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## **Wolf Creek – Quarterly Performance Indicators**

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

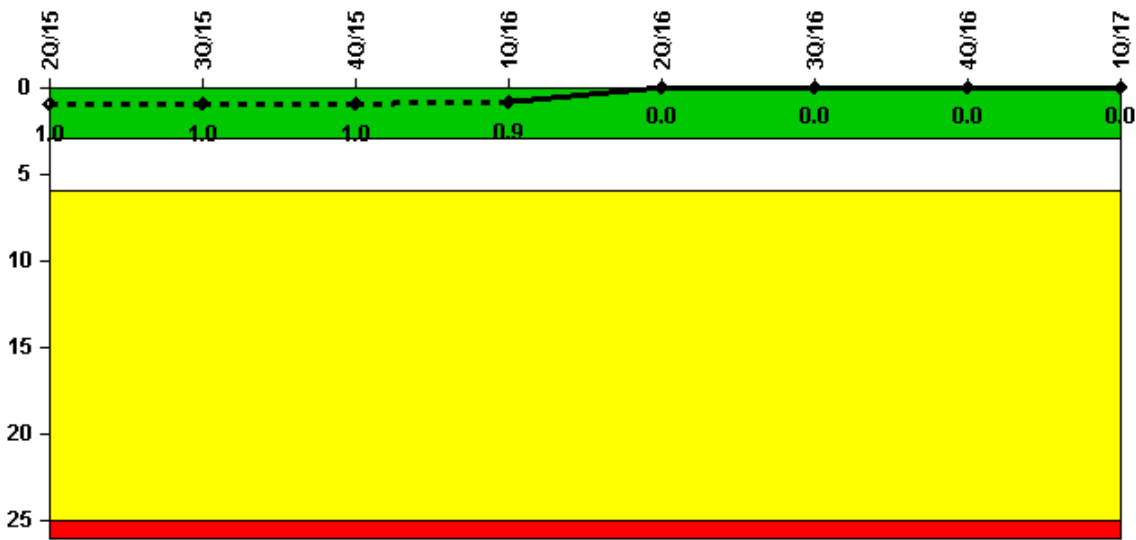
The solid trend line represents the current reporting period.

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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- Emergency AC Power Systems (MS06)
- High Pressure Injection Systems (MS07)
- Heat Removal Systems (MS08)
- Residual Heat Removal Systems (MS09)
- Cooling Water Systems (MS10)
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- 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

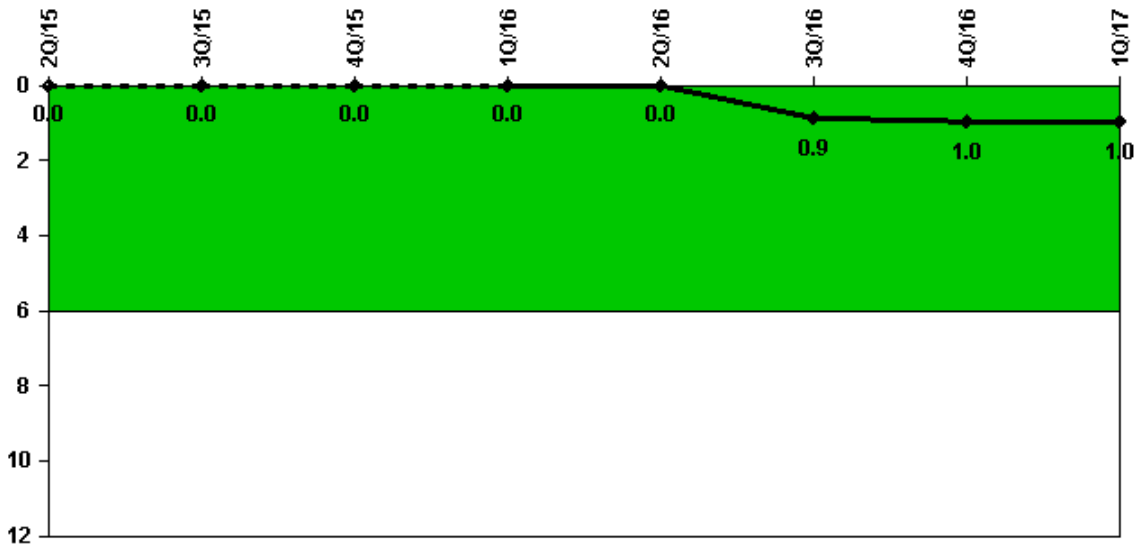
**Notes**

Unplanned Scrams per 7000 Critical Hrs	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Unplanned scrams	1.0	0	0	0	0	0	0	0
Critical hours	1419.7	2208.0	2209.0	2183.0	2184.0	1524.0	1003.3	2159.0
<b>Indicator value</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>0.9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

