

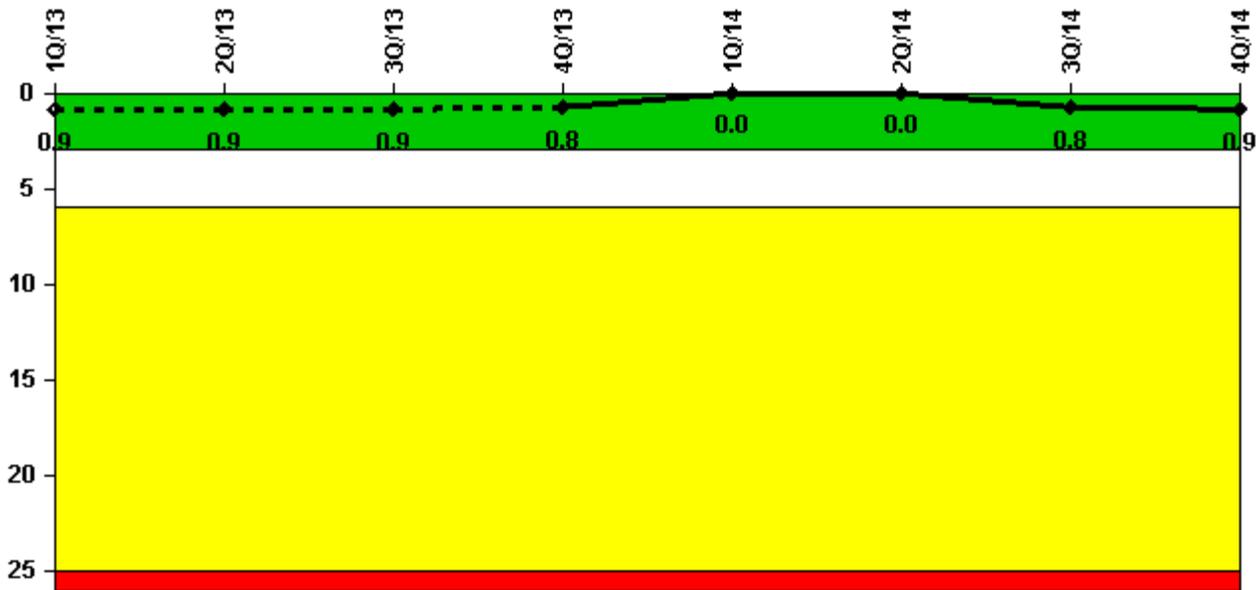
# Browns Ferry 1

## 4Q/2014 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: none

### Unplanned Scrams per 7000 Critical Hrs



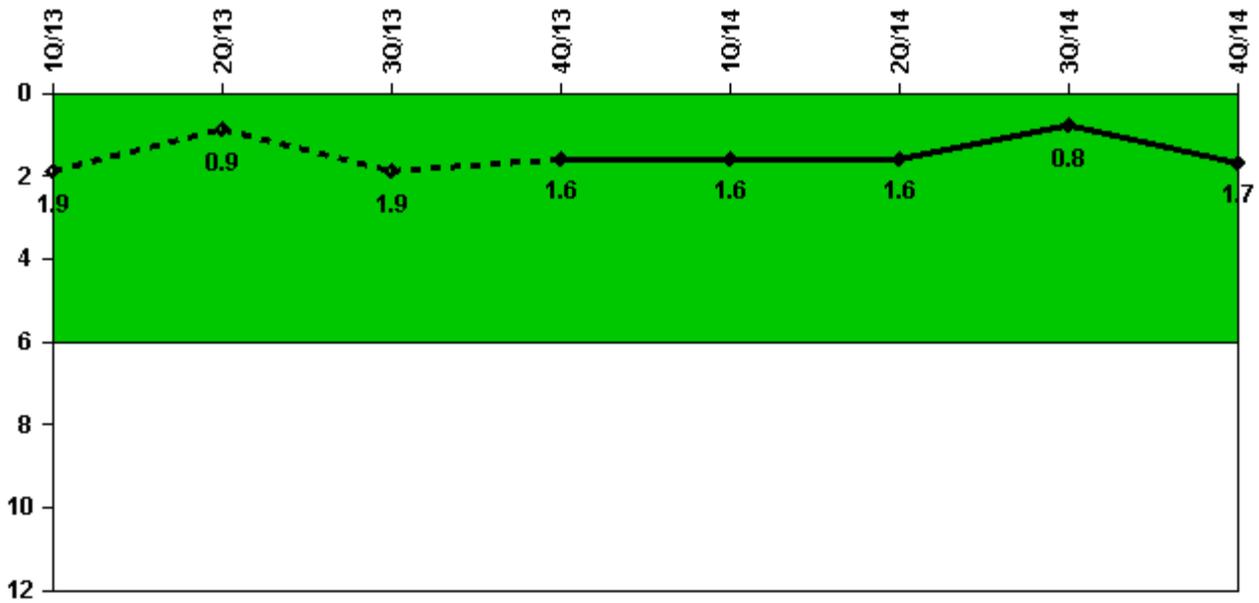
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

