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## Millstone 2 – Quarterly Performance Indicators

### 4Q/2017 Performance Indicators

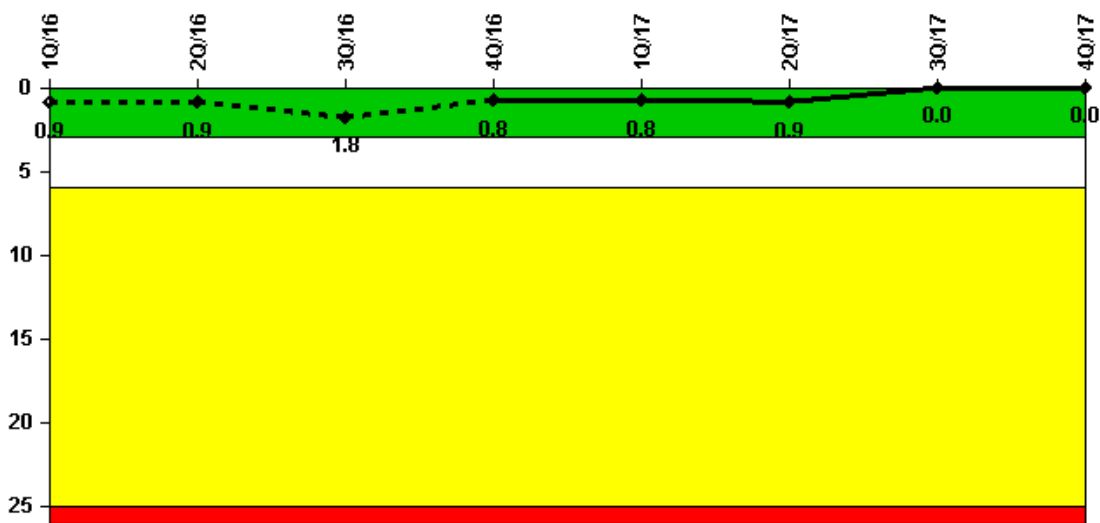
The solid trend line represents the current reporting period.

Licensee's General Comments: none

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- Unplanned Scrams (IE01)
- 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)
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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

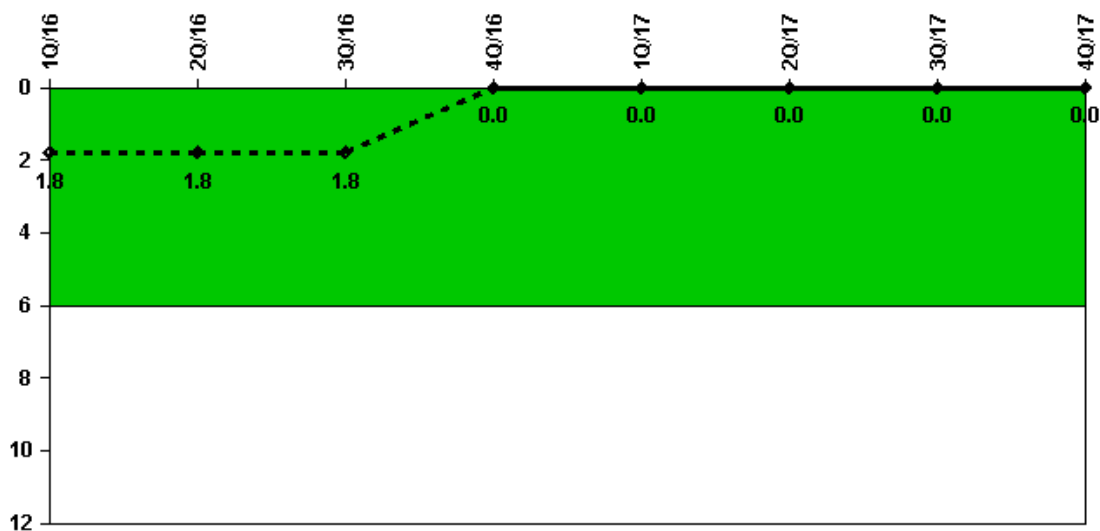
Unplanned Scrams per 7000 Critical Hrs	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Unplanned scrams	0	0	1.0	0	0	0	0	0
Critical hours	2183.0	2184.0	2168.2	2209.0	2159.0	1401.7	2208.0	2209.0

Indicator value	0.9	0.9	1.8	0.8	0.8	0.9	0	0
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Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

