

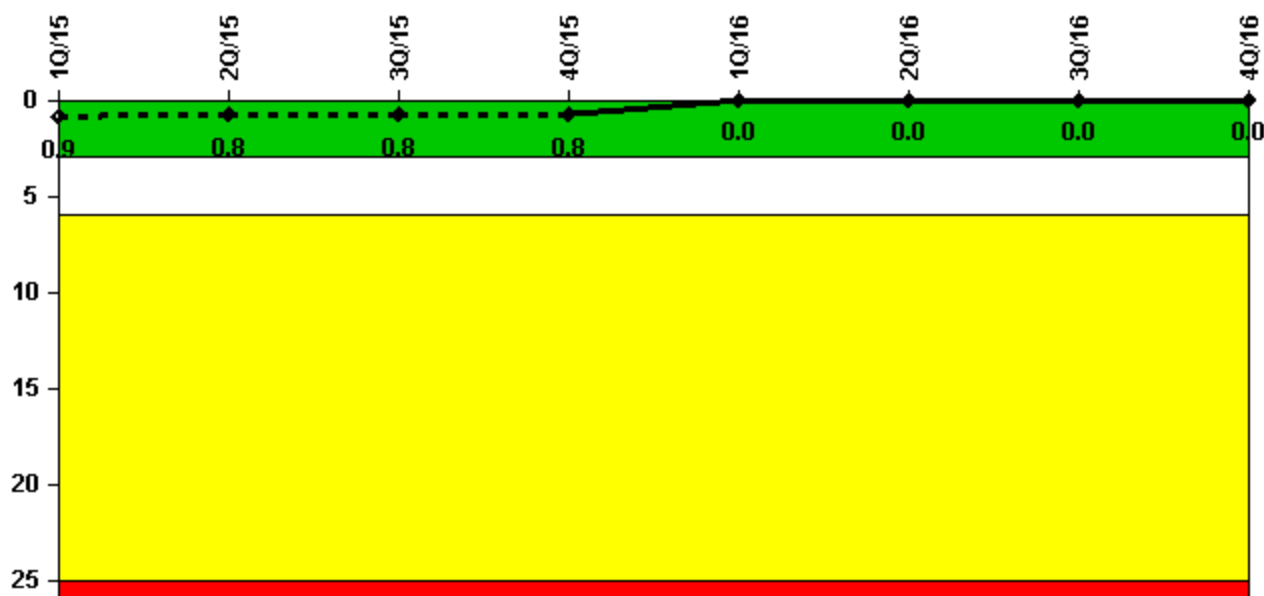
# Oconee 3

## 4Q/2016 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: none

### Unplanned Scrams per 7000 Critical Hrs



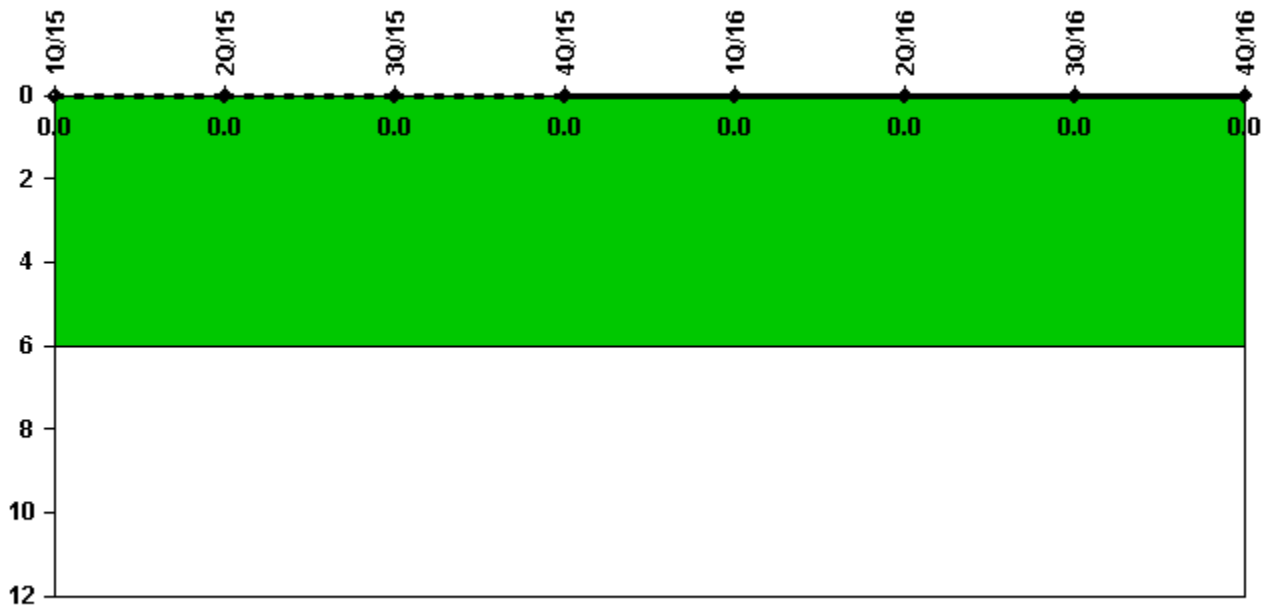
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

### Notes

Unplanned Scrams per 7000 Critical Hrs	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Unplanned scrams	1.0	0	0	0	0	0	0	0
Critical hours	2108.4	2184.0	2208.0	2209.0	2183.0	1639.3	2208.0	2209.0
Indicator value	<b>0.9</b>	<b>0.8</b>	<b>0.8</b>	<b>0.8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



