



Home > Nuclear Reactors > Operating Reactors > Reactor Oversight Process > Plant Summaries> Monticello > Quarterly Performance Indicators

## **Monticello – Quarterly Performance Indicators**

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

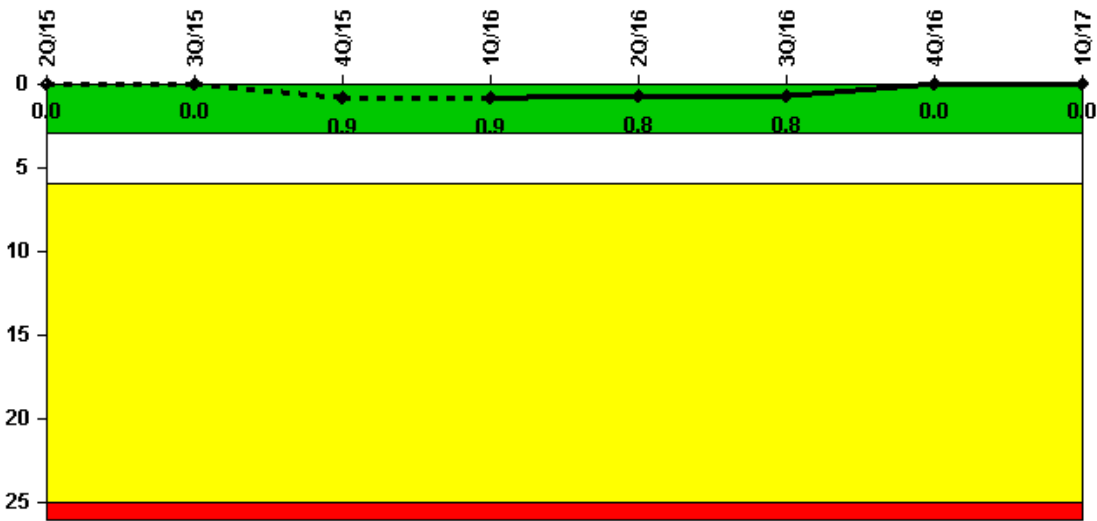
The solid trend line represents the current reporting period.

Licensee's General Comments: none

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

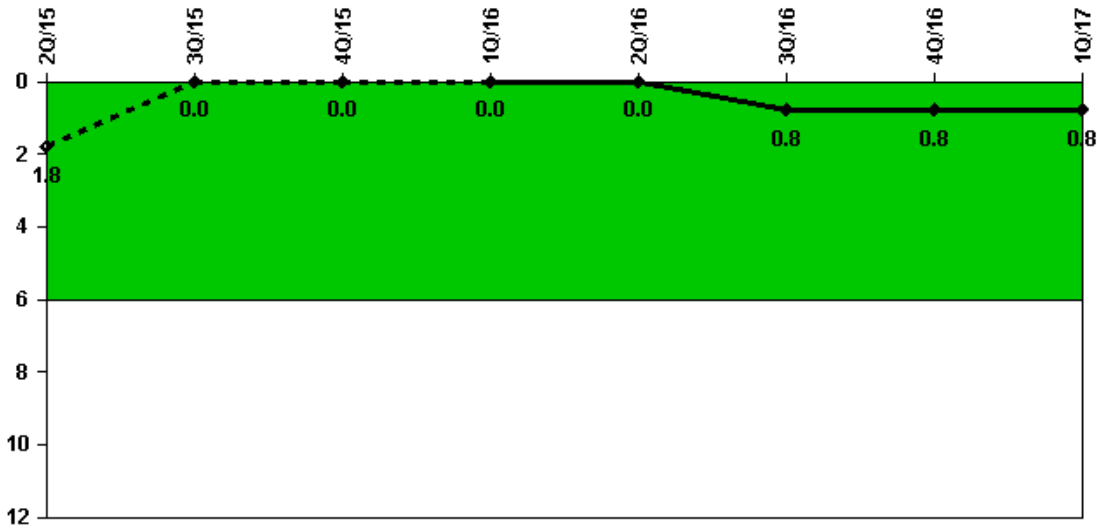
**Notes**

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	1.0	0	0	0	0	0
Critical hours	1075.2	2208.0	2050.0	2183.0	2184.0	2208.0	2209.0	2159.0
Indicator value	0	0	0.9	0.9	0.8	0.8	0	0