### Notes

Unplanned Scrams per 7000 Critical Hrs	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
Unplanned scrams	1.0	0	0	0	0	0	1.0	0
Critical hours	1954.2	2184.0	2208.0	2209.0	2159.0	2184.0	2118.6	1600.0
<b>Indicator value</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.8</b>	<b>0</b>	<b>0</b>	<b>0.8</b>	<b>0.9</b>

Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



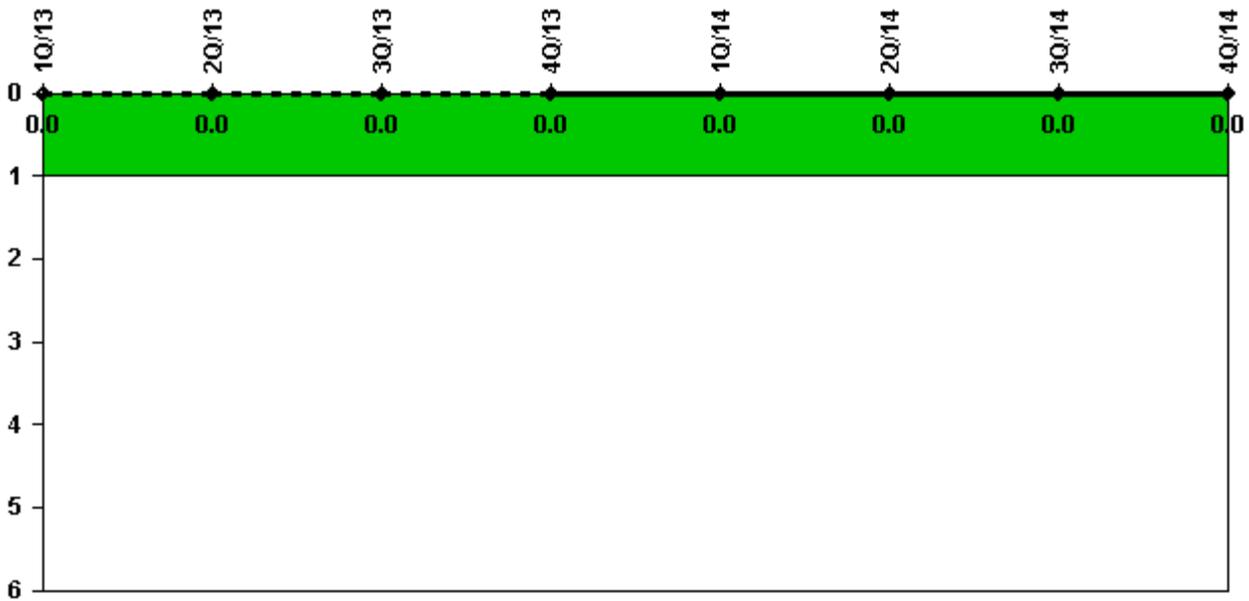
Thresholds: White > 6.0

#### Notes

Unplanned Power Changes per 7000 Critical Hrs	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
Unplanned power changes	1.0	0	1.0	0	1.0	0	0	1.0
Critical hours	1954.2	2184.0	2208.0	2209.0	2159.0	2184.0	2118.6	1600.0
<b>Indicator value</b>	<b>1.9</b>	<b>0.9</b>	<b>1.9</b>	<b>1.6</b>	<b>1.6</b>	<b>1.6</b>	<b>0.8</b>	<b>1.7</b>