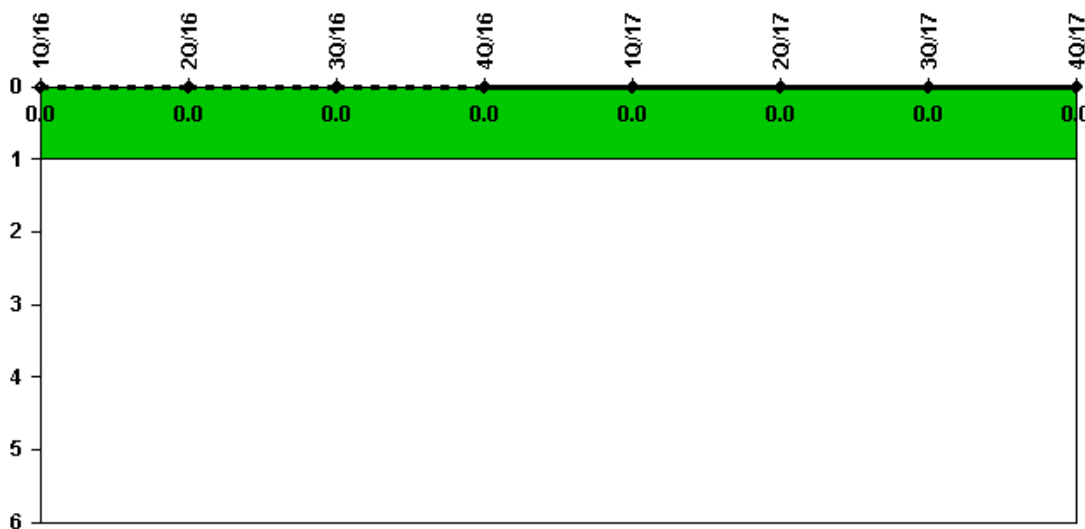
**Notes**

<b>Unplanned Power Changes per 7000 Critical Hrs</b>	<b>1Q/16</b>	<b>2Q/16</b>	<b>3Q/16</b>	<b>4Q/16</b>	<b>1Q/17</b>	<b>2Q/17</b>	<b>3Q/17</b>	<b>4Q/17</b>
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	2183.0	2184.0	2168.2	2209.0	2159.0	1401.7	2208.0	2209.0
<b>Indicator value</b>	<b>1.8</b>	<b>1.8</b>	<b>1.8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

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Licensee Comments: none

**Unplanned Scrams with Complications**



Thresholds: White > 1.0

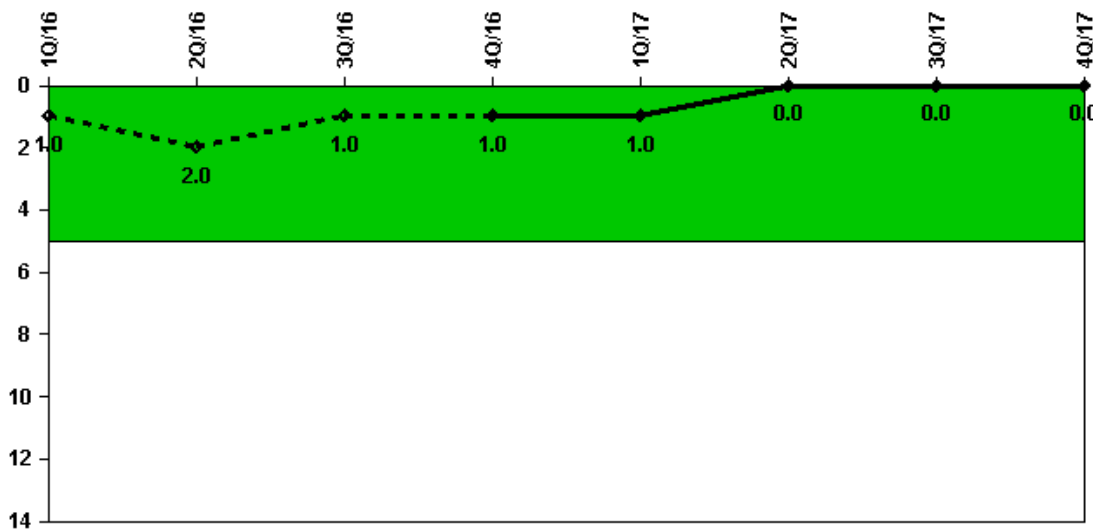
**Notes**

<b>Unplanned Scrams with Complications</b>	<b>1Q/16</b>	<b>2Q/16</b>	<b>3Q/16</b>	<b>4Q/16</b>	<b>1Q/17</b>	<b>2Q/17</b>	<b>3Q/17</b>	<b>4Q/17</b>
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) 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17 4Q/17