TOP

Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

**NRC: Monticello – Quarterly Quarterly Performance Indicators**

**Notes**

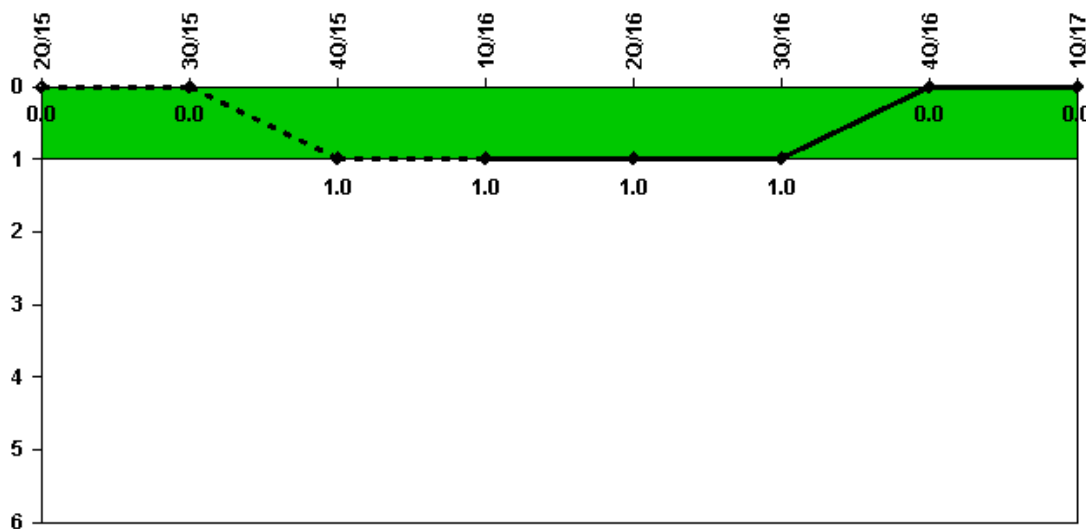
Unplanned Power Changes per 7000 Critical Hrs	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Unplanned power changes	0	0	0	0	0	1.0	0	0
Critical hours	1075.2	2208.0	2050.0	2183.0	2184.0	2208.0	2209.0	2159.0

<b>Indicator value</b>	<b>1.8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>
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Licensee Comments: none

**Unplanned Scrams with Complications**



Thresholds: White > 1.0

**Notes**

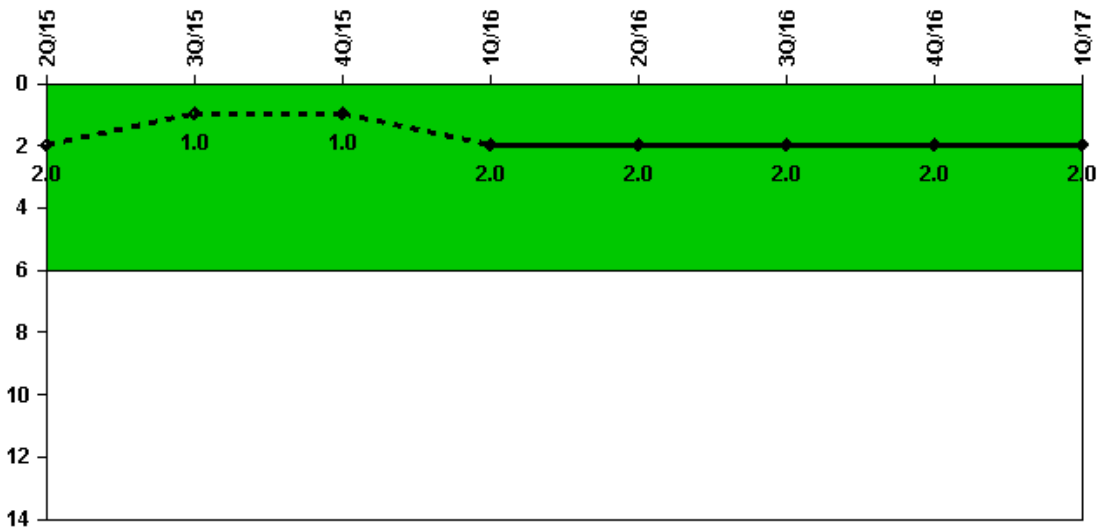
Unplanned Scrams with Complications	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Scrams with complications	0	0	1.0	0	0	0	0	0

<b>Indicator value</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>1.0</b>	<b>0.0</b>	<b>0.0</b>
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▲ TOP

Licensee Comments: none

### Safety System Functional Failures (BWR)



Thresholds: White > 6.0

**Notes**

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

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

Indicator value                                            2    1    1    2    2    2    2    2

▲ TOP

Licensee Comments:

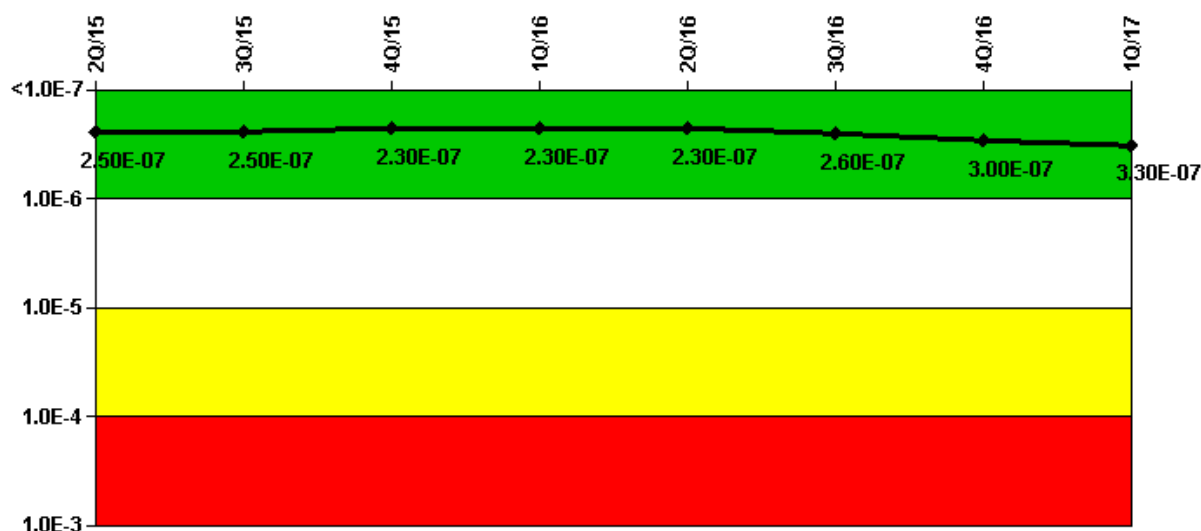
1Q/17: LER 2016-003, HPCI Declared Inoperable Due to Excessive Water Level in Turbine

2Q/16: LER 2016-001, High Pressure Coolant Injection System Cracked Pipe Nipple Caused Oil Leak, dated May 18, 2016. This does not change the color of this indicator.

