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## **Palo Verde 2 – Quarterly Performance Indicators**

### **1Q/2017 Performance Indicators**

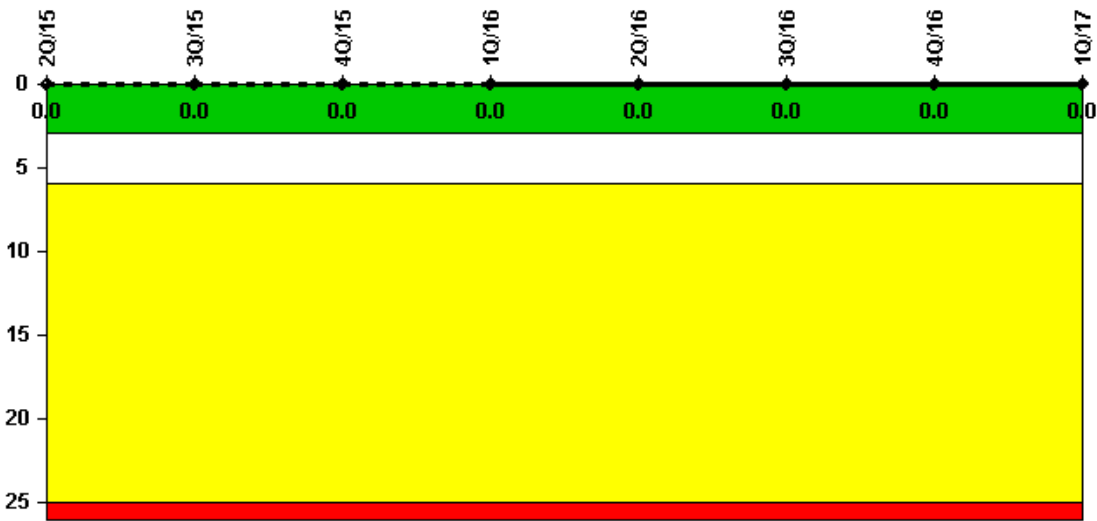
The solid trend line represents the current reporting period.

Licensee's General Comments: none

On this page:

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- Protected Area Equipment (PP01)

### Unplanned Scrams per 7000 Critical Hrs



Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

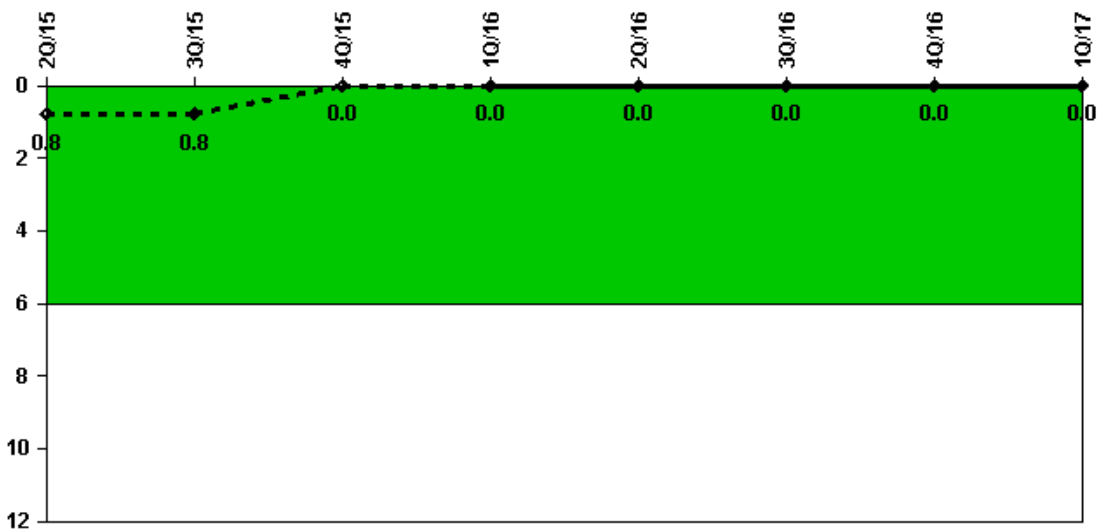
**Notes**

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	0	0
Critical hours	2184.0	2208.0	1363.6	2184.0	2184.0	2208.0	2208.0	2160.0
Indicator value	0	0	0	0	0	0	0	0