Licensee Comments: none

### Unplanned Scrams with Complications



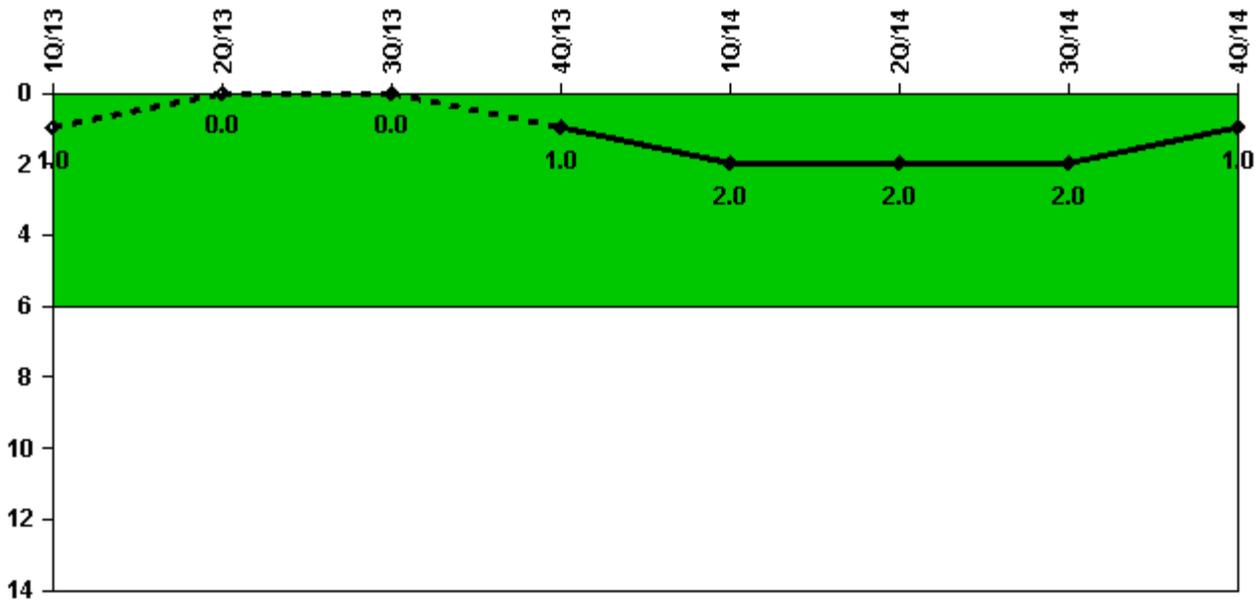
Thresholds: White > 1.0

#### Notes

Unplanned Scrams with Complications	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
Scrams with complications	0	0	0	0	0	0	0	0
<b>Indicator value</b>	<b>0.0</b>							

Licensee Comments: none

### Safety System Functional Failures (BWR)



Thresholds: White > 6.0

#### Notes

Safety System Functional Failures (BWR)	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
Safety System Functional Failures	0	0	0	1	1	0	0	0
<b>Indicator value</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>

#### Licensee Comments:

4Q/14: BFN Unit 1 SSFF reported in May 2014 by LER 50-260/2014-001-00 was retracted by LER 50-260/2014-001-01 on 12/23/2014. There is no color change associated with this revision.