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

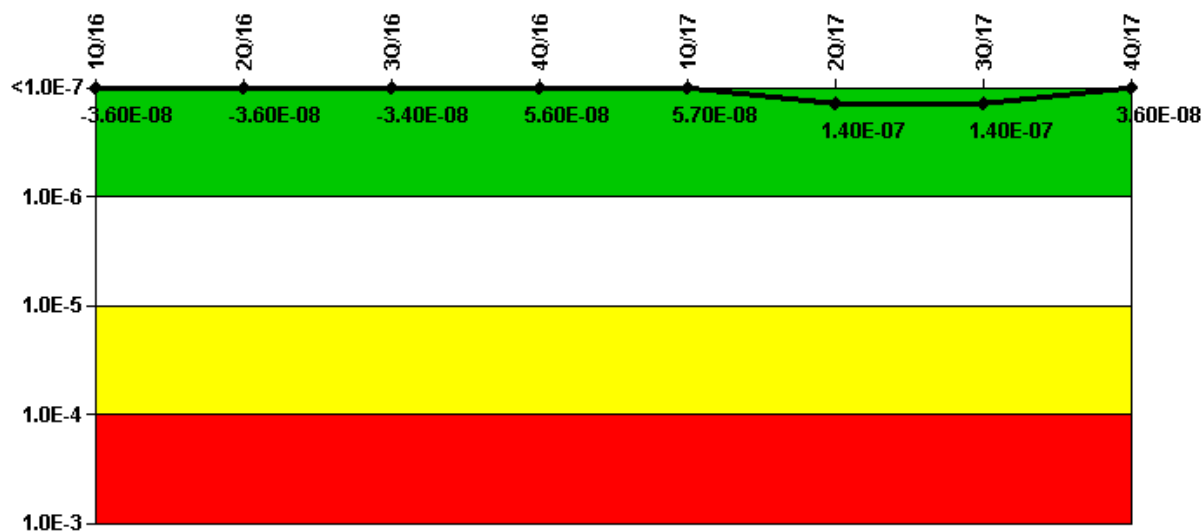
**Indicator value**    1    2    1    1    1    0    0    0

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Licensee Comments:

2Q/16: LER 2016-001-00, Turbine Driven Auxiliary Feedwater Pump Room HELB Door Left Open

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



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

**Notes**

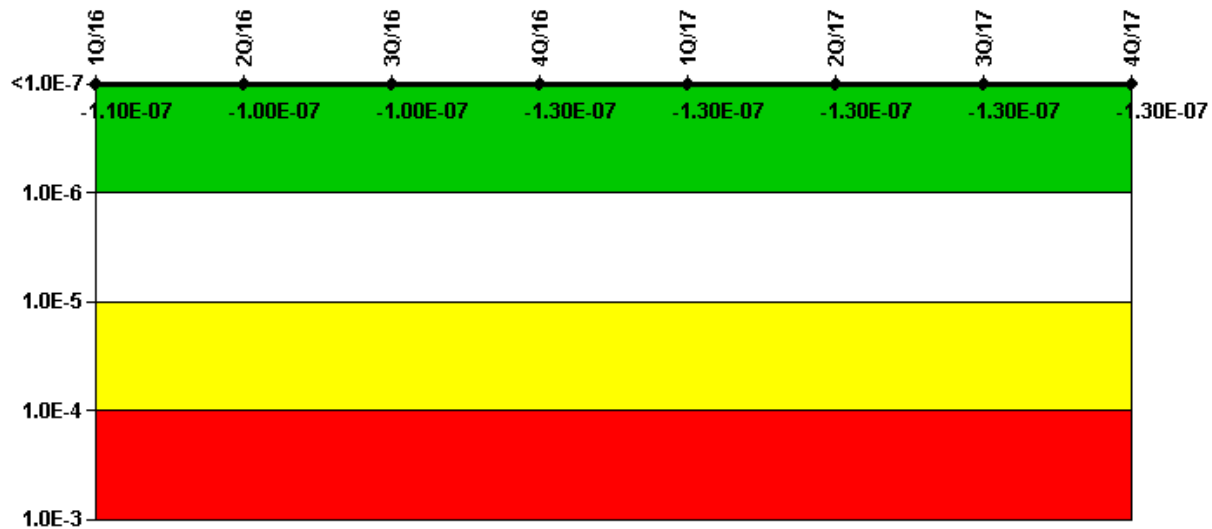
**Mitigating Systems Performance Index, Emergency AC Power System**

	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI (ΔCDF)	-1.14E-08	-1.14E-08	-1.14E-08	1.85E-09	1.82E-09	1.64E-09	1.59E-09	-1.87E-09
URI (ΔCDF)	-2.49E-08	-2.44E-08	-2.27E-08	5.41E-08	5.52E-08	1.37E-07	1.38E-07	3.77E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-3.60E-08</b>	<b>-3.60E-08</b>	<b>-3.40E-08</b>	<b>5.60E-08</b>	<b>5.70E-08</b>	<b>1.40E-07</b>	<b>1.40E-07</b>	<b>3.60E-08</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**

	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI ( $\Delta$ CDF)	-6.40E-08	-6.40E-08	-6.40E-08	-6.40E-08	-6.40E-08	-6.40E-08	-6.40E-08	-6.40E-08
URI ( $\Delta$ CDF)	-4.12E-08	-4.06E-08	-4.09E-08	-6.35E-08	-6.40E-08	-6.59E-08	-6.59E-08	-6.59E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-1.10E-07</b>	<b>-1.00E-07</b>	<b>-1.00E-07</b>	<b>-1.30E-07</b>	<b>-1.30E-07</b>	<b>-1.30E-07</b>	<b>-1.30E-07</b>	<b>-1.30E-07</b>