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Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

**Notes**

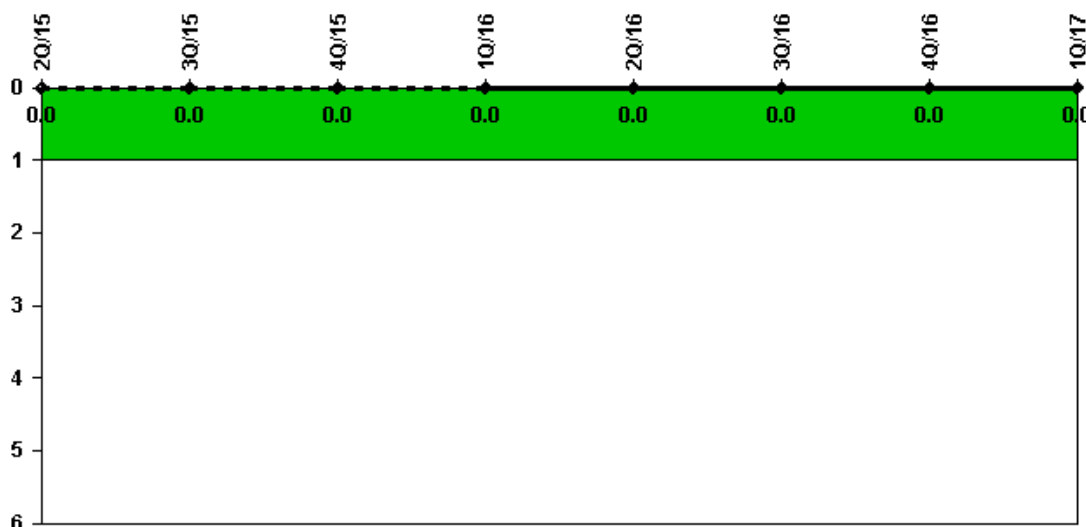
Unplanned Power Changes per 7000 Critical Hrs	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	2184.0	2208.0	1363.6	2184.0	2184.0	2208.0	2208.0	2160.0
<b>Indicator value</b>	<b>0.8</b>	<b>0.8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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Licensee Comments:

3Q/15: On September 25, 2015, Unit 2 was granted an exigent amendment to Technical Specification Surveillance Requirement 3.1.5.3 to eliminate further quarterly performance for control element assemble #88 for the remainder of the 19th Unit 2 operating cycle. Reference ADAMS Accession # ML 15266A005.

**Unplanned Scrams with Complications**



Thresholds: White > 1.0

**Notes**

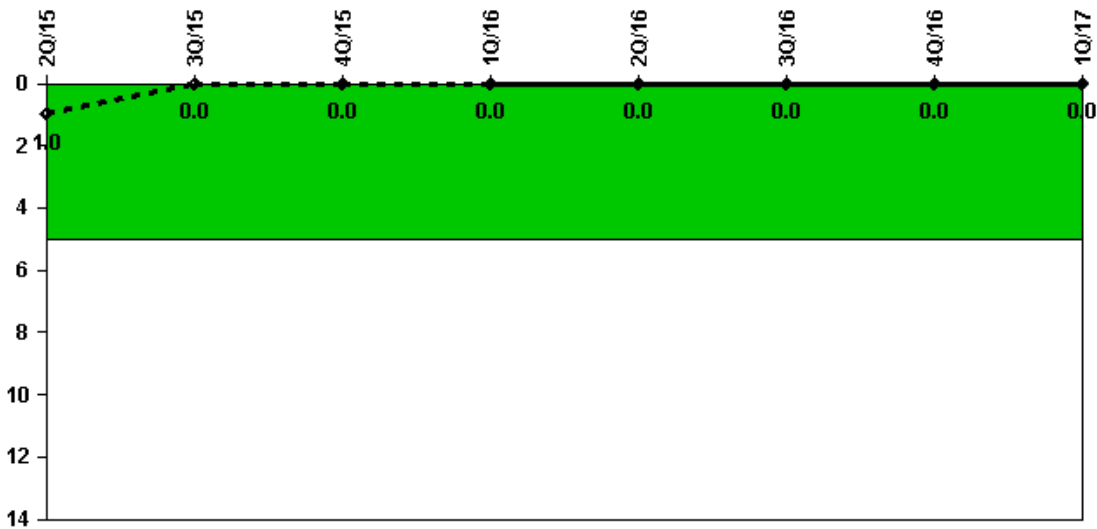
Unplanned Scrams with Complications	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Scrams with complications	0	0	0	0	0	0	0	0