1Q/16: LER 2015-007, Loss of Residual Heat Removal Capability, reported as a Safety System Functional Failure on January 21, 2016.

2Q/15: LER 2015-002-00, Loss of Shutdown Cooling Due to Improperly Landed Jumper Wire, dated June 29, 2015. This event was submitted to the NRC as a SSFF.

### 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)	1.06E-08	1.55E-08	1.77E-08	2.65E-08	2.63E-08	4.97E-08	7.78E-08	1.09E-07
URI (ΔCDF)	2.40E-07	2.39E-07	2.08E-07	2.08E-07	2.08E-07	2.08E-07	2.21E-07	2.21E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>2.50E-07</b>	<b>2.50E-07</b>	<b>2.30E-07</b>	<b>2.30E-07</b>	<b>2.30E-07</b>	<b>2.60E-07</b>	<b>3.00E-07</b>	<b>3.30E-07</b>

▲ TOP

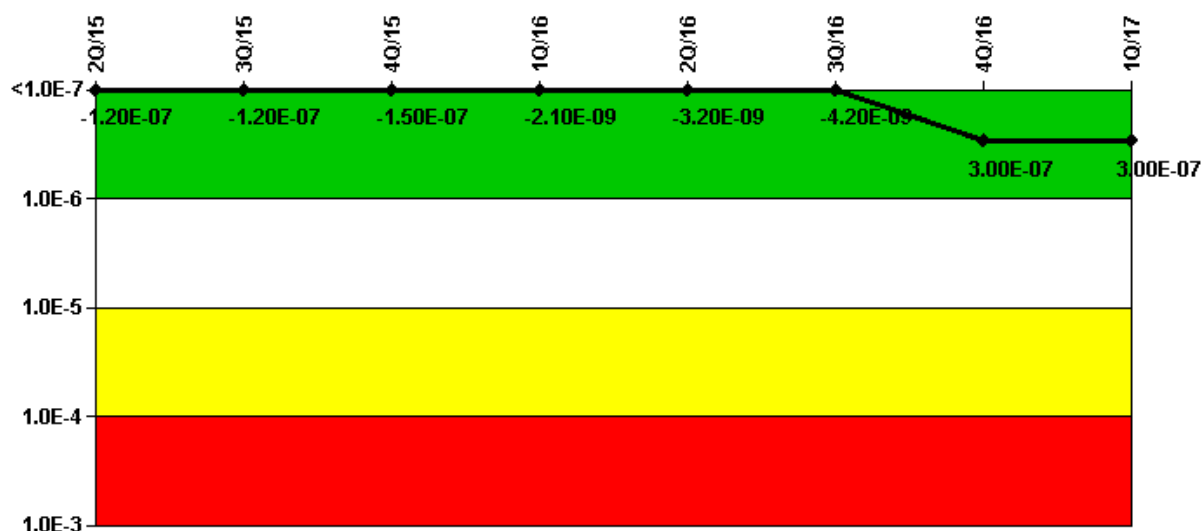
Licensee Comments:

3Q/16: The MSPI basis document was updated to reflect the CDF number from PRA-CALC-05-003, Rev. 6. The CDF number was updated to 1.16E-6 for the Rev. 3.3 PRA model update.

4Q/15: Changed PRA Parameter(s). The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The MSPI Basis document and new MSPI coefficients were updated effective 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions, nor success criteria.

3Q/15: MSPI Emergency AC Power System - 3Q2015: The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The new MSPI coefficients will be updated for 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions, nor success criteria.

### 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)	-4.33E-08	-4.33E-08	-5.00E-08	-5.00E-08	-5.00E-08	-5.00E-08	-1.87E-08	-1.47E-08
URI (ΔCDF)	-7.71E-08	-7.80E-08	-9.51E-08	4.79E-08	4.68E-08	4.57E-08	3.19E-07	3.19E-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>-1.50E-07</b>	<b>-2.10E-09</b>	<b>-3.20E-09</b>	<b>-4.20E-09</b>	<b>3.00E-07</b>	<b>3.00E-07</b>

▲ TOP

Licensee Comments:

4Q/16: 4Q2016 MSPI High Pressure Injection System - MSPI Start/Demand Failure taken in November 2016 on the HPCI System due to water in the turbine. This does not result in a color change (remains Green).

3Q/16: The MSPI basis document was updated to reflect the CDF number from PRA-CALC-05-003, Rev. 6. The CDF number was updated to 1.16E-6 for the Rev. 3.3 PRA model update.

2Q/16: The engineering evaluation for the HPCI event that occurred in 1Q2016 (3/22/16) has been complete. The evaluation determined this event was a MSPI Run Failure against the High Pressure Injection indicator. The MSPI unavailability hours for the HPCI in the 1Q2016 submittal included the HPCI event and accurately reflect the total unavailability. This constitutes resolution of the incomplete engineering evaluation from 1Q2016. This does not change the MSPI color for the High Pressure Injection indicator.