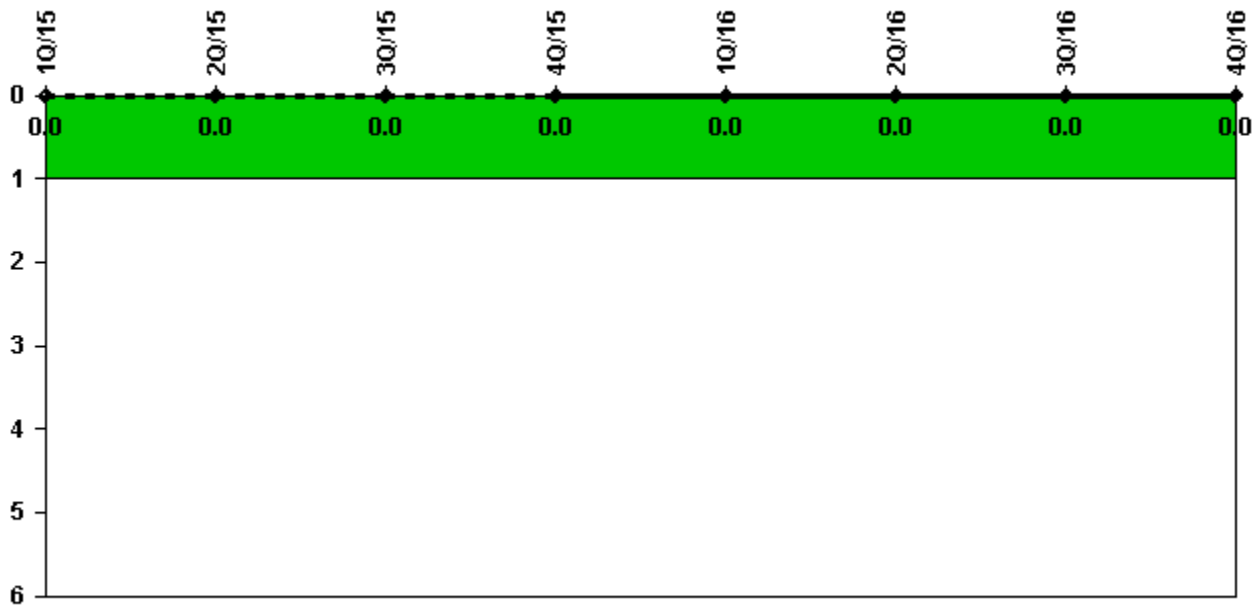
Thresholds: White > 6.0

#### Notes

Unplanned Power Changes per 7000 Critical Hrs	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	2108.4	2184.0	2208.0	2209.0	2183.0	1639.3	2208.0	2209.0
<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>

Licensee Comments: none

### Unplanned Scrams with Complications



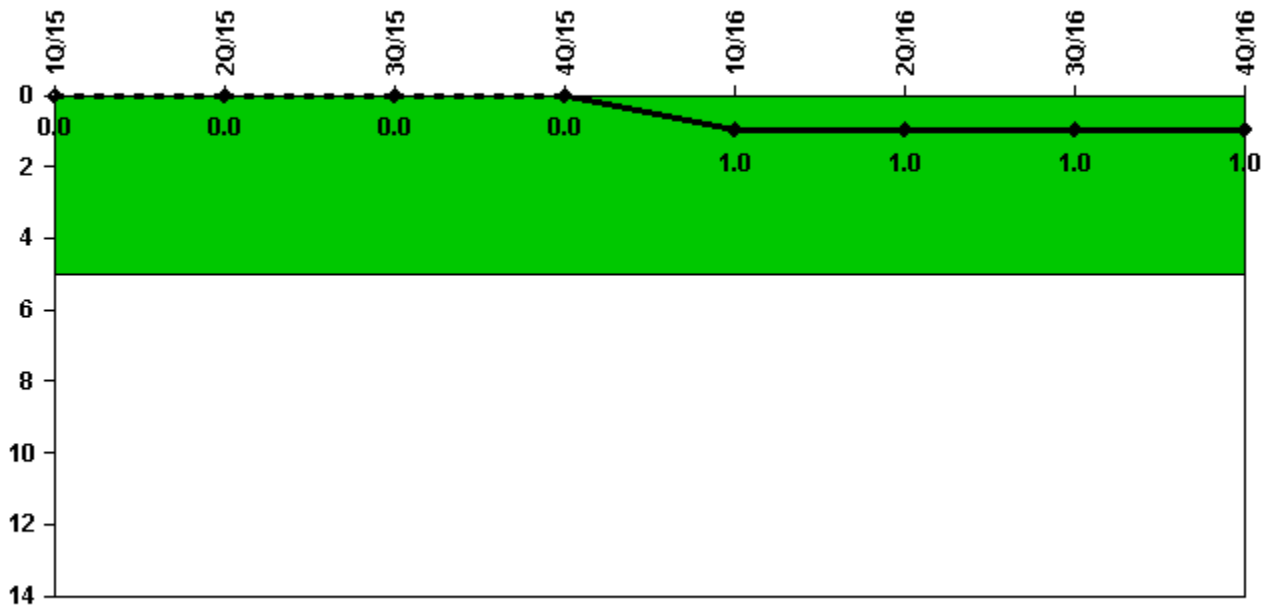
Thresholds: White > 1.0

#### Notes

Unplanned Scrams with Complications	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
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>