<b>Indicator value</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
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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 1 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)	2.12E-08	-1.65E-10	8.25E-09	1.59E-08	1.59E-08	1.57E-08	1.22E-08	3.09E-09
URI (ΔCDF)	-1.29E-08	-1.29E-08	-1.29E-08	-5.09E-08	-5.09E-08	-5.09E-08	-5.09E-08	-5.09E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>8.30E-09</b>	<b>-1.30E-08</b>	<b>-4.70E-09</b>	<b>-3.50E-08</b>	<b>-3.50E-08</b>	<b>-3.50E-08</b>	<b>-3.90E-08</b>	<b>-4.80E-08</b>

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Licensee Comments:

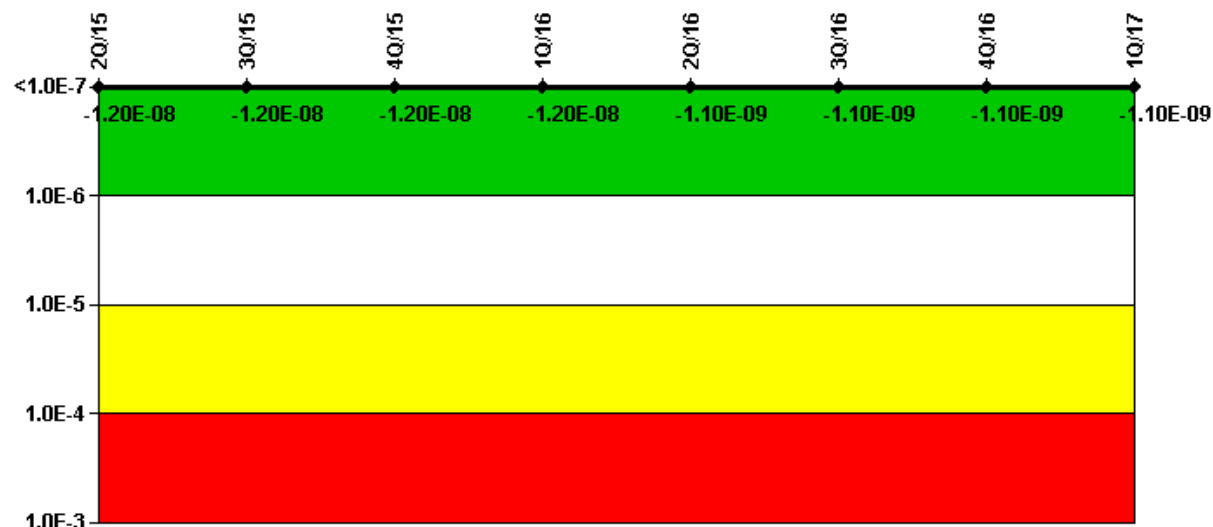
1Q/16: In March 2016, fuel oil head tank support bracket bolts (2) on the 2A emergency diesel generator were discovered to be laying beneath the brackets. The preliminary determination is the engine would have provided its key safety function for its PRA mission time and the discovered condition does not constitute a MSPI failure. Further engineering analysis is in progress to make a final determination.

3Q/15: In 3rd Quarter 2015, updated unavailability for EDG 2A for September 2012, net change was ( ) 1.91 hours and EDG 1B for April 2014 and February 2015, net change was (-) 25.72 hours , no color change as a result.