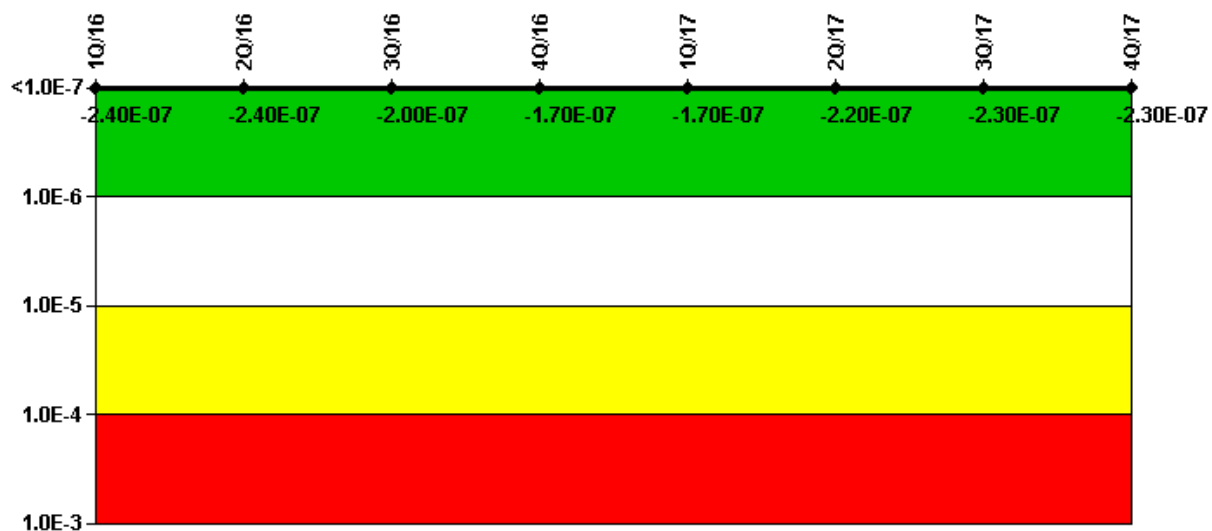
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Licensee Comments:

1Q/17: Changed PRA Parameter(s).

4Q/16: Changed PRA Parameter(s). The generic common cause factor for the HPSI pumps was corrected in the fourth quarter. The error did not result in the indicator value crossing the green white threshold.

### Mitigating Systems Performance Index, Heat Removal System



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

**Notes**

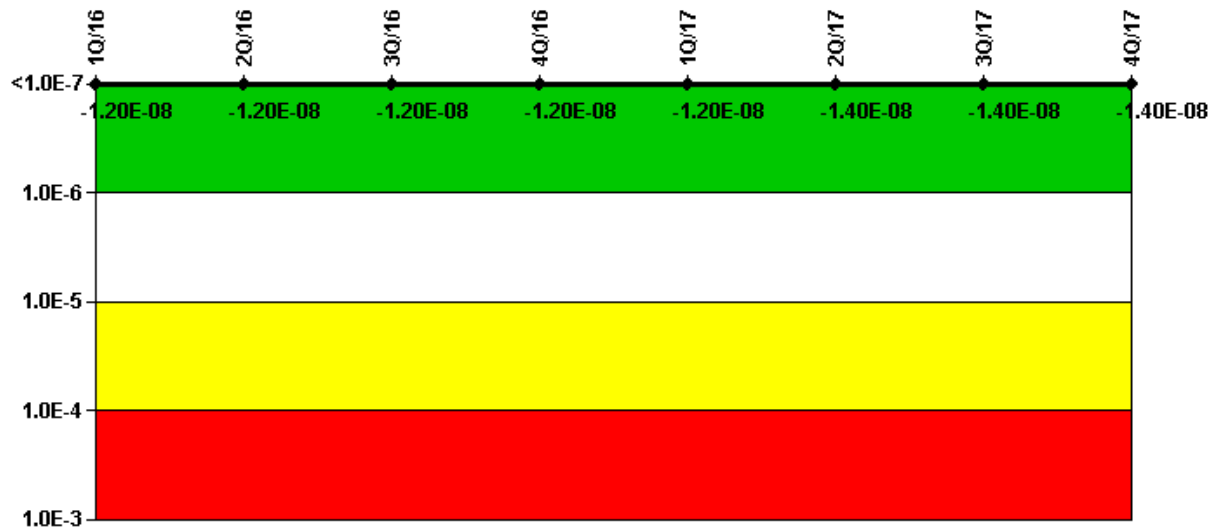
**Mitigating Systems Performance Index, Heat Removal System**

	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI ( $\Delta$ CDF)	-8.75E-08	-8.77E-08	-5.28E-08	-2.18E-08	-2.22E-08	-7.94E-08	-9.62E-08	-9.62E-08
URI ( $\Delta$ CDF)	-1.48E-07	-1.48E-07	-1.48E-07	-1.48E-07	-1.49E-07	-1.43E-07	-1.38E-07	-1.38E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-2.40E-07</b>	<b>-2.40E-07</b>	<b>-2.00E-07</b>	<b>-1.70E-07</b>	<b>-1.70E-07</b>	<b>-2.20E-07</b>	<b>-2.30E-07</b>	<b>-2.30E-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**