#### Notes

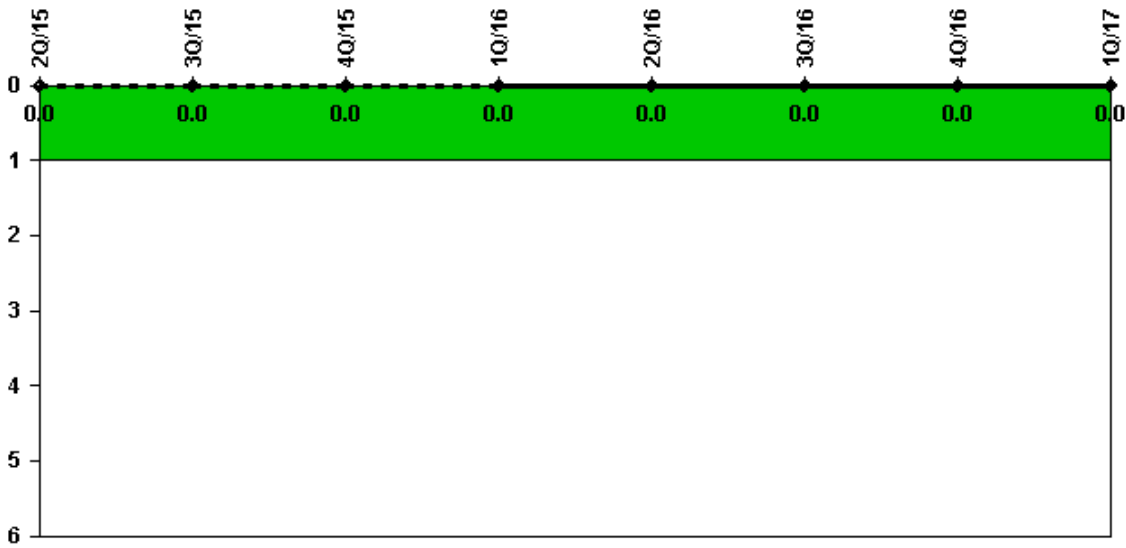
Unplanned Power Changes per 7000 Critical Hrs	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Unplanned power changes	0	0	0	0	0	1.0	0	0
Critical hours	1419.7	2208.0	2209.0	2183.0	2184.0	1524.0	1003.3	2159.0
<b>Indicator value</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.9</b>	<b>1.0</b>	<b>1.0</b>

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#### Licensee Comments:

3Q/16: Unit shutdown due to unidentified RCS leakage. The source of the leak was identified on Core Exit Thermocouple Nozzle Assembly (CETNA) penetration #77.

### 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

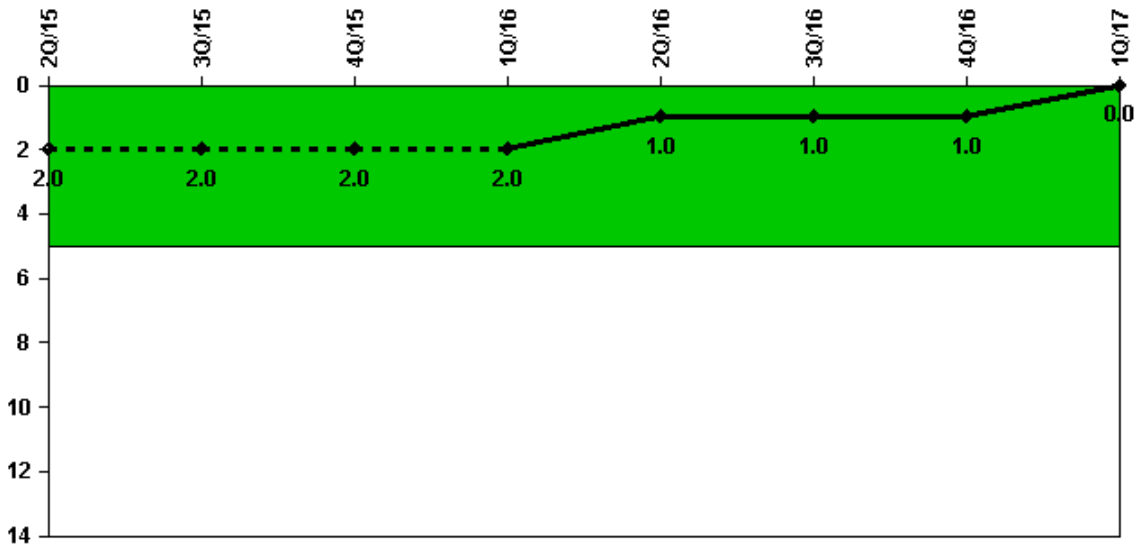
Scrams with complications 0 0 0 0 0 0 0 0

Indicator value 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

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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 1 0 0 1 0 0 0 0