2Q/15: In May 2015, planned unavailability hours from September 2012, July and November 2013, February 2014, and February 2015, were adjusted resulting in a net decrease of 25.81 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 September 2012, July and November 2013, February 2014, and February 2015, were adjusted resulting in a net decrease of 25.81 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

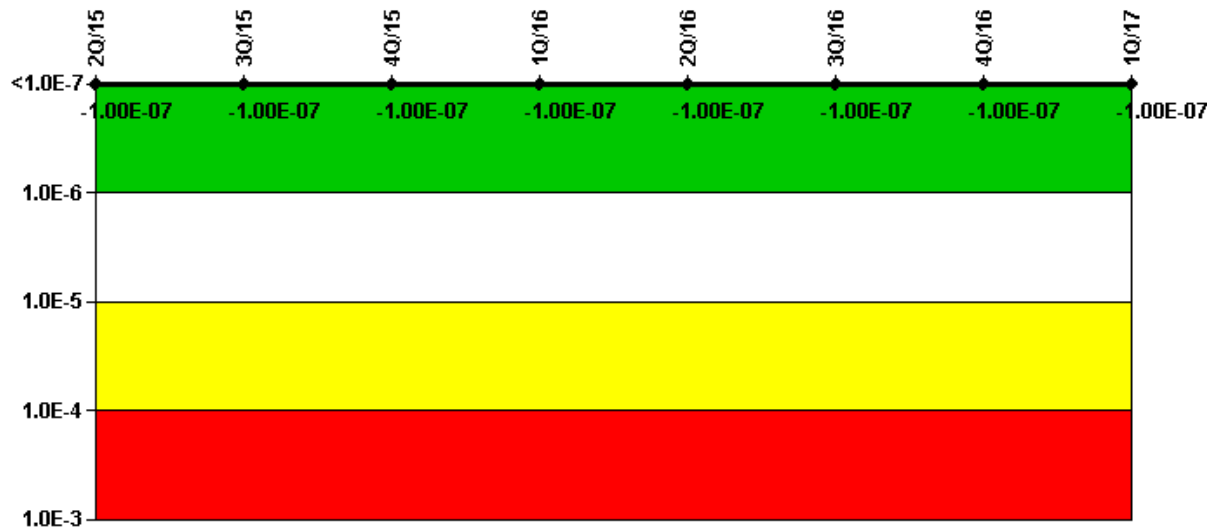
**Notes**

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	3.87E-10	3.87E-10	3.87E-10	3.87E-10
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-1.20E-08</b>	<b>-1.20E-08</b>	<b>-1.20E-08</b>	<b>-1.20E-08</b>	<b>-1.10E-09</b>	<b>-1.10E-09</b>	<b>-1.10E-09</b>	<b>-1.10E-09</b>

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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

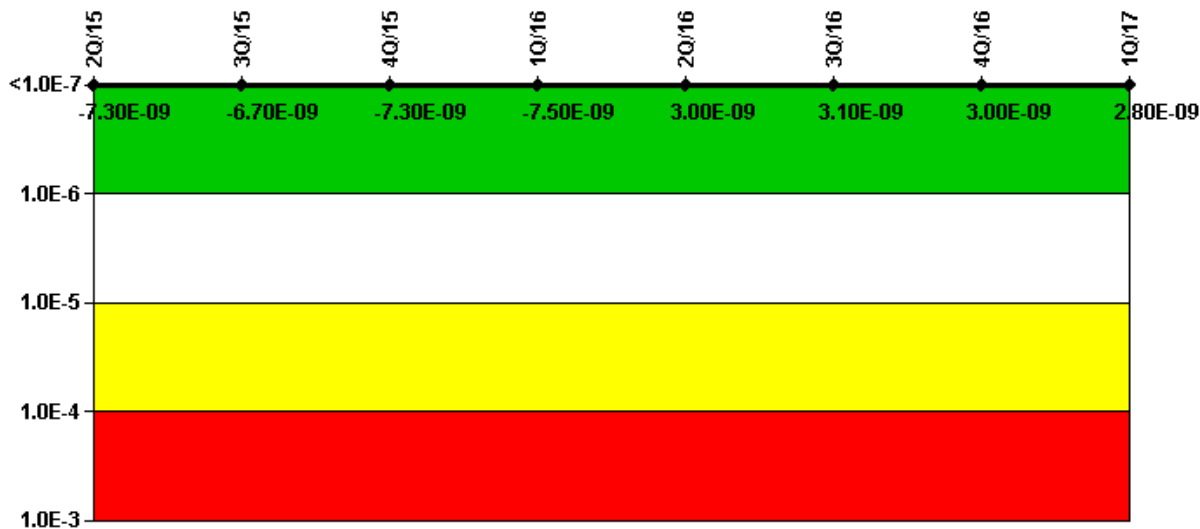
#### Notes

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
<b>Indicator value</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>