	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI ( $\Delta$ CDF)	1.33E-10	-1.28E-10	-5.34E-11	-5.55E-11	1.85E-11	1.78E-11	1.42E-10	-1.83E-10
URI ( $\Delta$ CDF)	-1.23E-08	-1.23E-08	-1.23E-08	-1.23E-08	-1.25E-08	-1.40E-08	-1.40E-08	-1.40E-08
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>-1.20E-08</b>	<b>-1.40E-08</b>	<b>-1.40E-08</b>	<b>-1.40E-08</b>

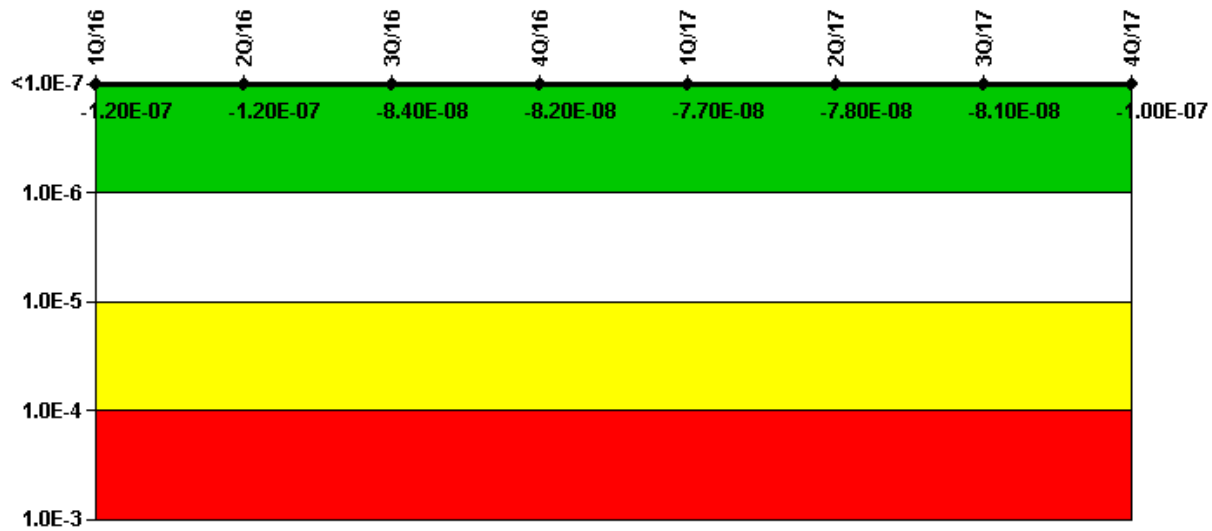
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Licensee Comments:

3Q/16: The first quarter 2015 demand data was corrected to include an additional valve demand. This did not result in a change to the calculated MSPI. It did not result in the indicator value crossing the GREEN/WHITE threshold.



### 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**

	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI ( $\Delta$ CDF)	3.39E-08	3.46E-08	7.12E-08	7.10E-08	7.60E-08	7.47E-08	7.13E-08	5.16E-08
URI ( $\Delta$ CDF)	-1.55E-07	-1.55E-07	-1.55E-07	-1.53E-07	-1.53E-07	-1.52E-07	-1.52E-07	-1.52E-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>-8.40E-08</b>	<b>-8.20E-08</b>	<b>-7.70E-08</b>	<b>-7.80E-08</b>	<b>-8.10E-08</b>	<b>-1.00E-07</b>

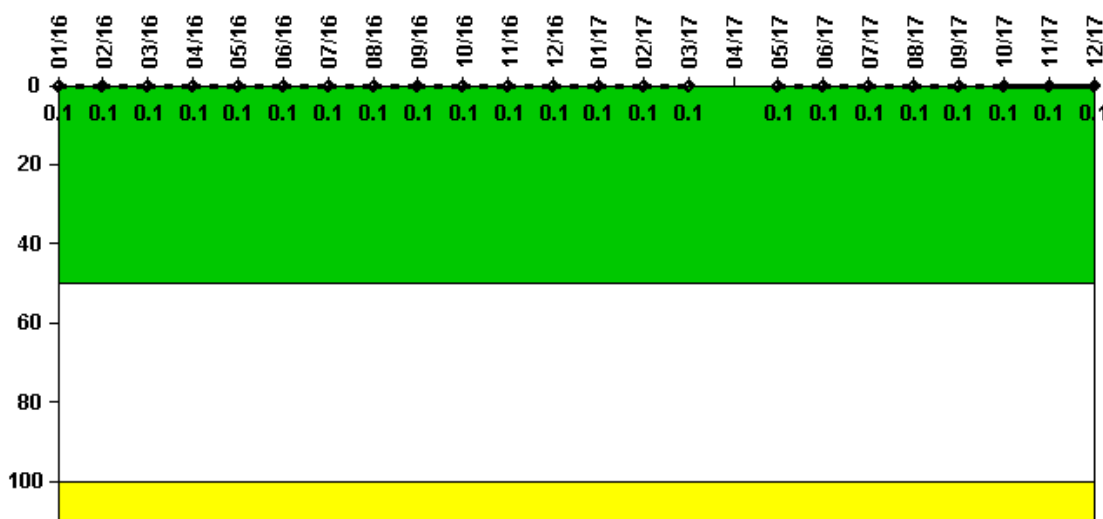
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Licensee Comments:

1Q/17: Changed PRA Parameter(s).