Indicator value 2 2 2 2 1 1 1 0

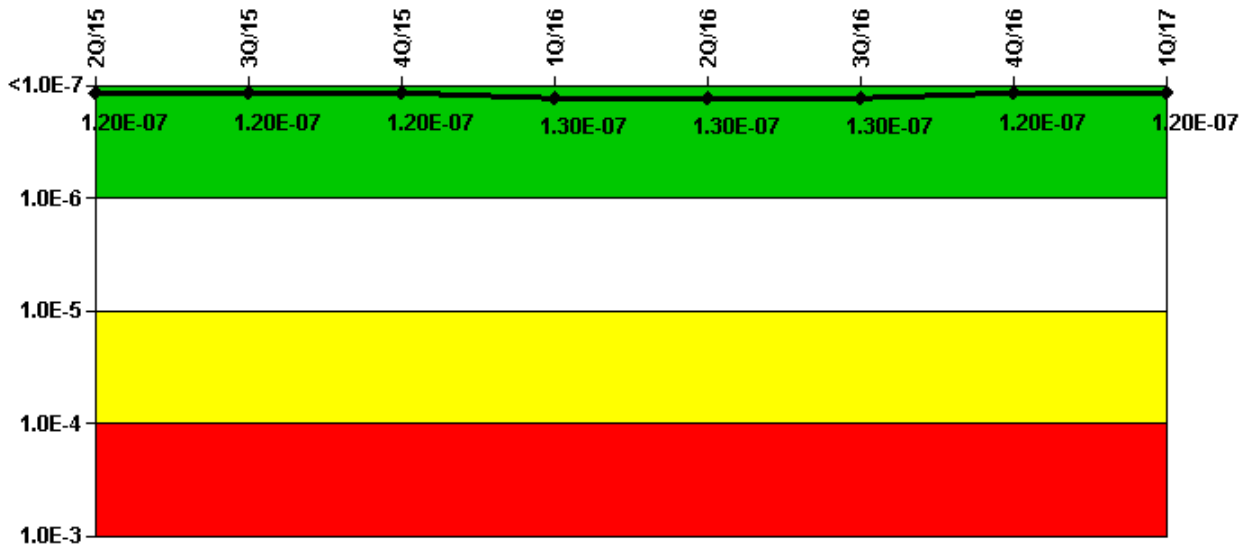
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Licensee Comments:

1Q/16: LER 2016-001

2Q/15: LER 2015-002-00

### Mitigating Systems Performance Index, Emergency AC Power System



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

**Notes**

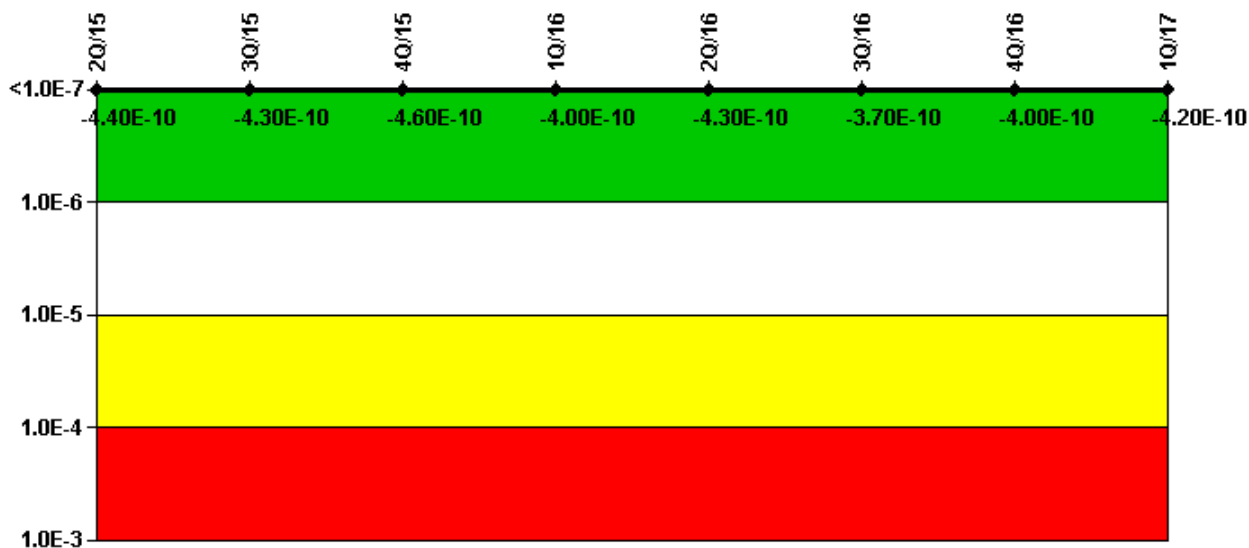
**Mitigating Systems Performance Index, Emergency AC Power System**

	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI ( $\Delta$ CDF)	3.57E-09	3.57E-09	3.57E-09	3.26E-09	2.76E-09	2.83E-09	3.11E-09	2.94E-09
URI ( $\Delta$ CDF)	1.16E-07	1.16E-07	1.16E-07	1.28E-07	1.28E-07	1.29E-07	1.14E-07	1.14E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>1.20E-07</b>	<b>1.20E-07</b>	<b>1.20E-07</b>	<b>1.30E-07</b>	<b>1.30E-07</b>	<b>1.30E-07</b>	<b>1.20E-07</b>	<b>1.20E-07</b>

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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