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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 ( $\Delta$ CDF)	-9.01E-10	-2.94E-10	-9.14E-10	-1.10E-09	-1.26E-09	-1.20E-09	-1.26E-09	-1.46E-09
URI ( $\Delta$ CDF)	-6.37E-09	-6.37E-09	-6.37E-09	-6.37E-09	4.26E-09	4.26E-09	4.26E-09	4.26E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-7.30E-09</b>	<b>-6.70E-09</b>	<b>-7.30E-09</b>	<b>-7.50E-09</b>	<b>3.00E-09</b>	<b>3.10E-09</b>	<b>3.00E-09</b>	<b>2.80E-09</b>

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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

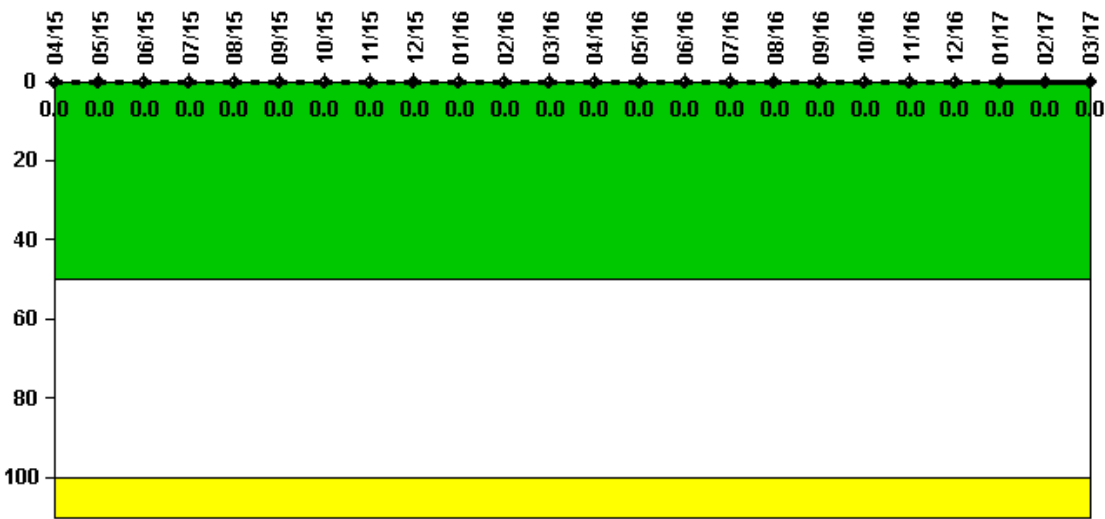
	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI ( $\Delta$ CDF)	1.47E-08	1.24E-09	4.62E-09	6.36E-09	6.29E-09	6.12E-09	5.68E-09	3.66E-09
URI ( $\Delta$ CDF)	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08	-4.57E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-3.10E-08</b>	<b>-4.40E-08</b>	<b>-4.10E-08</b>	<b>-3.90E-08</b>	<b>-3.90E-08</b>	<b>-4.00E-08</b>	<b>-4.00E-08</b>	<b>-4.20E-08</b>