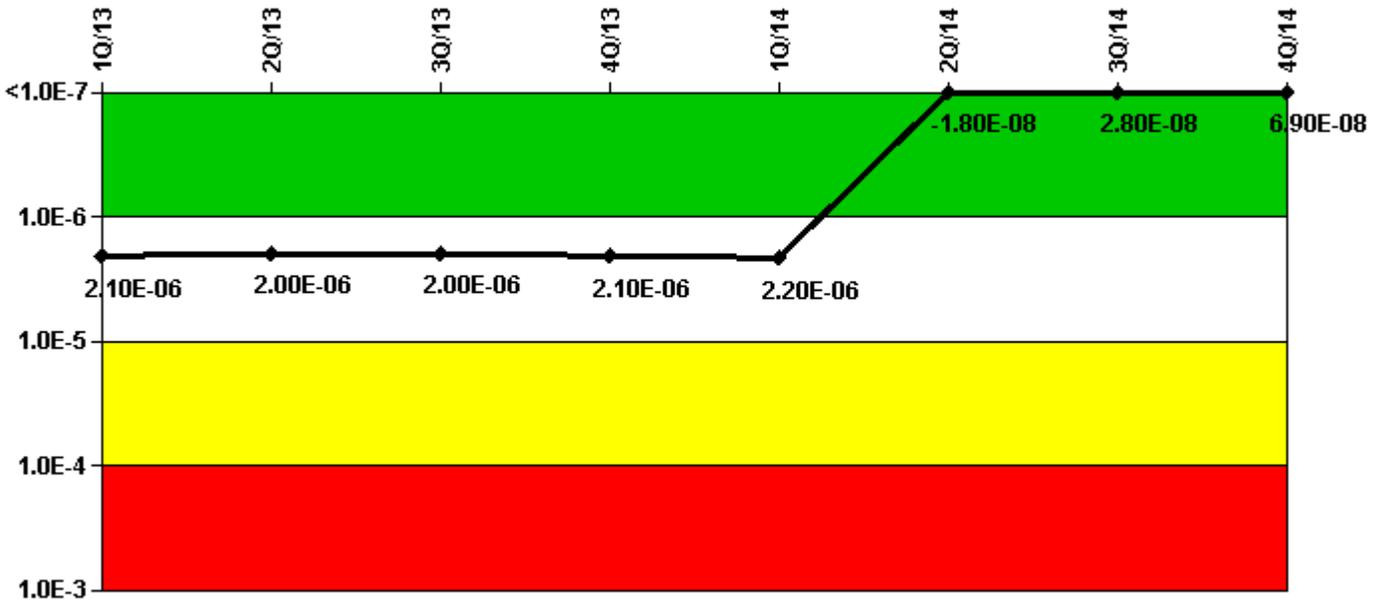
2Q/14: LER 50-260/2014-001-00 - Electric Board Room Air Conditioning System Inoperable for Longer than Allowed by the Technical Specifications

2Q/14: LER 50-260/2014-001-00 - Electric Board Room Air Conditioning System Inoperable for Longer than Allowed by the Technical Specifications

1Q/14: LER 50-259/2013-006-01 - 1B Standby Liquid Control Pump Inoperable For Longer Than Allowed By The Technical Specifications

4Q/13: LER 50-259/2013-007-00, High Pressure Coolant Injection System Declared Inoperable Due to an Inadvertent Actuation of the Primary Containment Isolation System

### 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/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
UAI (ΔCDF)	-2.17E-08	-1.60E-08	1.93E-08	4.06E-08	2.67E-08	2.01E-08	3.45E-08	4.26E-08
URI (ΔCDF)	2.09E-06	1.97E-06	2.03E-06	2.09E-06	2.16E-06	-3.80E-08	-6.80E-09	2.65E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	2.10E-06	2.00E-06	2.00E-06	2.10E-06	2.20E-06	-1.80E-08	2.80E-08	6.90E-08

#### Licensee Comments:

4Q/14: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from the highest worth single failure (2.03E-06) has been replaced by a value of 5.00E-07. Unavailability hours inappropriately missed for DG A from 9/30/2014 were added to September's data. These hours were due to vibration repairs that placed DG A in an unanalyzed condition and unavailability did accrue. There is no indicator color change associated with this revision.

3Q/14: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from the highest worth single failure (1.97E-06) has been replaced by a value of 5.00E-07. Unavailability hours inappropriately missed for DG A from 9/30/2014 were added after quarterly approval. These hours were due to vibration repairs that placed DG A in an unanalyzed condition and unavailability did accrue. There is no indicator color change associated with this revision.

3Q/14: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from the highest worth single failure

(1.97E-06) has been replaced by a value of 5.00E-07.

2Q/14: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from the highest worth single failure (1.90E-06) has been replaced by a value of 5.00E-07.

1Q/14: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from the highest worth single failure (1.26E-06) has been replaced by a value of 5.00E-07. The fuel fitting leak on 11/23/2013, previously documented as an MSPI failure, was subsequently evaluated further, based on additional information, and determined not to be a MSPI failure. The 4th Quarter 2013 data has been updated to remove the MSPI failure. This change will not affect the color of the indicator.

4Q/13: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from the highest worth single failure (1.23E-06) has been replaced by a value of 5.00E-07.

4Q/13: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from the highest worth single failure (1.23E-06) has been replaced by a value of 5.00E-07. There was one additional failure during the 4th Quarter 2013. On 11/23/2013, EDG A was removed from service to repair a fuel fitting which failed during a run.