Licensee Comments: none

### Safety System Functional Failures (PWR)



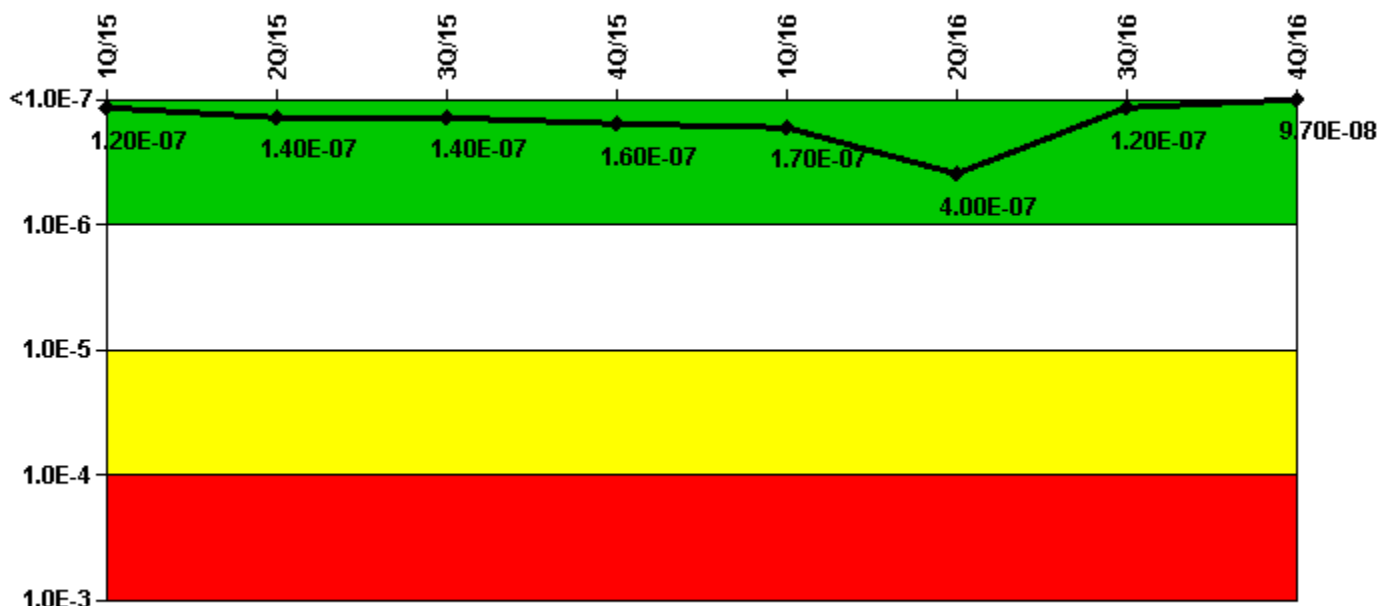
Thresholds: White > 5.0

#### Notes

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

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

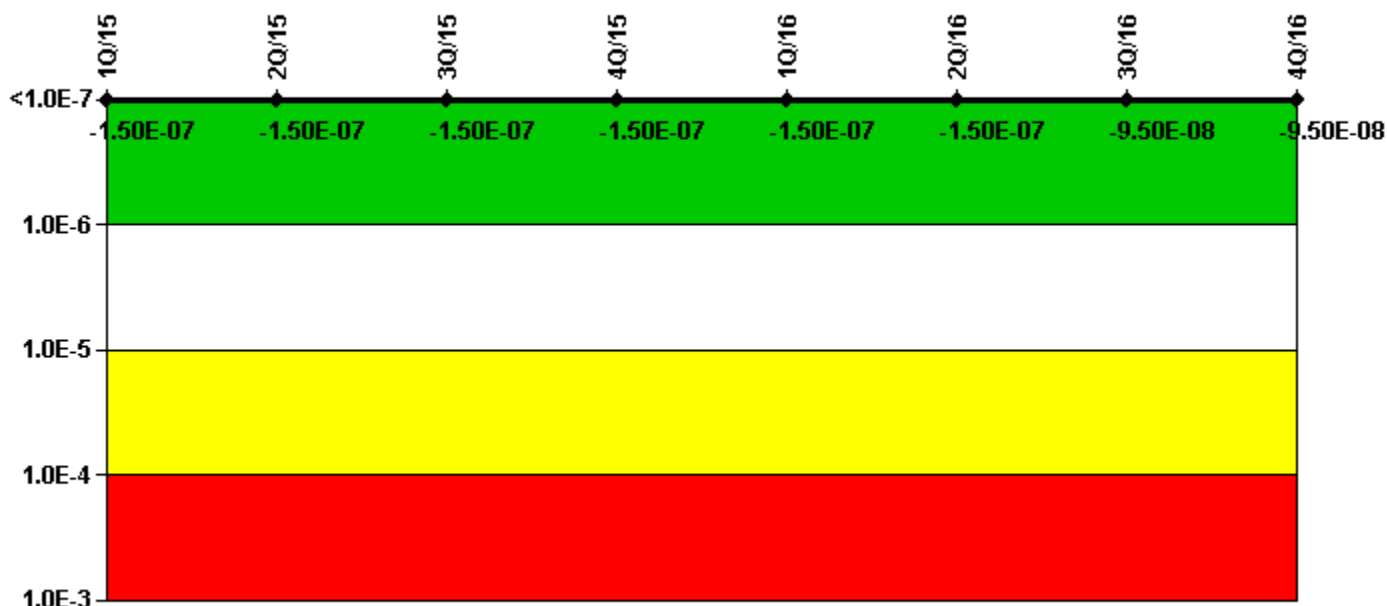
Mitigating Systems Performance Index, Emergency AC Power System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (ΔCDF)	1.91E-07	1.86E-07	1.85E-07	1.99E-07	2.17E-07	2.20E-07	9.12E-08	1.26E-07
URI (ΔCDF)	-7.15E-08	-4.30E-08	-4.30E-08	-4.30E-08	-4.30E-08	1.75E-07	2.84E-08	-2.88E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	1.20E-07	1.40E-07	1.40E-07	1.60E-07	1.70E-07	4.00E-07	1.20E-07	9.70E-08

#### Licensee Comments:

4Q/16: Changed PRA Parameter(s). The following comments should have been included with the Oconee third quarter submittal. The Oconee Units 1, 2, and 3 PRA Model, Revision 7, was approved on 4/1/16, and a corresponding MSPI Basis Document Revision 18 was approved on 10/6/16. As a result of the PRA model change, the CDF, Fussel-Vesely, and Basic Event Probabilities for all monitored trains and components were revised. The changes were entered into CDE on 10/6/16, and the changes are effective for third quarter 2016.

3Q/16: Changed PRA Parameter(s). Planned UA Baseline was updated to be applied to 4th quarter 2016 per revised MSPI Basis Document.

### Mitigating Systems Performance Index, High Pressure Injection System



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

#### Notes

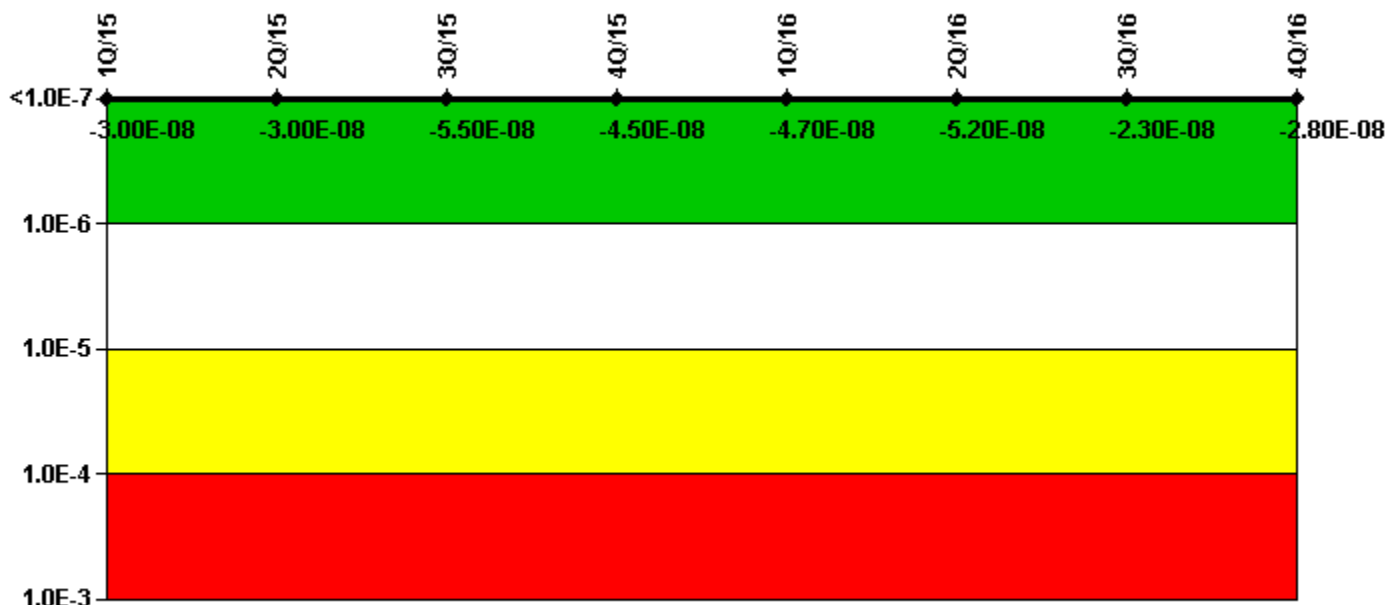
Mitigating Systems Performance Index, High Pressure Injection System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (ΔCDF)	-3.83E-10	-4.22E-10	-4.22E-10	-6.23E-10	-5.22E-10	-7.67E-10	-4.53E-10	-4.53E-10
URI (ΔCDF)	-1.51E-07	-1.51E-07	-1.51E-07	-1.51E-07	-1.51E-07	-1.51E-07	-9.48E-08	-9.48E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.50E-07	-1.50E-07	-1.50E-07	-1.50E-07	-1.50E-07	-1.50E-07	-9.50E-08	-9.50E-08