	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI ( $\Delta$ CDF)	-7.97E-12	-2.04E-11	-3.06E-11	-1.63E-12	-6.82E-11	-2.38E-12	1.03E-11	-2.07E-11
URI ( $\Delta$ CDF)	-4.33E-10	-4.13E-10	-4.33E-10	-3.93E-10	-3.60E-10	-3.70E-10	-4.10E-10	-3.95E-10
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-4.40E-10	-4.30E-10	-4.60E-10	-4.00E-10	-4.30E-10	-3.70E-10	-4.00E-10	-4.20E-10

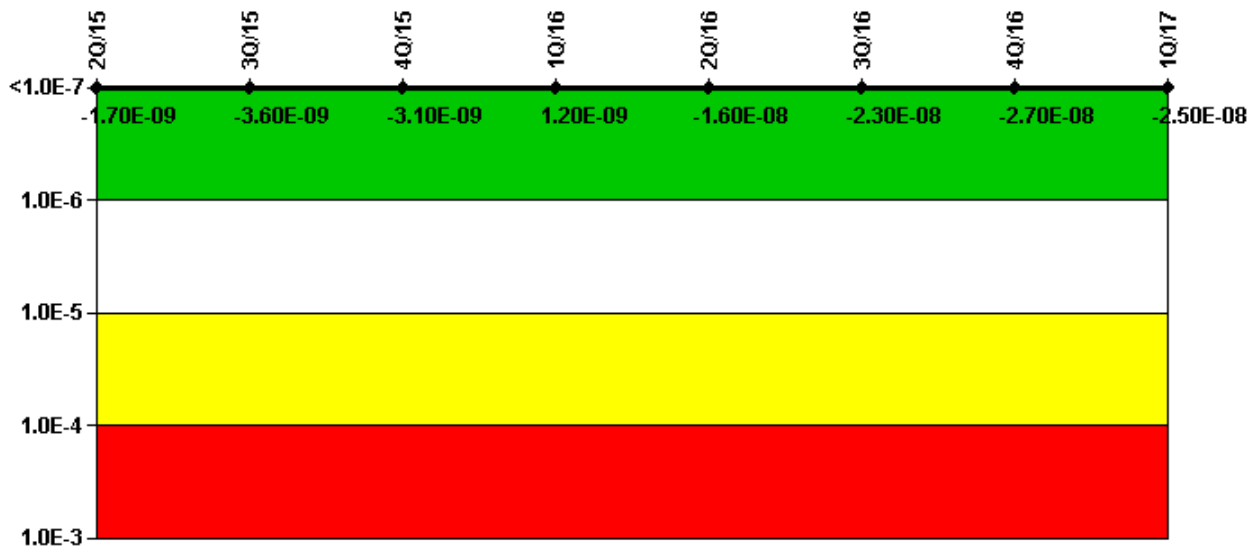
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#### Licensee Comments:

4Q/15: Data error identified and corrected for the A train Safety Injection Pump (SIP). 2.63 hrs was corrected to 1.63 hrs.

3Q/15: Responsible engineer missed a surveillance entry in the EM system on valve EMHV8924. This entry has been corrected.

### 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 ( $\Delta$ CDF)	6.02E-08	5.92E-08	5.99E-08	6.56E-08	4.12E-08	3.25E-08	3.04E-08	3.20E-08
URI ( $\Delta$ CDF)	-6.19E-08	-6.28E-08	-6.30E-08	-6.44E-08	-5.71E-08	-5.58E-08	-5.72E-08	-5.67E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.70E-09	-3.60E-09	-3.10E-09	1.20E-09	-1.60E-08	-2.30E-08	-2.70E-08	-2.50E-08

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#### Licensee Comments:

3Q/15: Responsible engineer miscalculated the 07/15 unavailability. This entry has been corrected.



### Mitigating Systems Performance Index, Residual Heat Removal System



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

**Notes**

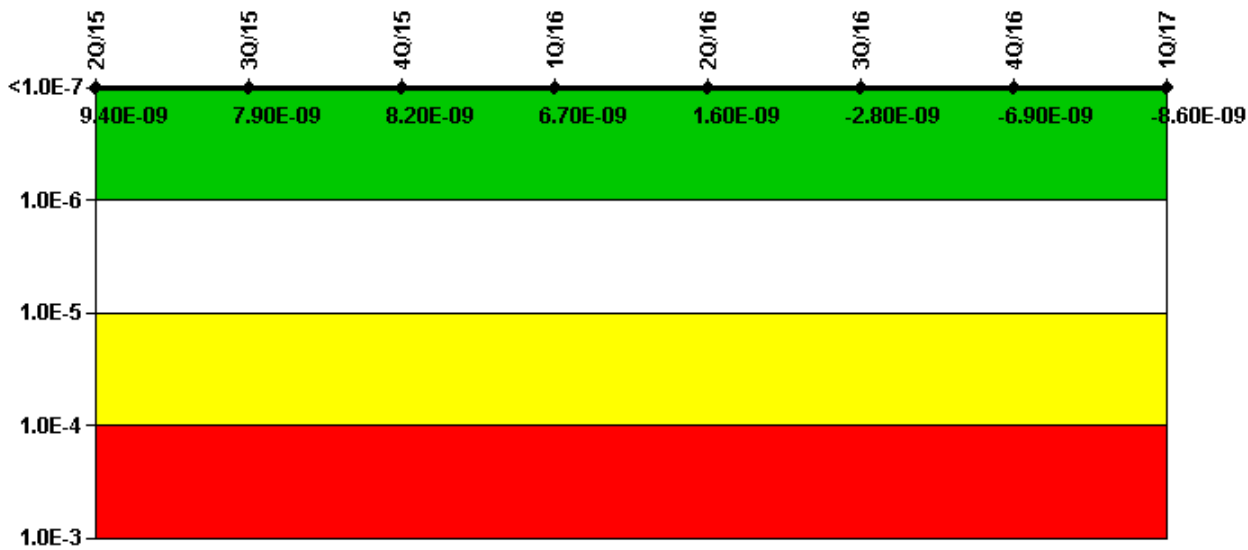
**Mitigating Systems Performance Index, Residual Heat Removal System**