4Q/16: Changed PRA Parameter(s). The generic common cause factor for the reactor building cooling water pumps was corrected in the fourth quarter. The error did not result in the indicator value crossing the green white threshold.

### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

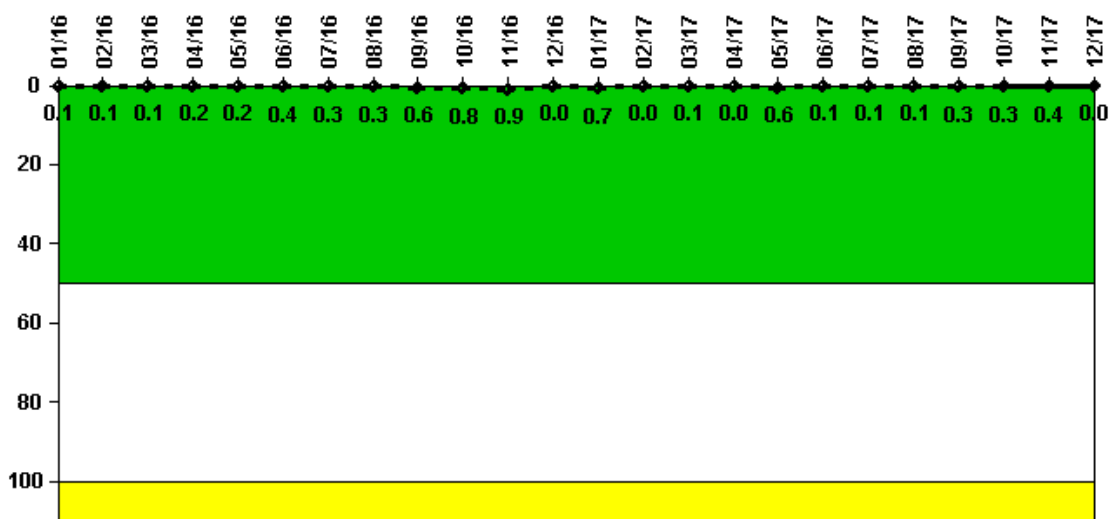
**Notes**

Reactor Coolant System Activity	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16
Maximum activity	0.000913	0.000882	0.000979	0.000971	0.001020	0.001030	0.001050	0.001190	0.001110	0.001120	0.001180	0.001200
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
<b>Indicator value</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>
Reactor Coolant System Activity	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17	10/17	11/17	12/17
Maximum activity	0.001250	0.001330	0.001300	N/A	0.000750	0.000778	0.000799	0.000807	0.000889	0.000845	0.000874	0.000927
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
<b>Indicator value</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>N/A</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>

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Licensee Comments: none

### Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

**Notes**

Reactor Coolant System Leakage	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16
Maximum leakage	0.006	0.008	0.009	0.015	0.018	0.038	0.025	0.034	0.055	0.077	0.089	0.003
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**                                    0.1    0.1    0.1    0.2    0.2    0.4    0.3    0.3    0.6    0.8    0.9    0

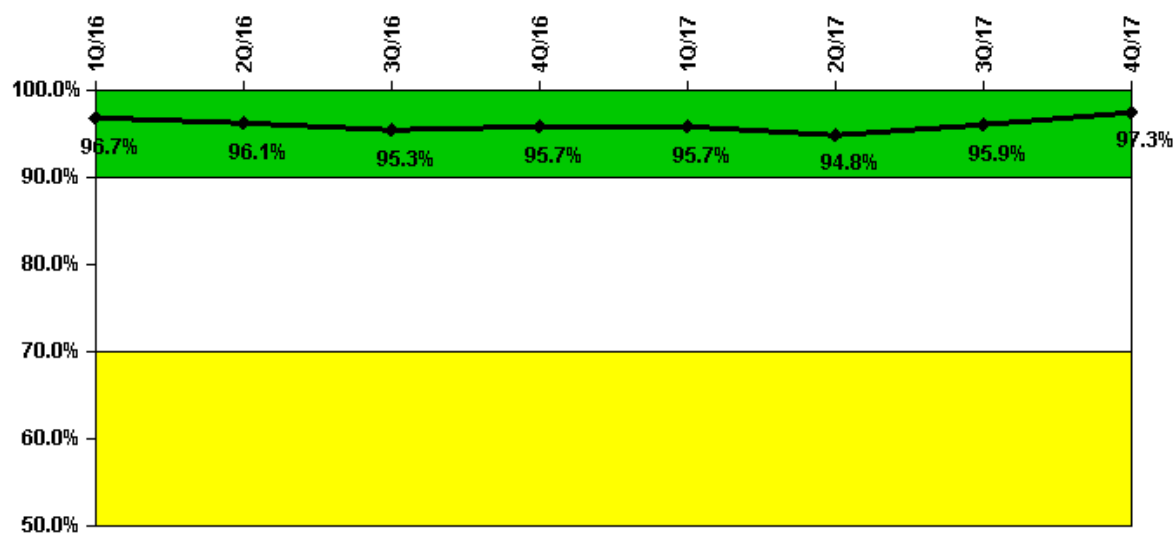
Reactor Coolant System Leakage	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17	10/17	11/17	12/17
Maximum leakage	0.070	0.002	0.005	0	0.056	0.008	0.011	0.013	0.025	0.027	0.038	0.003
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