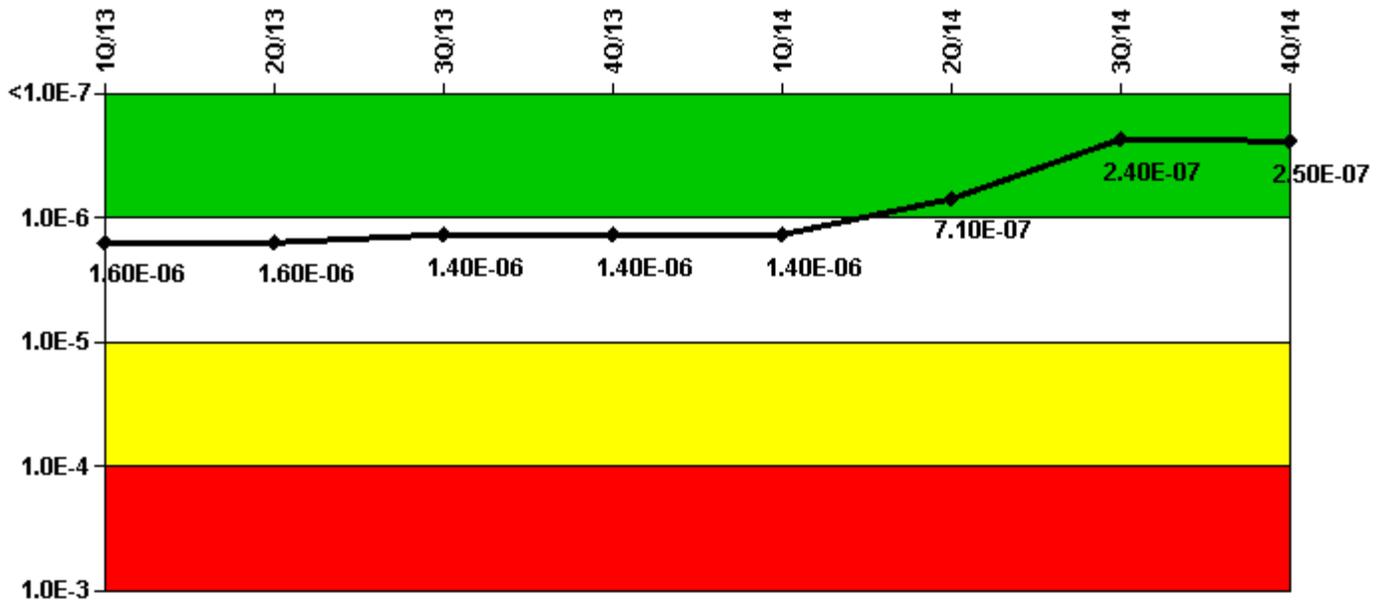
3Q/13: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from one Failure to Run (1.21E-06) has been replaced by a value of 5.00E-07.

2Q/13: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from one Failure to Run (1.18E-06) has been replaced by a value of 5.00E-07.

1Q/13: Risk Cap Invoked. Changed PRA Parameter(s). The MSPI Risk Cap is invoked. The contribution from one Failure to Run (1.16E-06) has been replaced by a value of 5.00E-07. MSPI Basis Documents and PRA Parameters were revised based on Calculation NDN-000-999-2010-003 Revision 007 to reflect Browns Ferry CAFTA PRA Model Revision 5 approved on 11/06/12. These changes are effective first quarter 2013. On December 22, 2012, the Emergency AC Power system experienced a failure that was incorrectly categorized as a load/run failure instead of a run failure. The failure mode was corrected resulting in the performance indicator color changing from green to white in the 4th Quarter of 2012. This issue is being tracked by PERs 704392 and 669462.

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### 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/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
UAI ( $\Delta$ CDF)	6.75E-07	6.47E-07	4.89E-07	4.89E-07	4.89E-07	2.41E-07	9.03E-08	1.01E-07
URI ( $\Delta$ CDF)	9.35E-07	9.35E-07	9.35E-07	9.35E-07	9.35E-07	4.64E-07	1.46E-07	1.46E-07
PLE	NO							
Indicator value	1.60E-06	1.60E-06	1.40E-06	1.40E-06	1.40E-06	7.10E-07	2.40E-07	2.50E-07

#### Licensee Comments:

1Q/14: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from one Turbine Driven Pump Demand Failure (5.48E-07) has been replaced by a value of 5.00E-07.