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Licensee Comments: none



### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

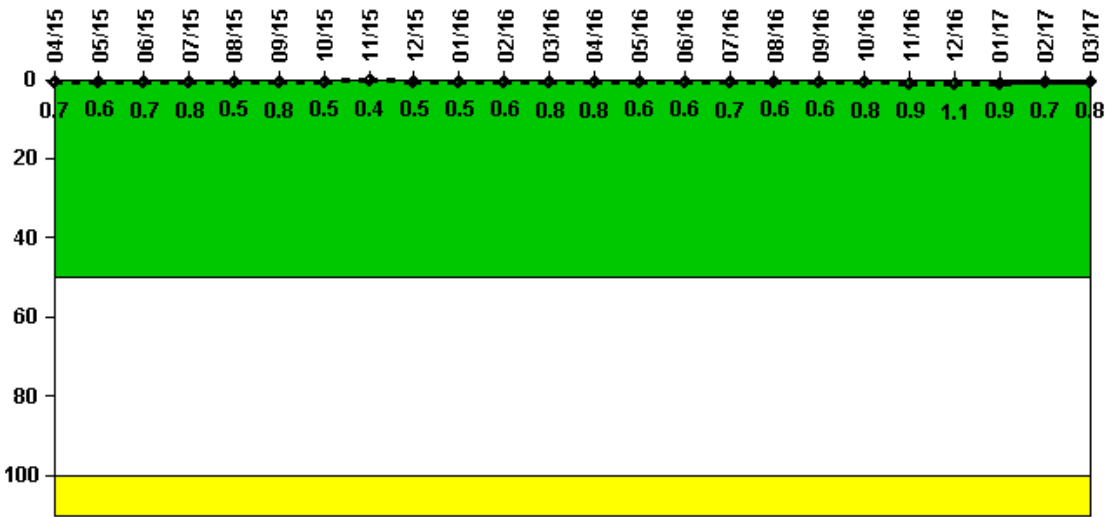
**Notes**

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	0.000192	0.000194	0.000195	0.000194	0.000190	0.000226	0.000221	0.000198	0.000259	0.000160	0.000162	0.000166
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	0.000166	0.000172	0.000179	0.000177	0.000182	0.000186	0.000194	0.000200	0.000196	0.000197	0.000207	0.000204
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	0.074	0.060	0.073	0.077	0.052	0.079	0.047	0.039	0.047	0.054	0.059	0.083
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

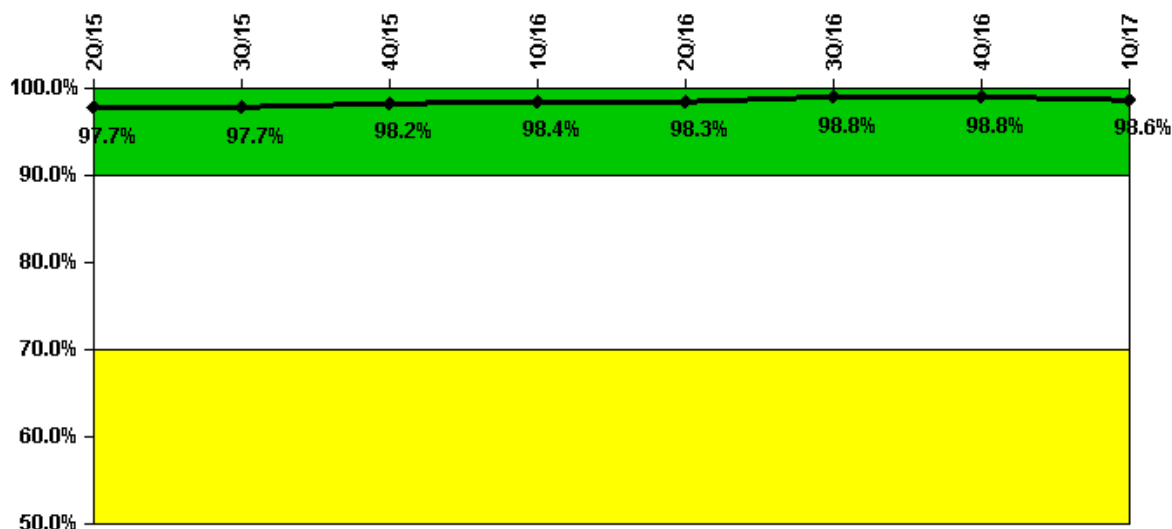
Indicator value	0.7	0.6	0.7	0.8	0.5	0.8	0.5	0.4	0.5	0.5	0.6	0.8
Reactor Coolant System Leakage	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16	1/17	2/17	3/17
Maximum leakage	0.080	0.064	0.061	0.069	0.060	0.056	0.077	0.089	0.109	0.090	0.071	0.080
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Indicator value	0.8	0.6	0.6	0.7	0.6	0.6	0.8	0.9	1.1	0.9	0.7	0.8
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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%**