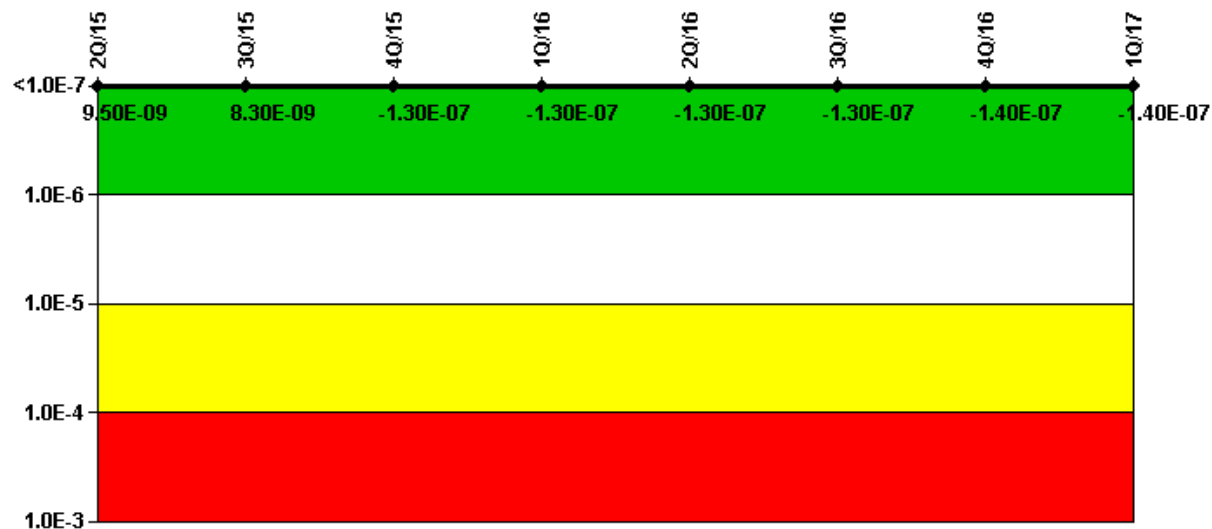
1Q/16: Monticello is evaluating an event associated with HPCI that occurred late in 1st Quarter 2016. The associated engineering evaluation is not yet complete for the 1st quarter 2016 data submittal. Preliminary determination is a MSPI Run Failure against the High Pressure Injection indicator. This does not result in a color change (remains Green). Resolution to be submitted in the next quarterly submittal, per NEI 99-02 Rev. 7 Section F 2.2.2.

1Q/16: Monticello is evaluating an event associated with HPCI that occurred late in 1st Quarter 2016. The associated engineering evaluation is not yet complete for the 1st quarter 2016 data submittal. Preliminary determination is a MSPI Run Failure against the High Pressure Injection indicator. This does not result in a color change (remains Green). Resolution to be submitted in the next quarterly submittal, per NEI 99-02 Rev. 7 Section F 2.2.2. The engineering evaluation for the HPCI event that occurred in 1Q2016 (3/22/16) has been complete. The evaluation determined this event was a MSPI Run Failure against the High Pressure Injection indicator. The MSPI unavailability hours for the HPCI in the 1Q2016 submittal included the HPCI event and accurately reflect the total unavailability. This

constitutes resolution of the incomplete engineering evaluation from 1Q2016. This does not change the MSPI color for the High Pressure Injection indicator.

4Q/15: Changed PRA Parameter(s). The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The MSPI Basis document and new MSPI coefficients were updated effective 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions, nor success criteria.

**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)	-2.71E-08	-2.71E-08	-4.71E-08	-4.71E-08	-4.71E-08	-4.71E-08	-5.01E-08	-5.01E-08
URI (ΔCDF)	3.65E-08	3.54E-08	-7.95E-08	-8.07E-08	-8.20E-08	-8.32E-08	-8.99E-08	-9.12E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>9.50E-09</b>	<b>8.30E-09</b>	<b>-1.30E-07</b>	<b>-1.30E-07</b>	<b>-1.30E-07</b>	<b>-1.30E-07</b>	<b>-1.40E-07</b>	<b>-1.40E-07</b>

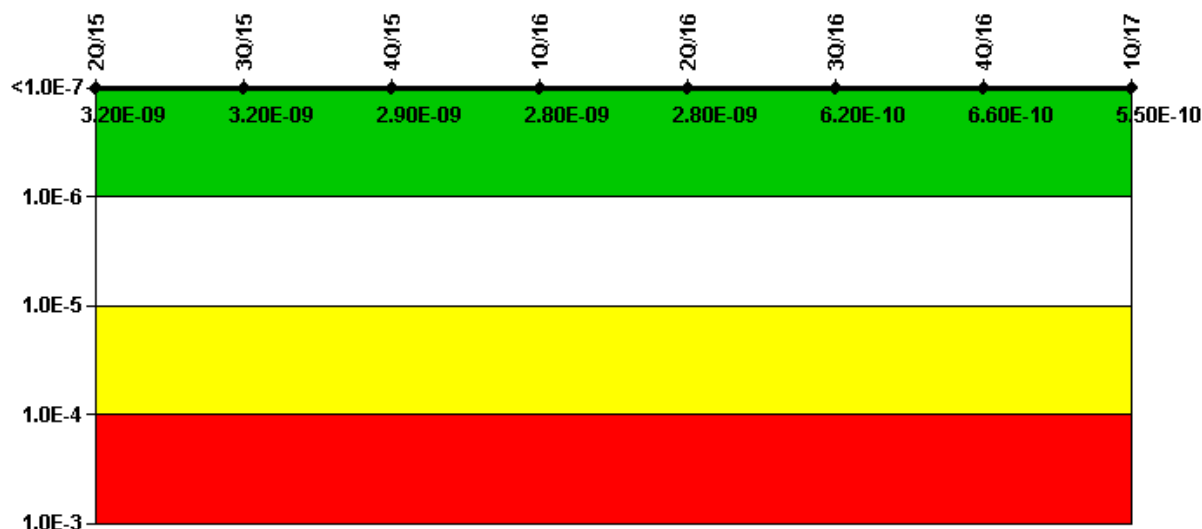
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Licensee Comments:

3Q/16: The MSPI basis document was updated to reflect the CDF number from PRA-CALC-05-003, Rev. 6. The CDF number was updated to 1.16E-6 for the Rev. 3.3 PRA model update.

4Q/15: Changed PRA Parameter(s). The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The MSPI Basis document and new MSPI coefficients were updated effective 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions, nor success criteria.

### 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)	-3.37E-10	-3.32E-10	-1.88E-10	-2.76E-10	-2.43E-10	-2.65E-10	-2.82E-10	-4.06E-10
URI ( $\Delta$ CDF)	3.57E-09	3.57E-09	3.05E-09	3.05E-09	3.05E-09	8.80E-10	9.46E-10	9.54E-10
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>3.20E-09</b>	<b>3.20E-09</b>	<b>2.90E-09</b>	<b>2.80E-09</b>	<b>2.80E-09</b>	<b>6.20E-10</b>	<b>6.60E-10</b>	<b>5.50E-10</b>

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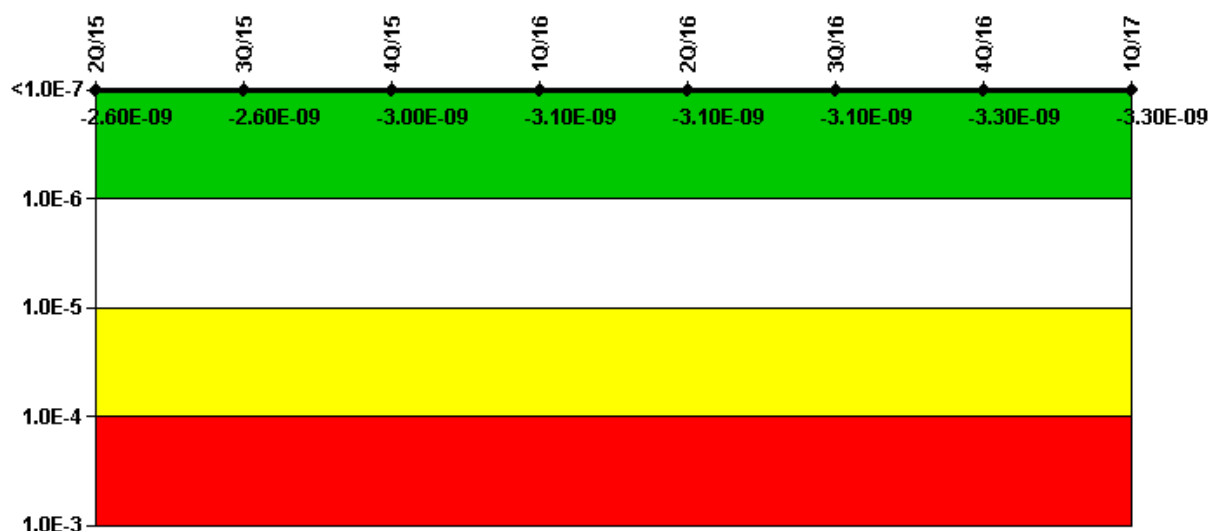
Licensee Comments:

3Q/16: The MSPI basis document was updated to reflect the CDF number from PRA-CALC-05-003, Rev. 6. The CDF number was updated to 1.16E-6 for the Rev. 3.3 PRA model update.

4Q/15: Changed PRA Parameter(s). The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The MSPI Basis document and new MSPI coefficients were updated effective 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions, nor success criteria.



### 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)	-2.60E-09	-2.65E-09	-3.04E-09	-3.06E-09	-3.06E-09	-3.06E-09	-3.25E-09	-3.25E-09
URI (ΔCDF)	7.25E-12	7.80E-12	3.03E-13	3.25E-13	3.47E-13	3.70E-13	-1.07E-12	-1.06E-12
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-2.60E-09</b>	<b>-2.60E-09</b>	<b>-3.00E-09</b>	<b>-3.10E-09</b>	<b>-3.10E-09</b>	<b>-3.10E-09</b>	<b>-3.30E-09</b>	<b>-3.30E-09</b>