4Q/13: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from one Turbine Driven Pump Demand Failure (5.48E-07) has been replaced by a value of 5.00E-07.

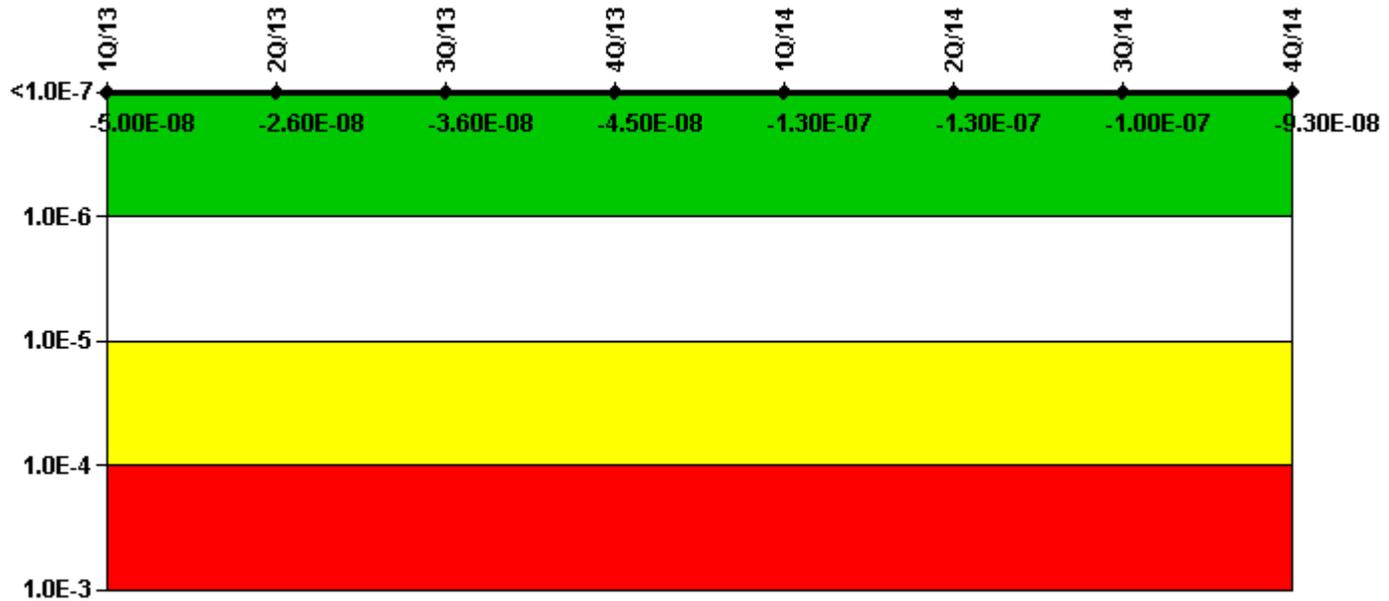
3Q/13: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from one Turbine Driven Pump Demand Failure (5.48E-07) has been replaced by a value of 5.00E-07.

2Q/13: Risk Cap Invoked. The MSPI Risk Cap is invoked. The contribution from one Turbine Driven Pump Demand Failure (5.48E-07) has been replaced by a value of 5.00E-07.

1Q/13: Risk Cap Invoked. Changed PRA Parameter(s). The MSPI Risk Cap is invoked. The contribution from one Turbine Driven Pump Demand Failure (5.49E-07) has been replaced by a value of 5.00E-07. MSPI Basis Documents and PRA Parameters were revised based on Calculation NDN-000-999-2010-003 Revision 007 to reflect Browns Ferry CAFTA PRA Model Revision 5 approved on 11/06/12. These changes are effective first

quarter 2013. High Pressure Injection System indicator color changed from green to white. The High Pressure Injection System indicator was white in the 2nd Quarter of 2012. No new failures have occurred since that time.