#### Licensee Comments:

4Q/16: Changed PRA Parameter(s). The following comments should have been included with the Oconee third quarter submittal. The Oconee Units 1, 2, and 3 PRA Model, Revision 7, was approved on 4/1/16, and a corresponding MSPI Basis Document Revision 18 was approved on 10/6/16. As a result of the PRA model change, the CDF, Fussel-Vesely, and Basic Event Probabilities for all monitored trains and components were revised. The changes were entered into CDE on 10/6/16, and the changes are effective for third quarter 2016. The planned unavailability baseline for the high pressure injection (HPI) system was revised and the baseline changes were incorporated into the PRA model and the MSPI Basis Document Revision 18. The changes were entered into CDE on 10/6/16 and will be effective in the first quarter of 2017. Also, consistent with the PRA model changes, the B HPI pumps for all Oconee units were added as MSPI monitored components. The MSPI Basis Document revision 19 was approved on 10/18/16 to incorporate these changes, and the corresponding changes were entered into CDE on October 18-19, 2016. The changes are effective for the third quarter 2016.

3Q/16: Changed PRA Parameter(s).

### Mitigating Systems Performance Index, Heat Removal System



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

#### Notes

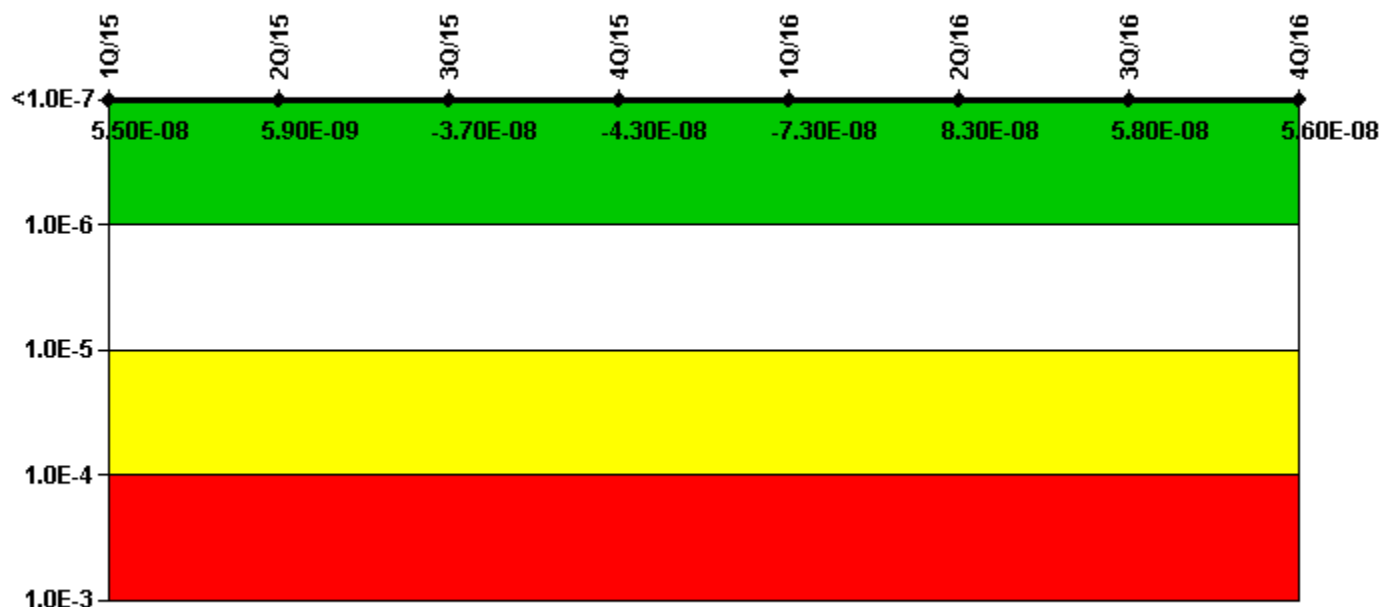
Mitigating Systems Performance Index, Heat Removal System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI ( $\Delta$ CDF)	5.11E-08	5.10E-08	2.62E-08	3.61E-08	3.36E-08	2.89E-08	1.36E-08	8.28E-09
URI ( $\Delta$ CDF)	-8.07E-08	-8.07E-08	-8.07E-08	-8.07E-08	-8.07E-08	-8.07E-08	-3.63E-08	-3.63E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.00E-08	-3.00E-08	-5.50E-08	-4.50E-08	-4.70E-08	-5.20E-08	-2.30E-08	-2.80E-08

#### Licensee Comments:

4Q/16: Changed PRA Parameter(s). The following comments should have been included with the Oconee third quarter submittal. The Oconee Units 1, 2, and 3 PRA Model, Revision 7, was approved on 4/1/16, and a corresponding MSPI Basis Document Revision 18 was approved on 10/6/16. As a result of the PRA model change, the CDF, Fussel-Vesely, and Basic Event Probabilities for all monitored trains and components were revised. The changes were entered into CDE on 10/6/16, and the changes are effective for third quarter 2016.

3Q/16: Changed PRA Parameter(s).