	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI ( $\Delta$ CDF)	2.03E-09	3.50E-09	5.59E-09	4.70E-09	5.13E-09	9.25E-09	3.50E-09	3.20E-10
URI ( $\Delta$ CDF)	-4.41E-08	-4.41E-08	-4.45E-08	-3.76E-08	-3.52E-08	-3.75E-08	-4.38E-08	-4.10E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-4.20E-08</b>	<b>-4.10E-08</b>	<b>-3.90E-08</b>	<b>-3.30E-08</b>	<b>-3.00E-08</b>	<b>-2.80E-08</b>	<b>-4.00E-08</b>	<b>-4.10E-08</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**

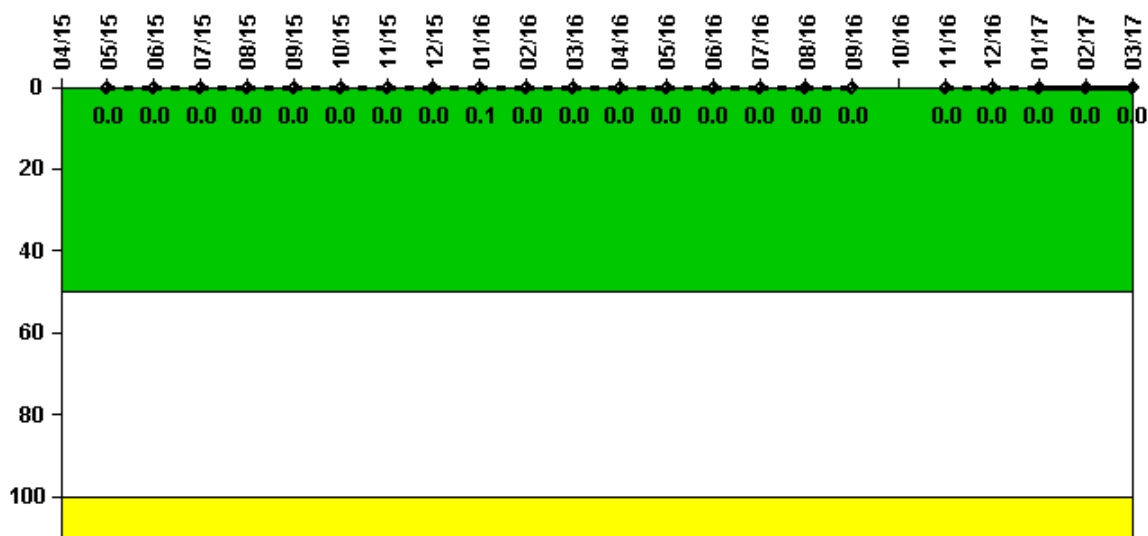
**Mitigating Systems Performance Index, Cooling Water Systems**

	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
UAI (ΔCDF)	3.17E-08	2.99E-08	3.05E-08	2.80E-08	2.23E-08	1.92E-08	1.58E-08	1.39E-08
URI (ΔCDF)	-2.23E-08	-2.21E-08	-2.23E-08	-2.12E-08	-2.07E-08	-2.19E-08	-2.27E-08	-2.25E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>9.40E-09</b>	<b>7.90E-09</b>	<b>8.20E-09</b>	<b>6.70E-09</b>	<b>1.60E-09</b>	<b>-2.80E-09</b>	<b>-6.90E-09</b>	<b>-8.60E-09</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	N/A	0.000300	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000200	0.000700	0.000200	0.000300
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	N/A	0	0	0	0	0	0	0	0	0.1	0	0