**Indicator value**                                    0.7    0    0.1    0    0.6    0.1    0.1    0.1    0.3    0.3    0.4    0

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Licensee Comments: none

### Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

#### Notes

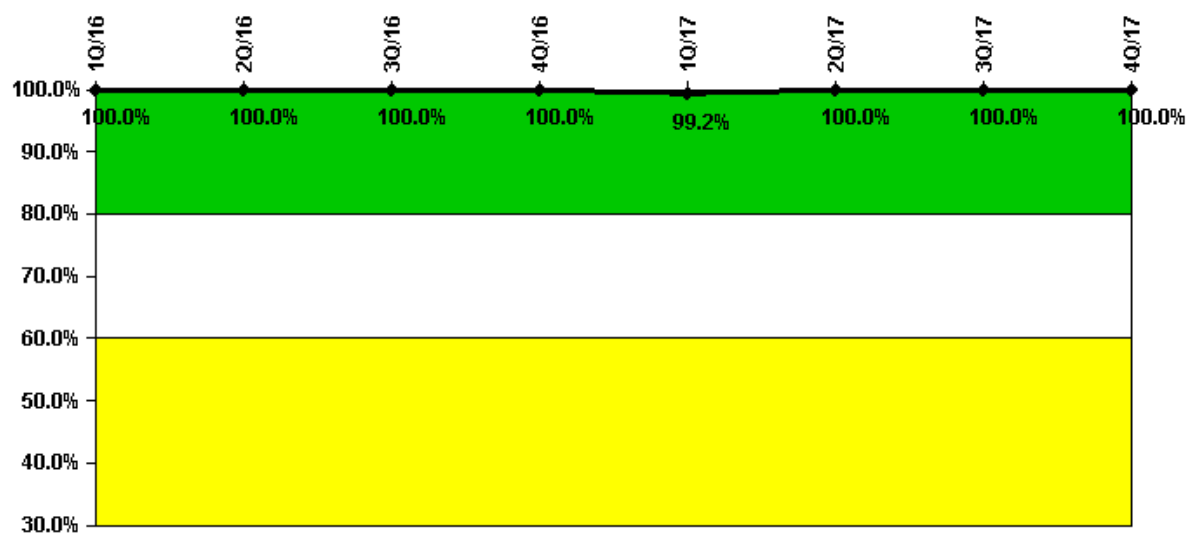
Drill/Exercise Performance	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Successful opportunities	36.0	16.0	31.0	25.0	22.0	16.0	40.0	32.0
Total opportunities	37.0	17.0	33.0	25.0	22.0	17.0	40.0	33.0

**Indicator value**                    **96.7% 96.1% 95.3% 95.7% 95.7% 94.8% 95.9% 97.3%**

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Licensee Comments: none

### ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

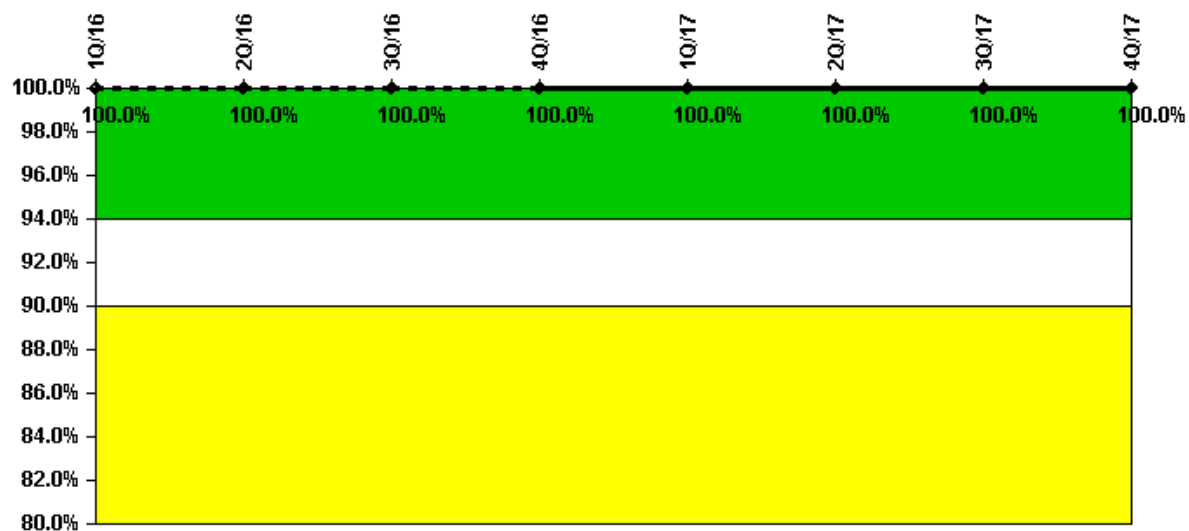
ERO Drill Participation	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Participating Key personnel	120.0	114.0	118.0	118.0	118.0	120.0	120.0	119.0
Total Key personnel	120.0	114.0	118.0	118.0	119.0	120.0	120.0	119.0