### 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/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI ( $\Delta$ CDF)	1.66E-07	1.18E-07	7.52E-08	6.84E-08	3.88E-08	1.95E-07	1.22E-07	1.21E-07
URI ( $\Delta$ CDF)	-1.12E-07	-1.12E-07	-1.12E-07	-1.12E-07	-1.12E-07	-1.12E-07	-6.47E-08	-6.47E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	5.50E-08	5.90E-09	-3.70E-08	-4.30E-08	-7.30E-08	8.30E-08	5.80E-08	5.60E-08

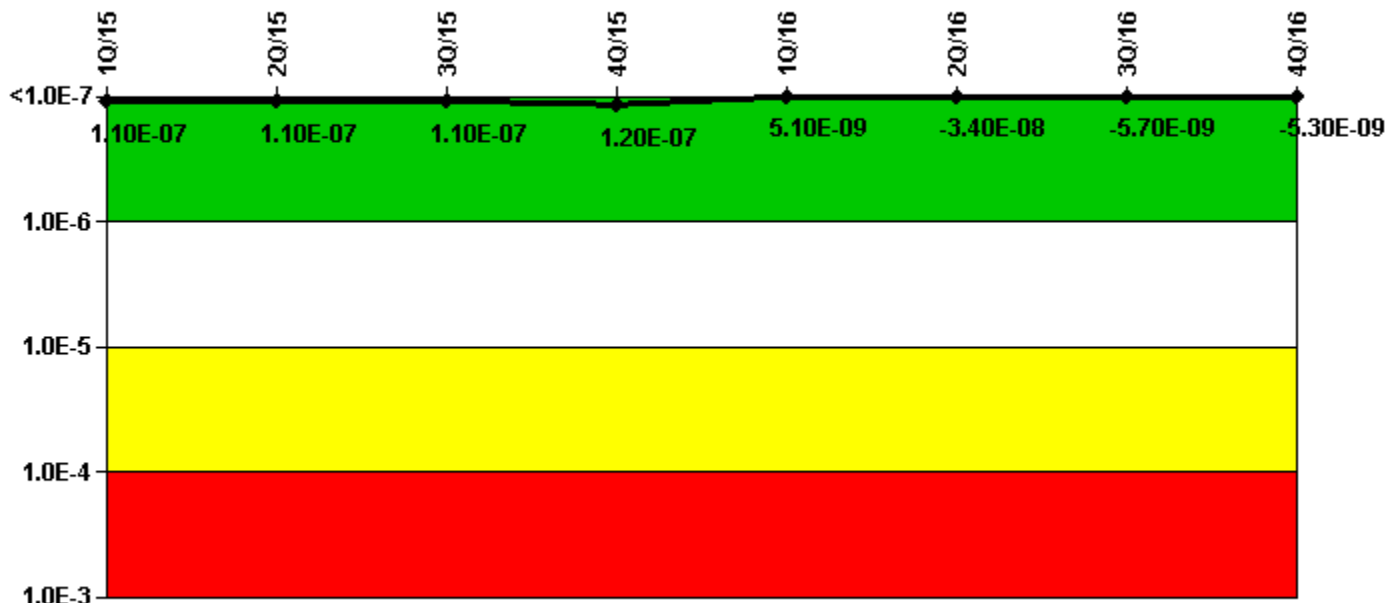
#### Licensee Comments:

4Q/16: Changed PRA Parameter(s). The following comments should have been included with the Oconee third quarter submittal. The Oconee Units 1, 2, and 3 PRA Model, Revision 7, was approved on 4/1/16, and a corresponding MSPI Basis Document Revision 18 was approved on 10/6/16. As a result of the PRA model change, the CDF, Fussel-Vesely, and Basic Event Probabilities for all monitored trains and components were revised. The changes were entered into CDE on 10/6/16, and the changes are effective for third quarter 2016. The planned unavailability baseline for the residual heat removal (RHR) system was revised and the baseline changes were incorporated into the PRA model and the MSPI Basis Document Revision 18. The changes were entered into CDE on 10/6/16 and will be effective in the first quarter of 2017.

3Q/16: Changed PRA Parameter(s).



### 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/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
UAI (ΔCDF)	3.53E-08	3.25E-08	3.26E-08	4.14E-08	2.50E-08	-1.44E-08	-1.03E-09	-6.11E-10
URI (ΔCDF)	7.52E-08	7.52E-08	7.52E-08	7.52E-08	-1.99E-08	-1.99E-08	-4.68E-09	-4.68E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	1.10E-07	1.10E-07	1.10E-07	1.20E-07	5.10E-09	-3.40E-08	-5.70E-09	-5.30E-09

#### Licensee Comments:

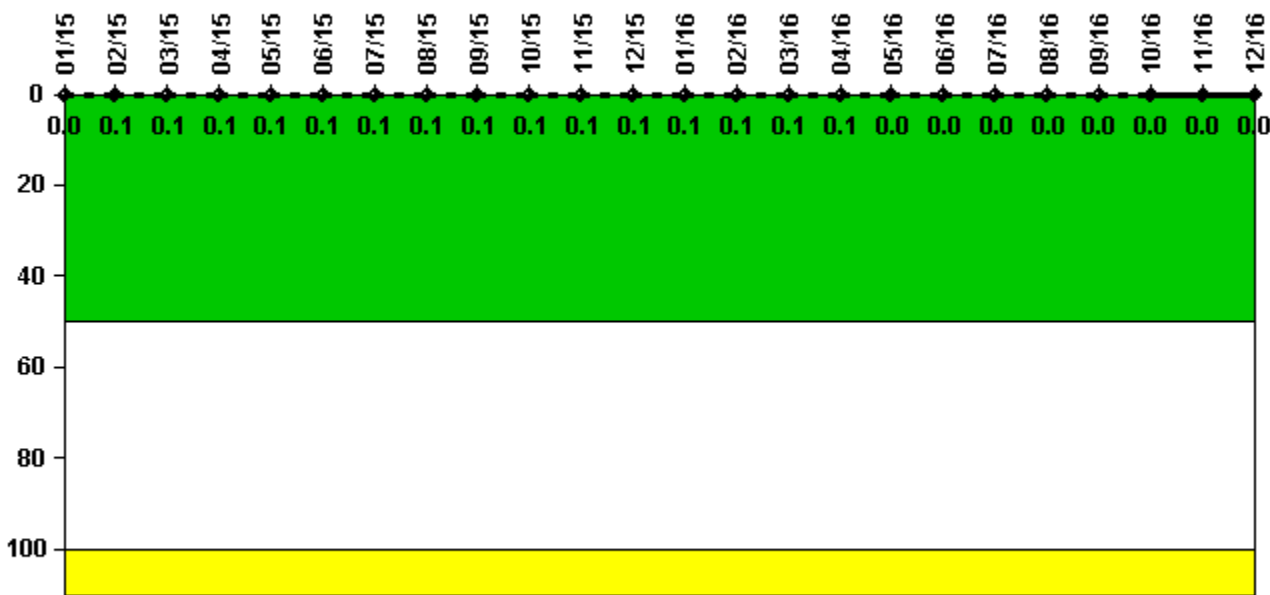
4Q/16: Changed PRA Parameter(s). In October, 2016, an error was discovered in the PRA reliability values for the 3B Low Pressure Service Water (LPSW) pump. On 12/6/16, the MSPI Basis Document, Revision 21 was approved to correct the error, and the changes were entered into INPO CDE on 12/12/16. The changes are effective for the third quarter 2016. The following comments should have been included with the Oconee third quarter submittal. The Oconee Units 1, 2, and 3 PRA Model, Revision 7, was approved on 4/1/16, and a corresponding MSPI Basis Document Revision 18 was approved on 10/6/16. As a result of the PRA model change, the CDF, Fussel-Vesely, and Basic Event Probabilities for all monitored trains and components were revised. The changes were entered into CDE on 10/6/16, and the changes are effective for third quarter 2016. On 10/19/16, risk metrics for the Cooling Water System were recalculated using the method described for making corrections to FV/UA and FV/UR ratios for fault trees using modeling method 2 as described in NEI 99-02. The MSPI Basis