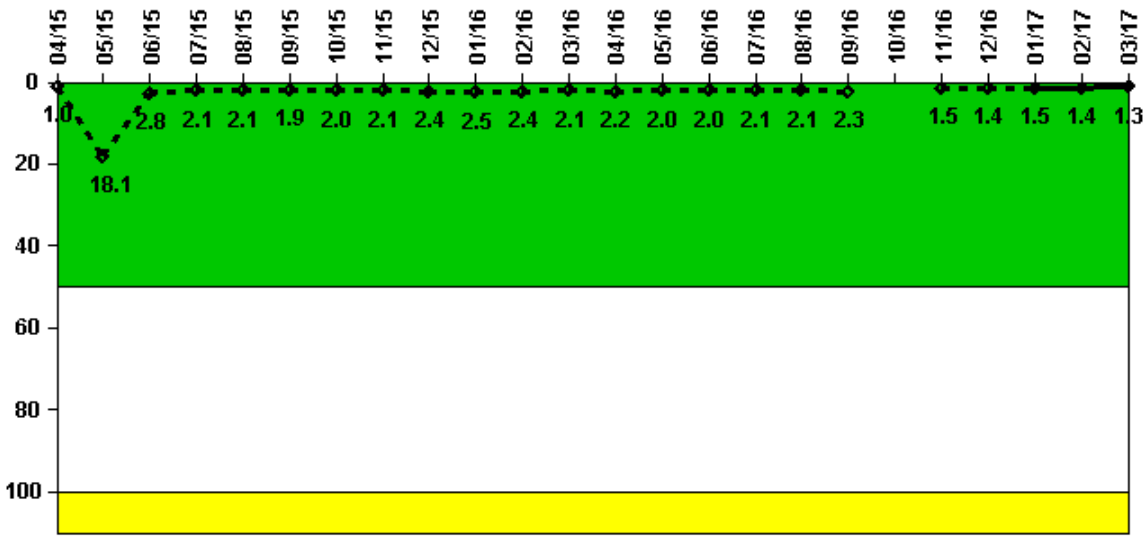
  

Reactor Coolant System Activity	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16	1/17	2/17	3/17
Maximum activity	0.000300	0.000300	0.000300	0.000300	0.000300	0.000300	N/A	0.000200	0.000200	0.000200	0.000300	0.000300
Technical specification limit	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Indicator value	0	0	0	0	0	0	N/A	0	0	0	0	0

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Licensee Comments:  
3/17: Indication of fuel defect present.

### Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

#### Notes

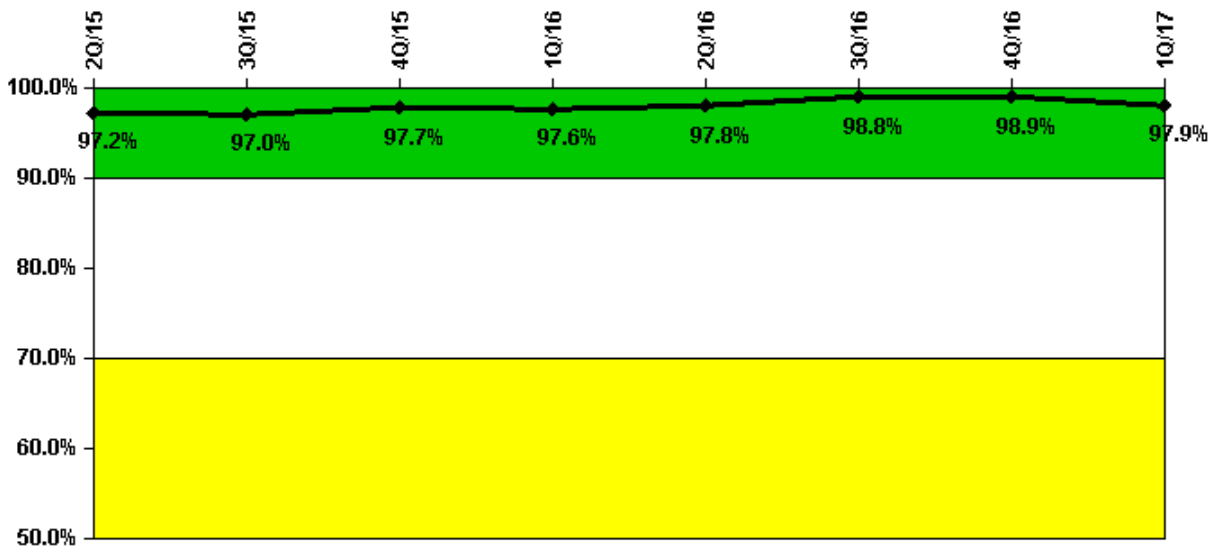
Reactor Coolant System Leakage	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16
Maximum leakage	0.100	1.810	0.280	0.210	0.210	0.190	0.200	0.210	0.240	0.250	0.240	0.210
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
<b>Indicator value</b>	<b>1.0</b>	<b>18.1</b>	<b>2.8</b>	<b>2.1</b>	<b>2.1</b>	<b>1.9</b>	<b>2.0</b>	<b>2.1</b>	<b>2.4</b>	<b>2.5</b>	<b>2.4</b>	<b>2.1</b>
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	0.220	0.200	0.200	0.210	0.210	0.230	N/A	0.150	0.140	0.150	0.140	0.130
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
<b>Indicator value</b>	<b>2.2</b>	<b>2.0</b>	<b>2.0</b>	<b>2.1</b>	<b>2.1</b>	<b>2.3</b>	<b>N/A</b>	<b>1.5</b>	<b>1.4</b>	<b>1.5</b>	<b>1.4</b>	<b>1.3</b>