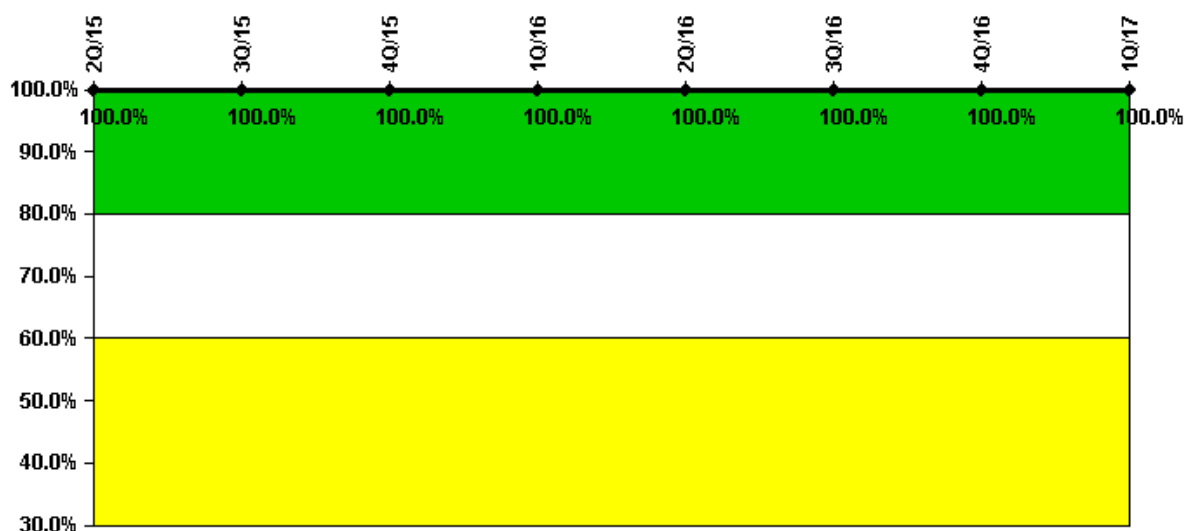
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#### Licensee Comments:

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

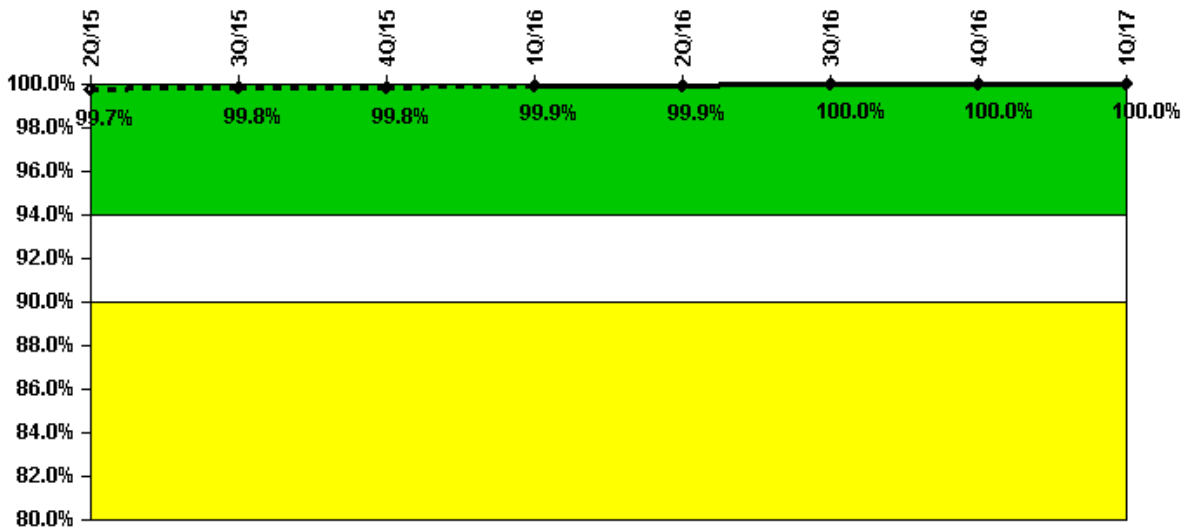
**Indicator value**                    **100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%**