Document revision 20 was approved on 10/19/16, and the corresponding changes were entered into CDE on 10/19/16. The changes are effective for the third quarter 2016.

3Q/16: Changed PRA Parameter(s).

3Q/16: Changed PRA Parameter(s).

### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

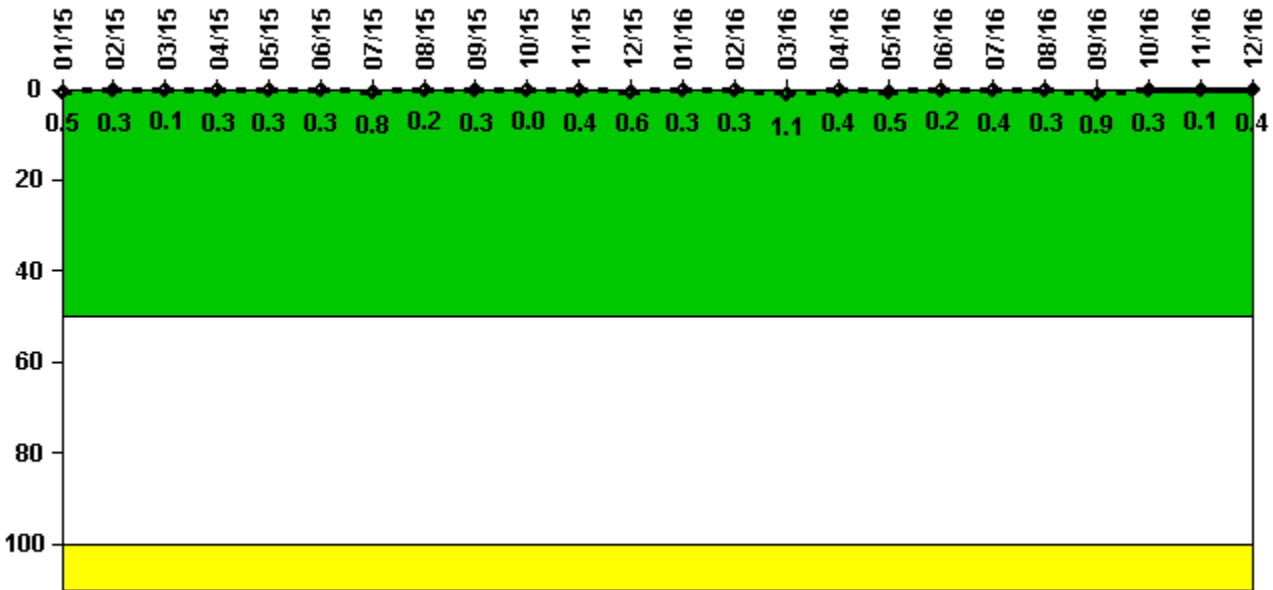
### Notes

Reactor Coolant System Activity	1/15	2/15	3/15	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15
Maximum activity	0.000423	0.000595	0.000521	0.000577	0.000569	0.000505	0.000732	0.000669	0.000698	0.001006	0.000802	0.000806
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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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	0.000712	0.000777	0.000984	0.000778	0.000225	0.000278	0.000363	0.000340	0.000414	0.000402	0.000495	0.000416
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</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Licensee Comments: none

### Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

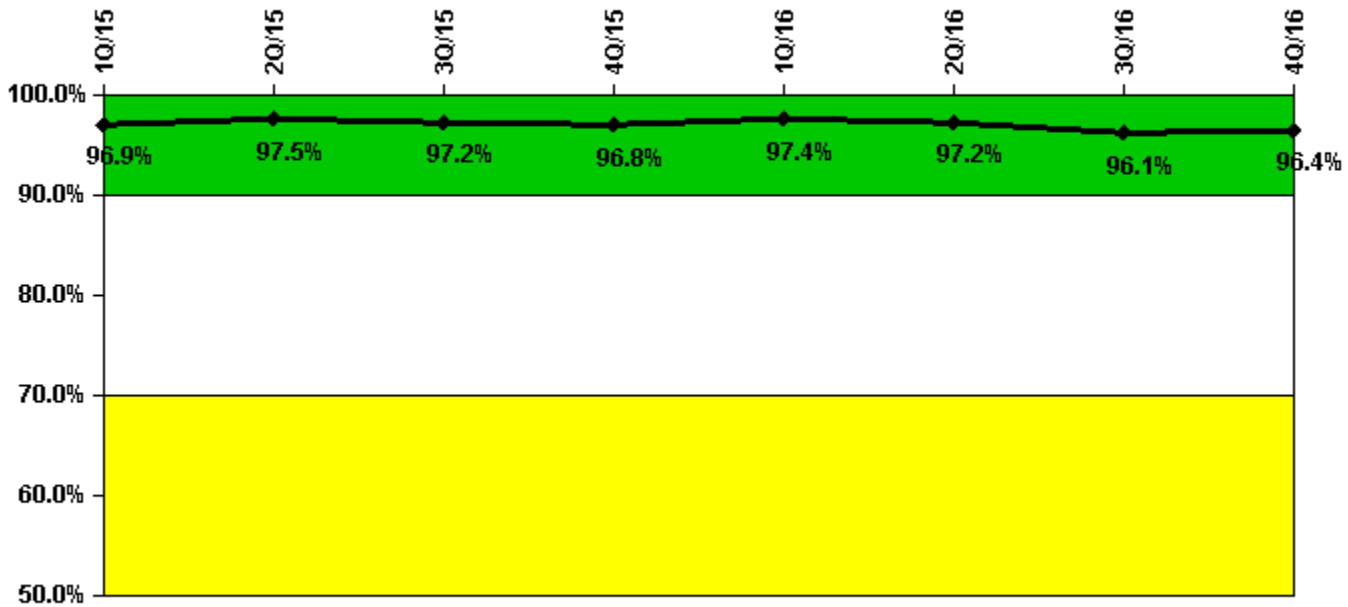
### Notes

Reactor Coolant System Leakage	1/15	2/15	3/15	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15
Maximum leakage	0.053	0.026	0.007	0.029	0.031	0.028	0.081	0.023	0.028	0.004	0.036	0.063
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>0.5</b>	<b>0.3</b>	<b>0.1</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.8</b>	<b>0.2</b>	<b>0.3</b>	<b>0</b>	<b>0.4</b>	<b>0.6</b>
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	0.034	0.026	0.111	0.037	0.049	0.019	0.036	0.031	0.092	0.034	0.011	0.041
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	0.3	0.3	1.1	0.4	0.5	0.2	0.4	0.3	0.9	0.3	0.1	0.4
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Licensee Comments: none

### Drill/Exercise Performance



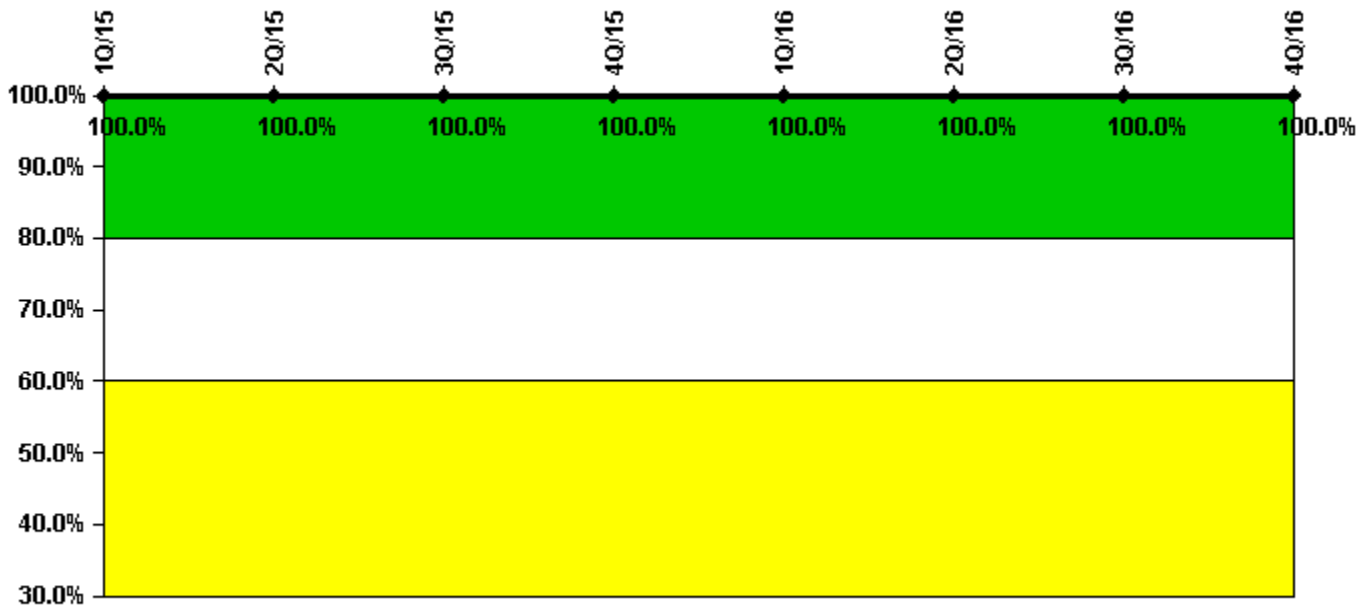
Thresholds: White < 90.0% Yellow < 70.0%

### Notes

Drill/Exercise Performance	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Successful opportunities	32.0	28.0	42.0	52.0	63.0	25.0	39.0	10.0
Total opportunities	34.0	28.0	44.0	54.0	63.0	26.0	43.0	10.0
Indicator value	96.9%	97.5%	97.2%	96.8%	97.4%	97.2%	96.1%	96.4%

Licensee Comments: none

### ERO Drill Participation



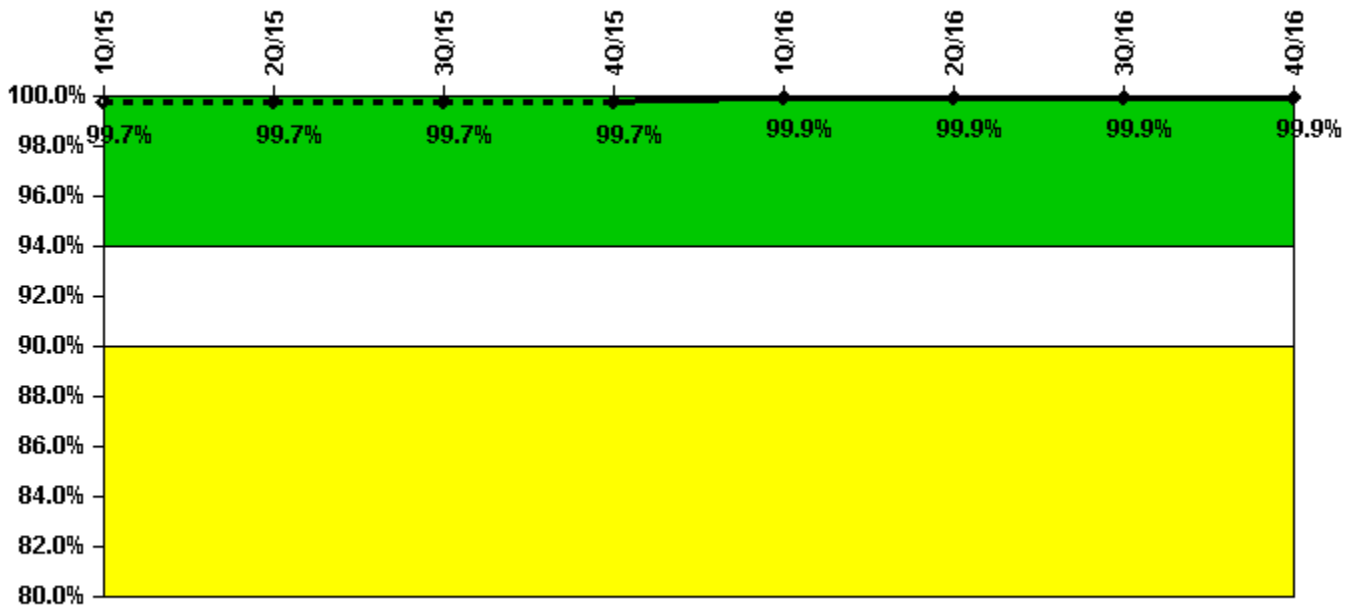
Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