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Licensee Comments:

12/15: Data correction for 11-2015 Max RCS Leakage

### Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

#### Notes

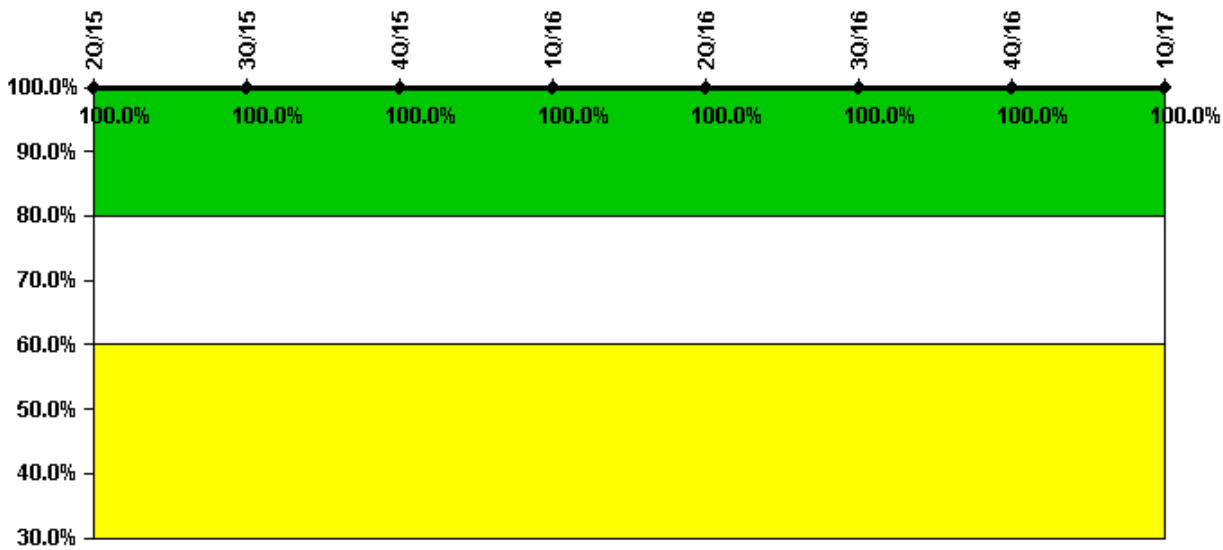
Drill/Exercise Performance	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Successful opportunities	21.0	23.0	18.0	36.0	27.0	8.0	14.0	43.0
Total opportunities	22.0	24.0	18.0	37.0	27.0	8.0	14.0	44.0

Indicator value                    97.2% 97.0% 97.7% 97.6% 97.8% 98.8% 98.9% 97.9%

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Licensee Comments: none

### ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

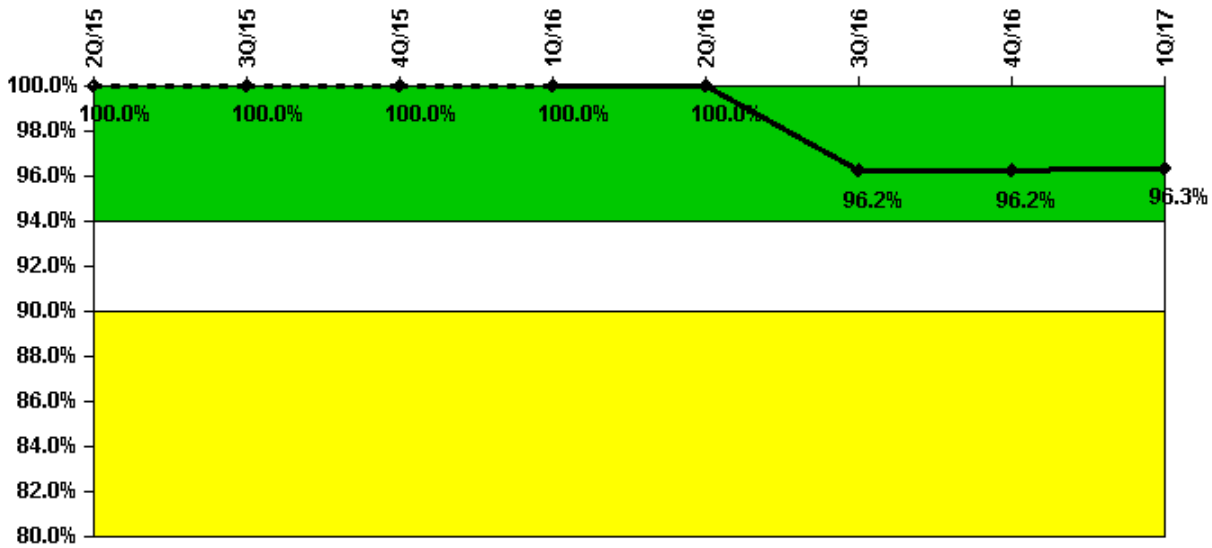
ERO Drill Participation	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Participating Key personnel	65.0	65.0	66.0	75.0	76.0	82.0	83.0	77.0
Total Key personnel	65.0	65.0	66.0	75.0	76.0	82.0	83.0	77.0