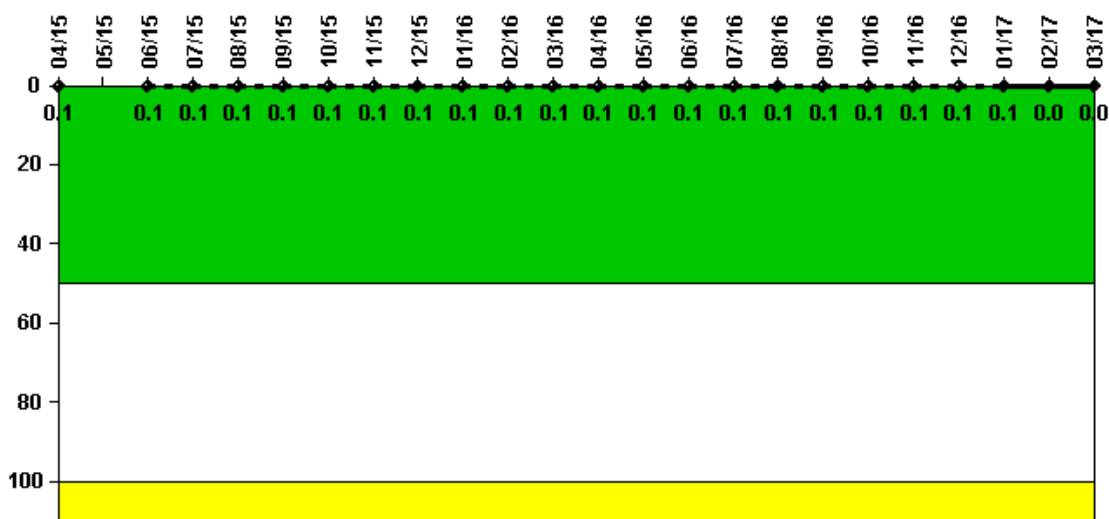
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Licensee Comments:

3Q/16: The MSPI basis document was updated to reflect the CDF number from PRA-CALC-05-003, Rev. 6. The CDF number was updated to 1.16E-6 for the Rev. 3.3 PRA model update.

4Q/15: Changed PRA Parameter(s). The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The MSPI Basis document and new MSPI coefficients were updated effective 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions, nor success criteria.

### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

**Notes**

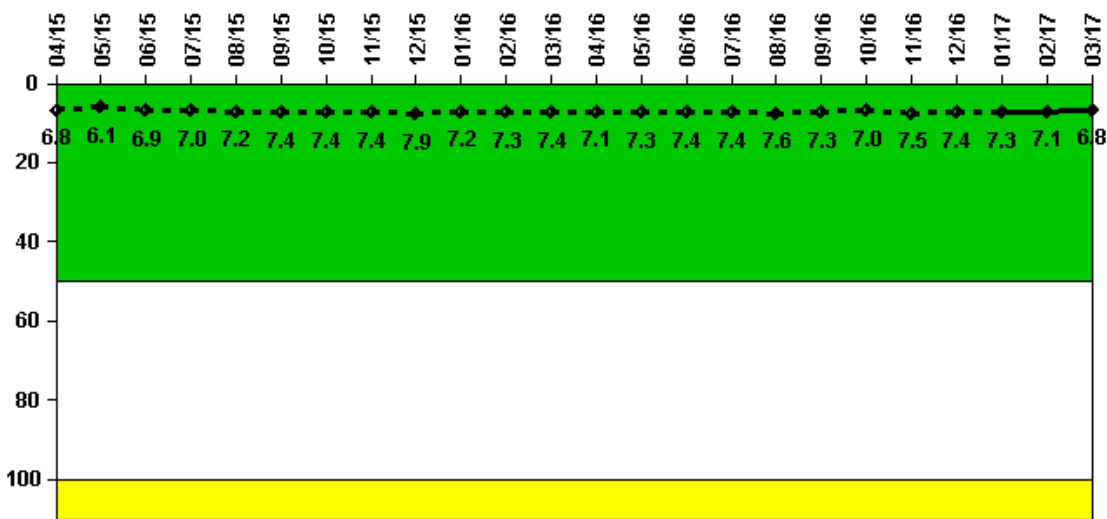
Reactor Coolant System Activity	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16
Maximum activity	0.000125	N/A	0.000124	0.000107	0.000113	0.000104	0.000115	0.000109	0.000195	0.000189	0.000215	0.000153
Technical specification limit	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indicator value	0.1	N/A	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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	0.000128	0.000286	0.000149	0.000161	0.000141	0.000125	0.000190	0.000142	0.000113	0.000111	0.000055	0.000063
Technical specification limit	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indicator value	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0	0

TOP

Licensee Comments:

6/15: Plant conditions for May 2015 did not meet criteria for Maximum I-131 Activity due to RFO.

### 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	1.710	1.520	1.720	1.740	1.810	1.840	1.860	1.840	1.980	1.810	1.830	1.840
Technical specification limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0