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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

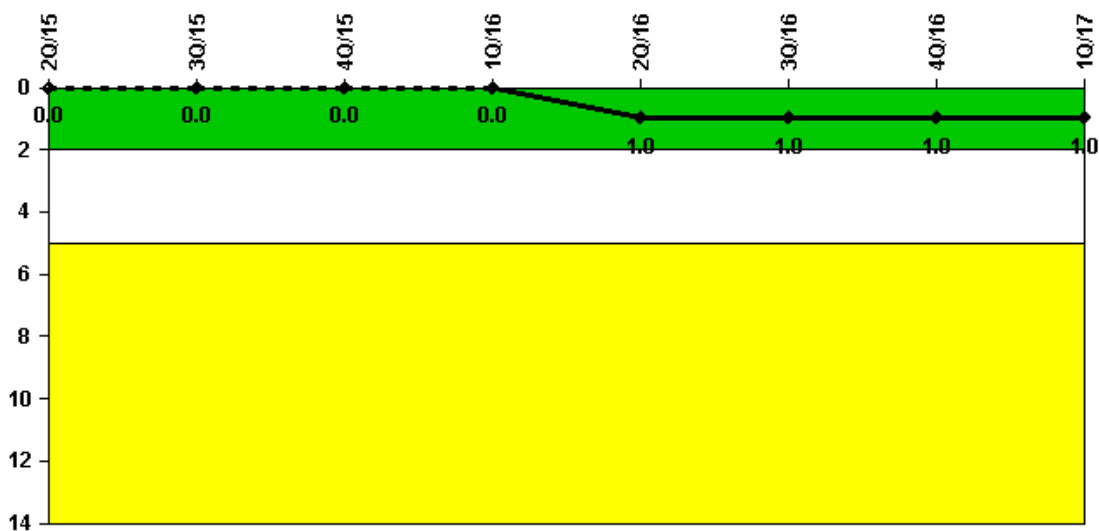
Alert & Notification System	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Successful siren-tests	912	909	1008	1102	1044	1102	1218	1102
Total sirens-tests	912	912	1008	1102	1044	1102	1218	1102

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**

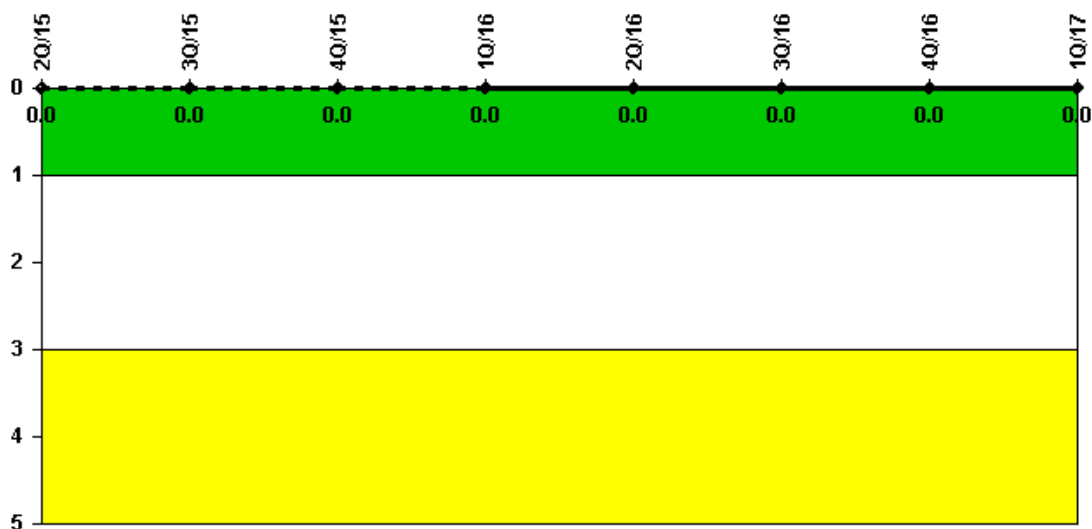
**Occupational Exposure Control Effectiveness** 2Q/15 3Q/15 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17

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
<b>Indicator value</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>

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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