**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	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Successful siren-tests	66	77	66	77	66	66	66	88
Total sirens-tests	66	77	66	77	66	77	66	88

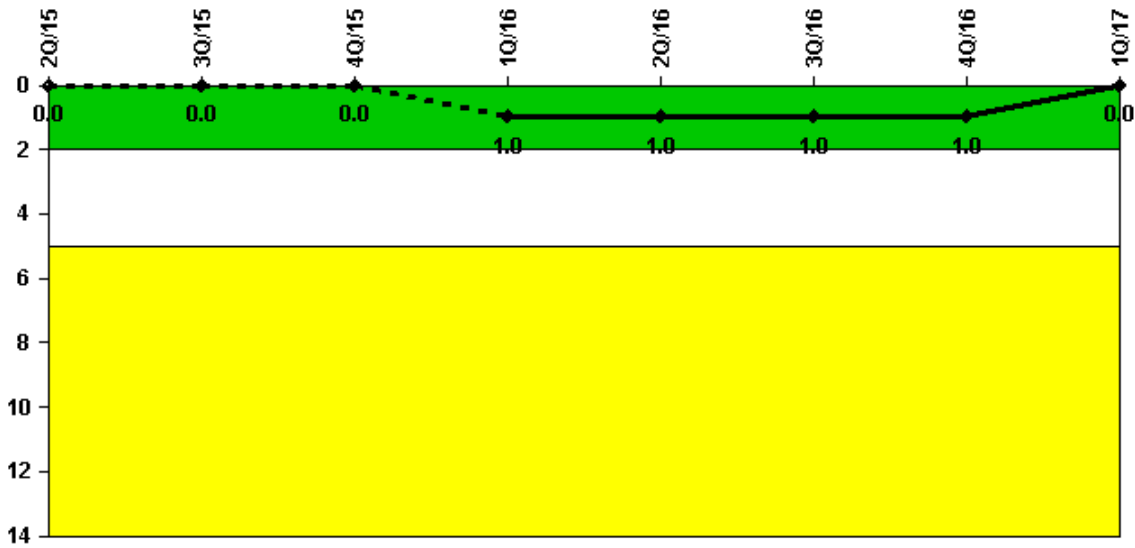
**Indicator value**                    **100.0% 100.0% 100.0% 100.0% 100.0% 96.2% 96.2% 96.3%**

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Licensee Comments:

3Q/16: August 2016 E-Plan siren failure due to county console failure.

### Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

**Notes**

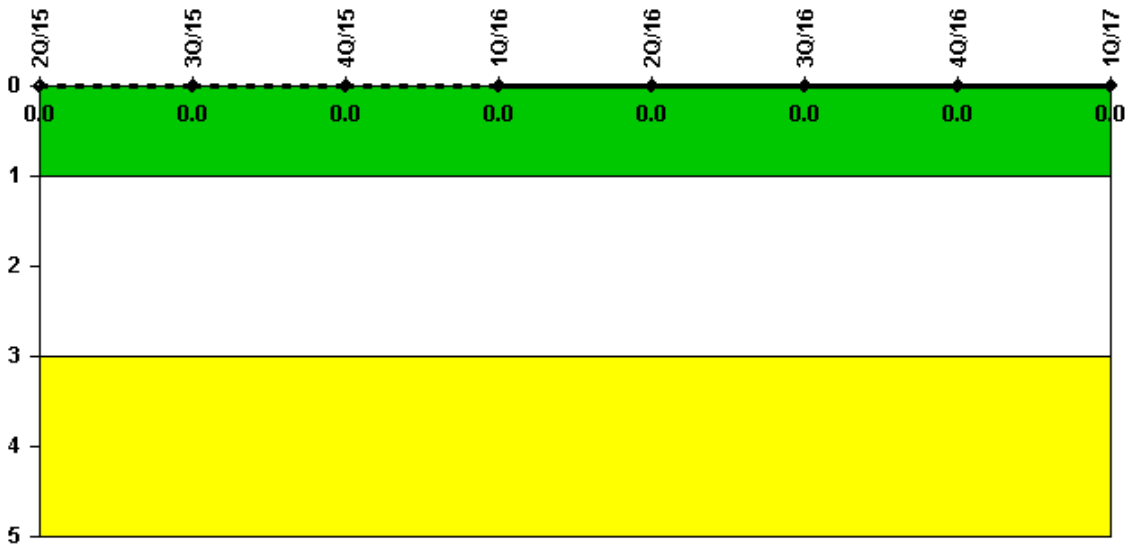
Occupational Exposure Control Effectiveness	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
High radiation area occurrences	0	0	0	1	0	0	0	0
Very high radiation area occurrences	0	0	0	0	0	0	0	0
Unintended exposure occurrences	0	0	0	0	0	0	0	0
<b>Indicator value</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</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