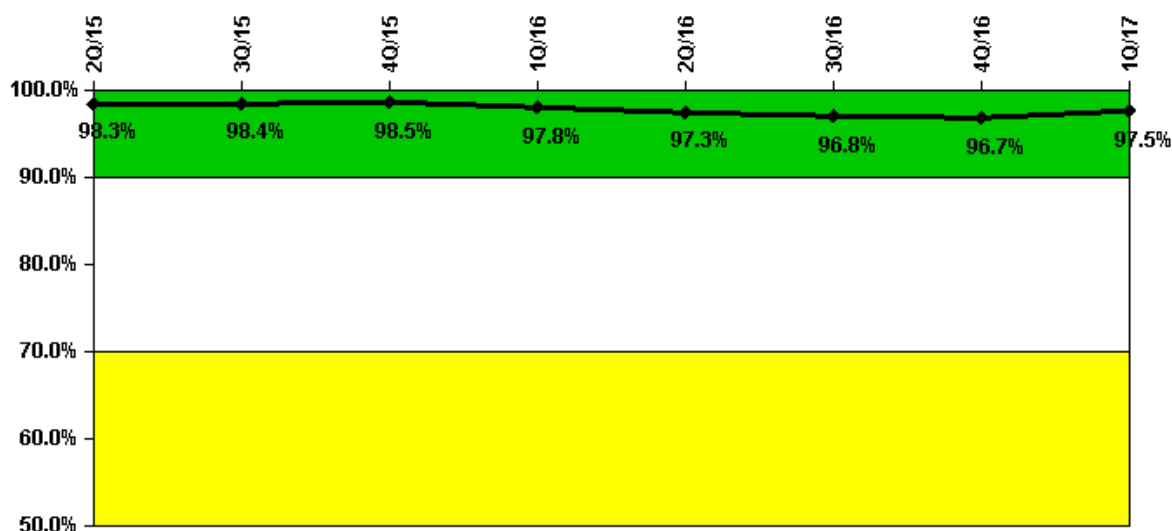
Indicator value	6.8	6.1	6.9	7.0	7.2	7.4	7.4	7.4	7.9	7.2	7.3	7.4
Reactor Coolant System Leakage	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16	1/17	2/17	3/17
Maximum leakage	1.770	1.820	1.860	1.860	1.890	1.830	1.750	1.870	1.840	1.820	1.780	1.710
Technical specification limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0

Indicator value	7.1	7.3	7.4	7.4	7.6	7.3	7.0	7.5	7.4	7.3	7.1	6.8
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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	19.0	42.0	43.0	52.0	65.0	52.0	31.0	44.0
Total opportunities	19.0	44.0	44.0	55.0	66.0	54.0	31.0	44.0

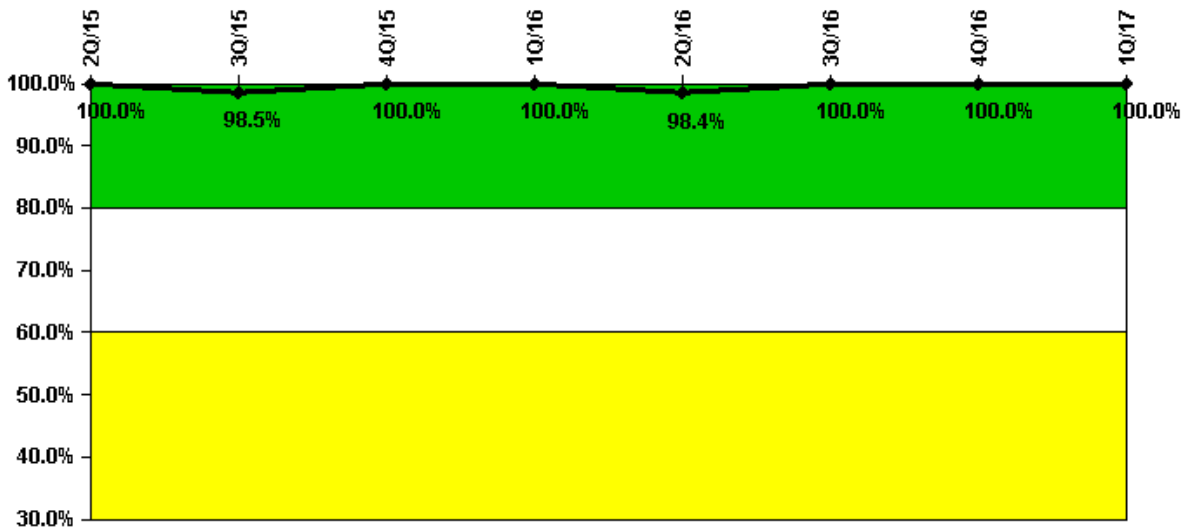
**Indicator value**                    **98.3% 98.4% 98.5% 97.8% 97.3% 96.8% 96.7% 97.5%**

▲ TOP

Licensee Comments:

4Q/15: There is a correction to the Drill / Exercise Performance indicator for November 2015. A retroactive failure was identified during a site self-assessment. This resulted in a change to the KPI from 14 out of 14 to the corrected results of 13 out of 14. Indicator color did not change as a result and remains green.

**ERO Drill Participation**



Thresholds: White < 80.0% Yellow < 60.0%

**Notes**

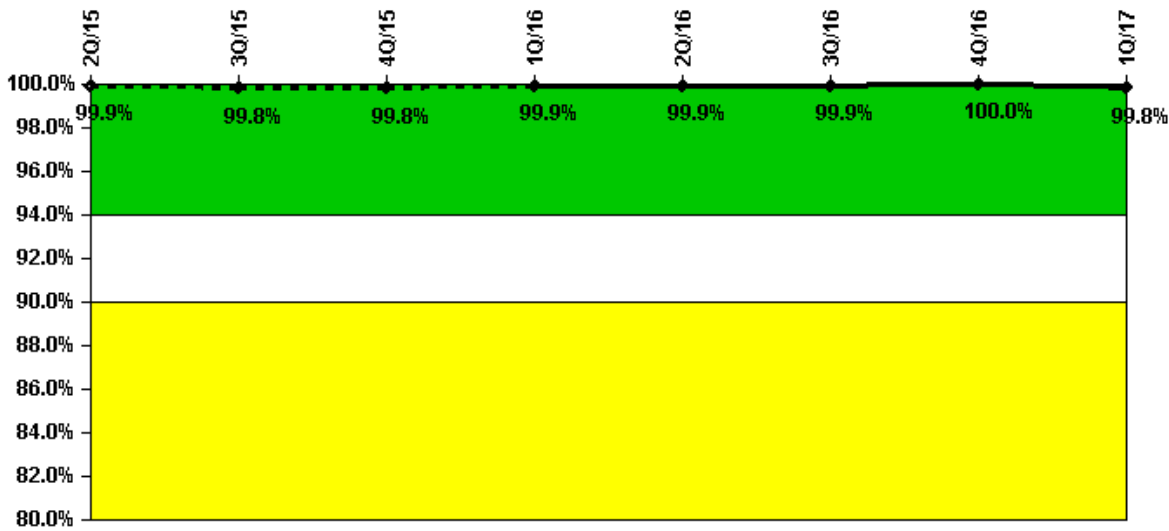
ERO Drill Participation	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Participating Key personnel	136.0	129.0	136.0	133.0	123.0	121.0	124.0	124.0
Total Key personnel	136.0	131.0	136.0	133.0	125.0	121.0	124.0	124.0