**Indicator value**                    **100.0% 100.0% 100.0% 100.0% 99.2% 100.0% 100.0% 100.0%**

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Licensee Comments: none

### Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

**Notes**

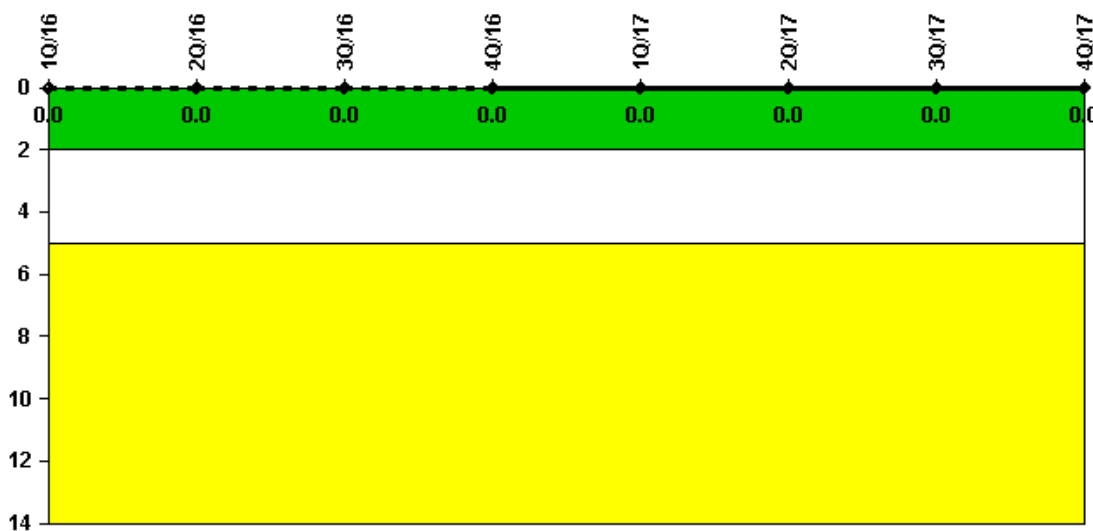
Alert & Notification System	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Successful siren-tests	553	474	553	474	553	474	553	474
Total sirens-tests	553	474	553	474	553	474	553	474

**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

### Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

**Notes**

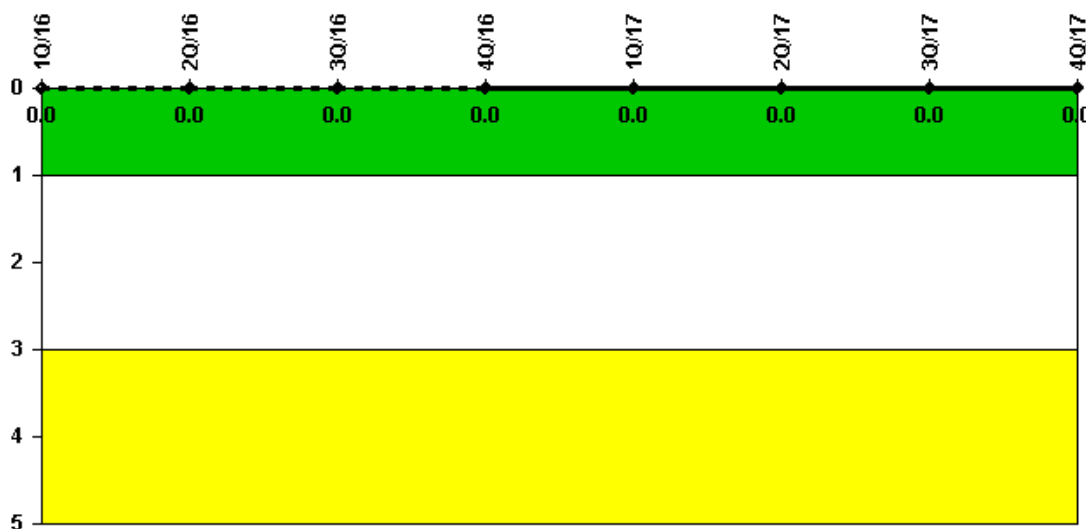
**Occupational Exposure Control Effectiveness** 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17 4Q/17

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
<b>Indicator value</b>	<b>0</b>	<b>0</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: none

### RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

**Notes**

**RETS/ODCM Radiological Effluent** 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17 4Q/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: February 1, 2018*

*Page Last Reviewed/Updated Monday, November 06, 2017*