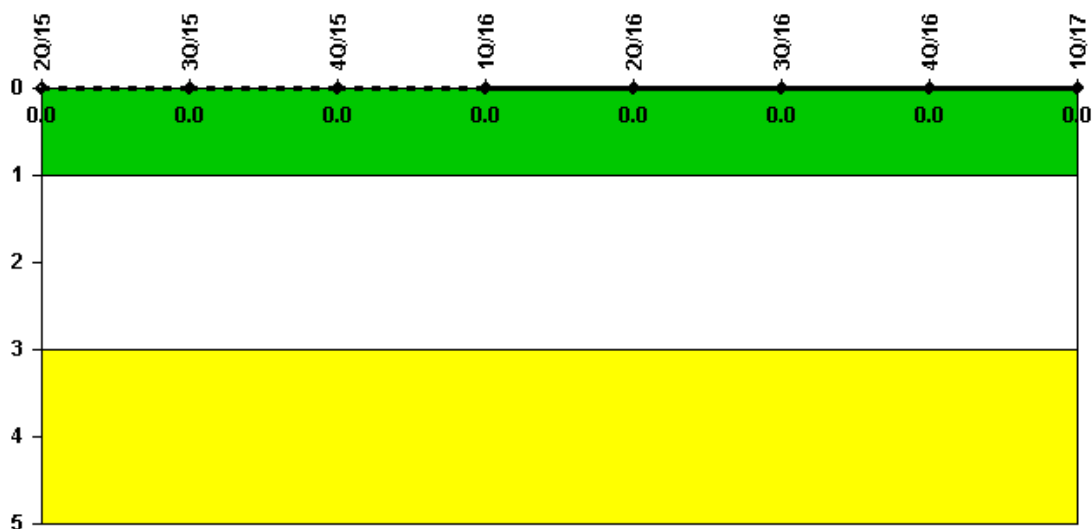
Occupational Exposure Control Effectiveness 2Q/15 3Q/15 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17

High radiation area occurrences	0	0	0	0	1	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	1	1	1	1

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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

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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: May 5, 2017

Page Last Reviewed/Updated Wednesday, June 07, 2017