**Indicator value**                    **100.0% 98.5% 100.0% 100.0% 98.4% 100.0% 100.0% 100.0%**

▲ TOP

Licensee Comments: none

### Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

#### Notes

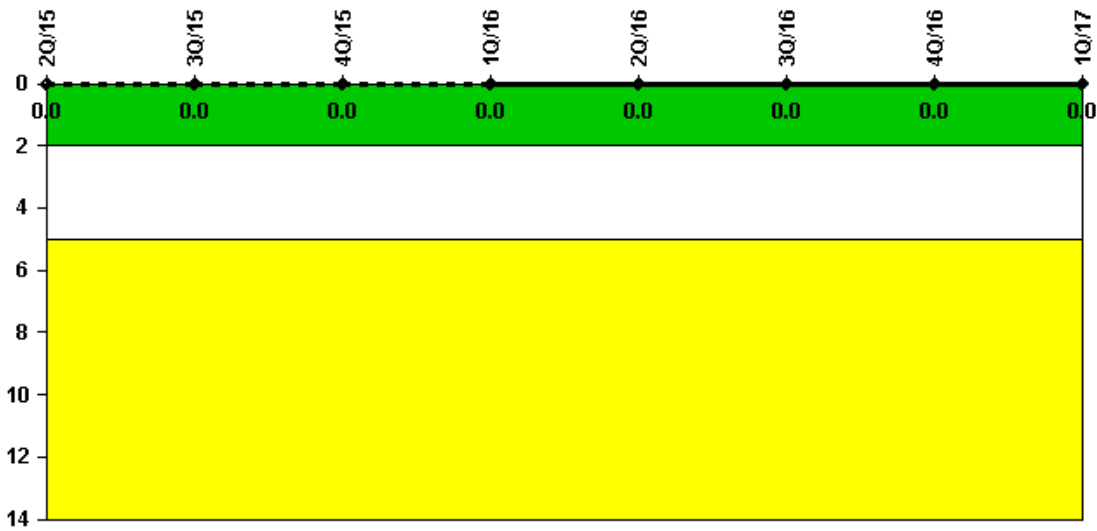
Alert & Notification System	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17
Successful siren-tests	1377	1479	1376	1378	1377	1377	1378	1371
Total sirens-tests	1378	1484	1378	1378	1378	1378	1378	1378

**Indicator value**                    **99.9% 99.8% 99.8% 99.9% 99.9% 99.9% 100.0% 99.8%**

▲ TOP

Licensee Comments: none

### Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

**Notes**

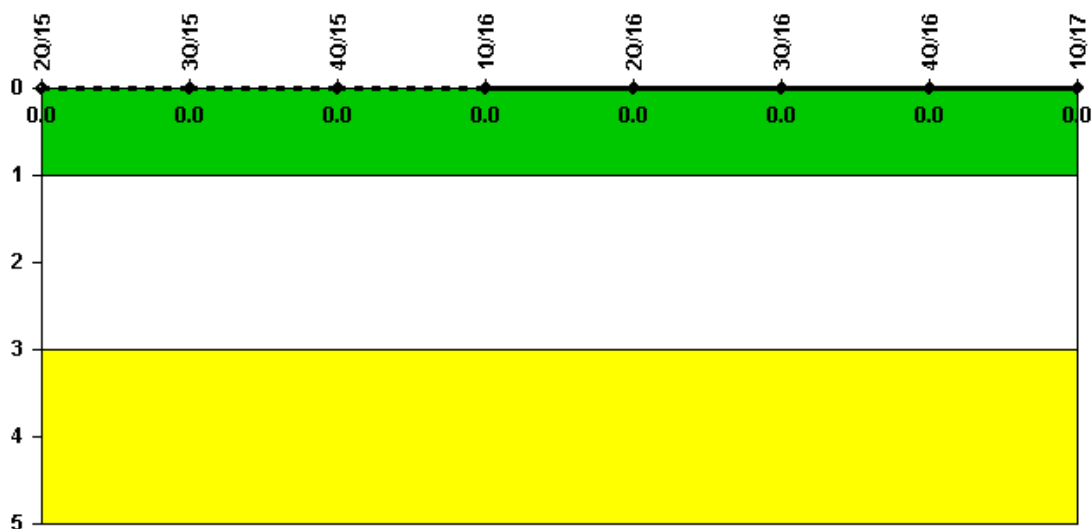
**Occupational Exposure Control Effectiveness** 2Q/15 3Q/15 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17

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
<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>

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