ERO Drill Participation	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Participating Key personnel	144.0	132.0	131.0	129.0	124.0	129.0	130.0	129.0
Total Key personnel	144.0	132.0	131.0	129.0	124.0	129.0	130.0	129.0
Indicator value	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Licensee Comments: none

### Alert & Notification System



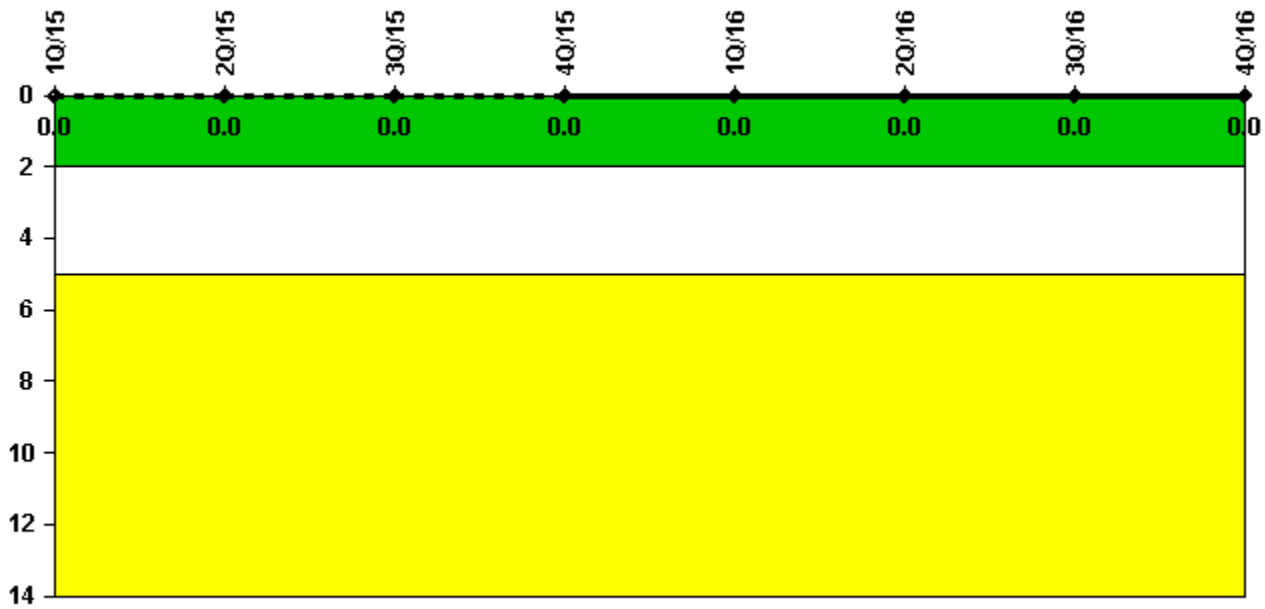
Thresholds: White < 94.0% Yellow < 90.0%

#### Notes

Alert & Notification System	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
Successful siren-tests	1678	1754	1753	1817	1752	1754	1754	1727
Total sirens-tests	1690	1755	1755	1820	1755	1755	1755	1727
<b>Indicator value</b>	<b>99.7%</b>	<b>99.7%</b>	<b>99.7%</b>	<b>99.7%</b>	<b>99.9%</b>	<b>99.9%</b>	<b>99.9%</b>	<b>99.9%</b>

Licensee Comments: none

### Occupational Exposure Control Effectiveness



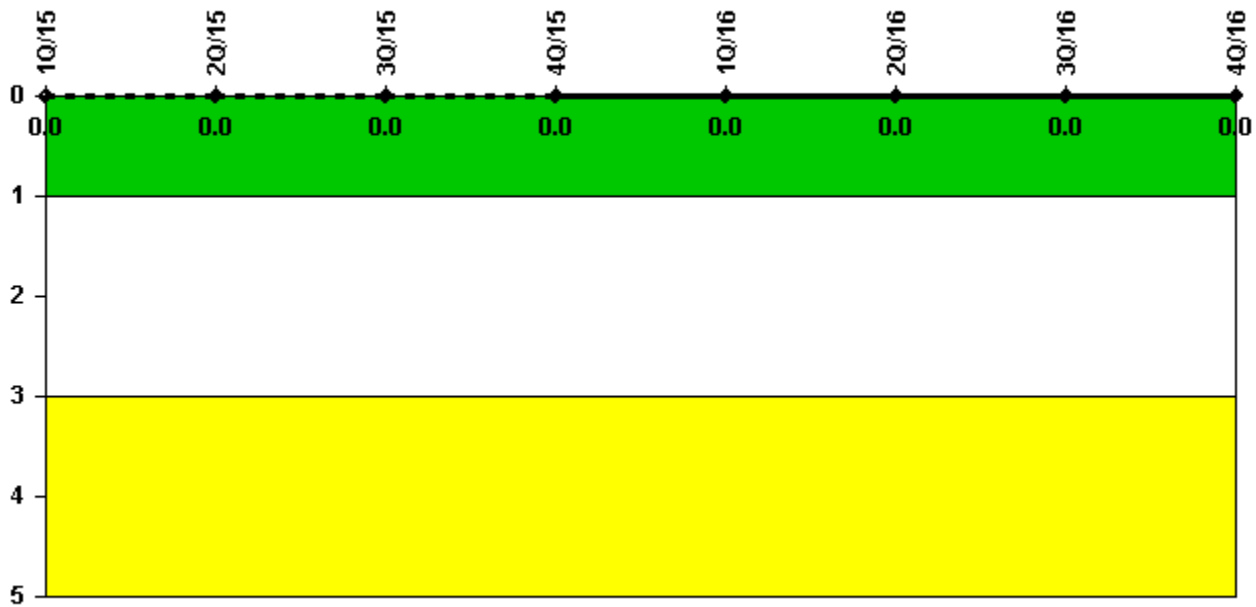
Thresholds: White > 2.0 Yellow > 5.0

#### Notes

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

Licensee Comments: none

### RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

#### Notes

RETS/ODCM Radiological Effluent	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16
RETS/ODCM 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>

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.



▲ [Action Matrix Summary](#) | [Inspection Findings Summary](#) | [PI Summary](#) | [Reactor Oversight Process](#)

*Last Modified: January 24, 2017*