### 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/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
UAI ( $\Delta$ CDF)	1.12E-07	1.37E-07	1.28E-07	1.19E-07	3.04E-08	2.82E-08	5.32E-08	6.39E-08
URI ( $\Delta$ CDF)	-1.62E-07	-1.63E-07	-1.64E-07	-1.64E-07	-1.64E-07	-1.57E-07	-1.57E-07	-1.57E-07
PLE	NO							
Indicator value	-5.00E-08	-2.60E-08	-3.60E-08	-4.50E-08	-1.30E-07	-1.30E-07	-1.00E-07	-9.30E-08

Licensee Comments:

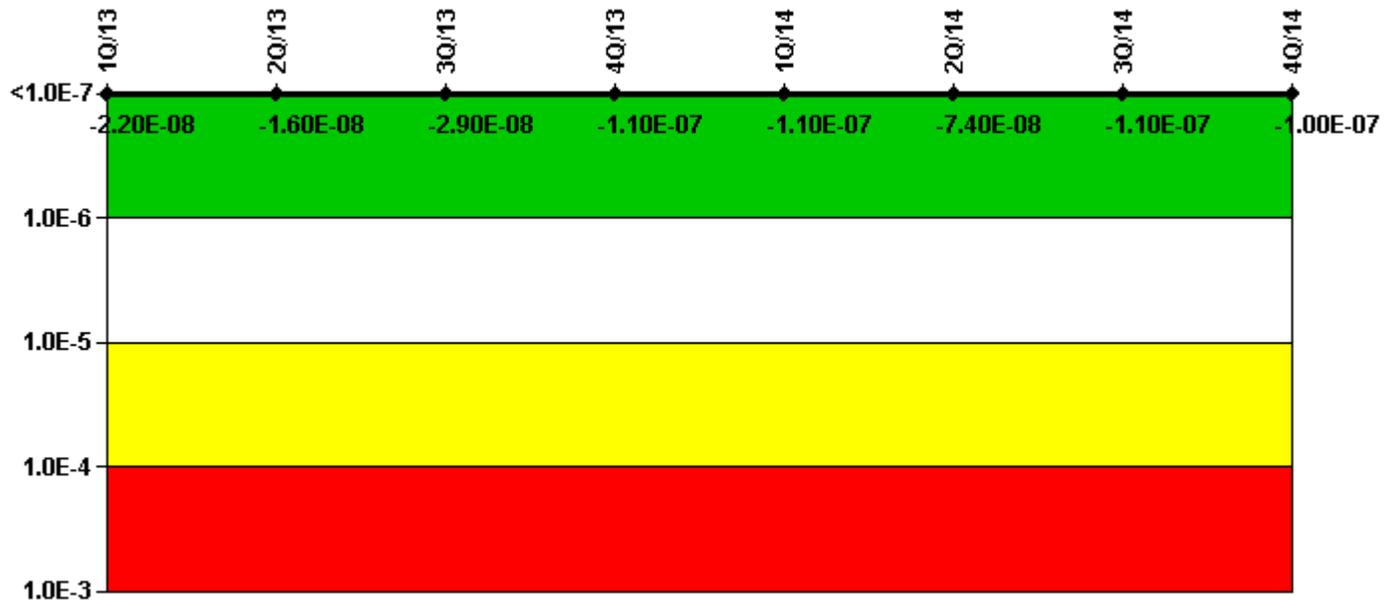
3Q/13: Added previously uncounted RCIC injection demands. Added demand data for Unit 1 in April 2011. BFNs interpretation of what RCIC demands need to be counted changed for RCIC. This did not impact the MSPI color of RCIC.

1Q/13: MSPI Basis Documents and PRA Parameters were revised based on Calculation NDN-000-999-2010-003 Revision 007 to reflect Browns Ferry CAFTA PRA Model Revision 5 approved on 11/06/12. These changes are

effective first quarter 2013.

1Q/13: Changed PRA Parameter(s). MSPI Basis Documents and PRA Parameters were revised based on Calculation NDN-000-999-2010-003 Revision 007 to reflect Browns Ferry CAFTA PRA Model Revision 5 approved on 11/06/12. These changes are effective first quarter 2013.

### 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/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
UAI ( $\Delta$ CDF)	9.47E-08	1.01E-07	8.76E-08	9.02E-08	8.86E-08	1.24E-07	9.05E-08	9.72E-08
URI ( $\Delta$ CDF)	-1.16E-07	-1.17E-07	-1.17E-07	-1.99E-07	-1.99E-07	-1.98E-07	-1.98E-07	-1.98E-07
PLE	NO							
<b>Indicator value</b>	<b>-2.20E-08</b>	<b>-1.60E-08</b>	<b>-2.90E-08</b>	<b>-1.10E-07</b>	<b>-1.10E-07</b>	<b>-7.40E-08</b>	<b>-1.10E-07</b>	<b>-1.00E-07</b>

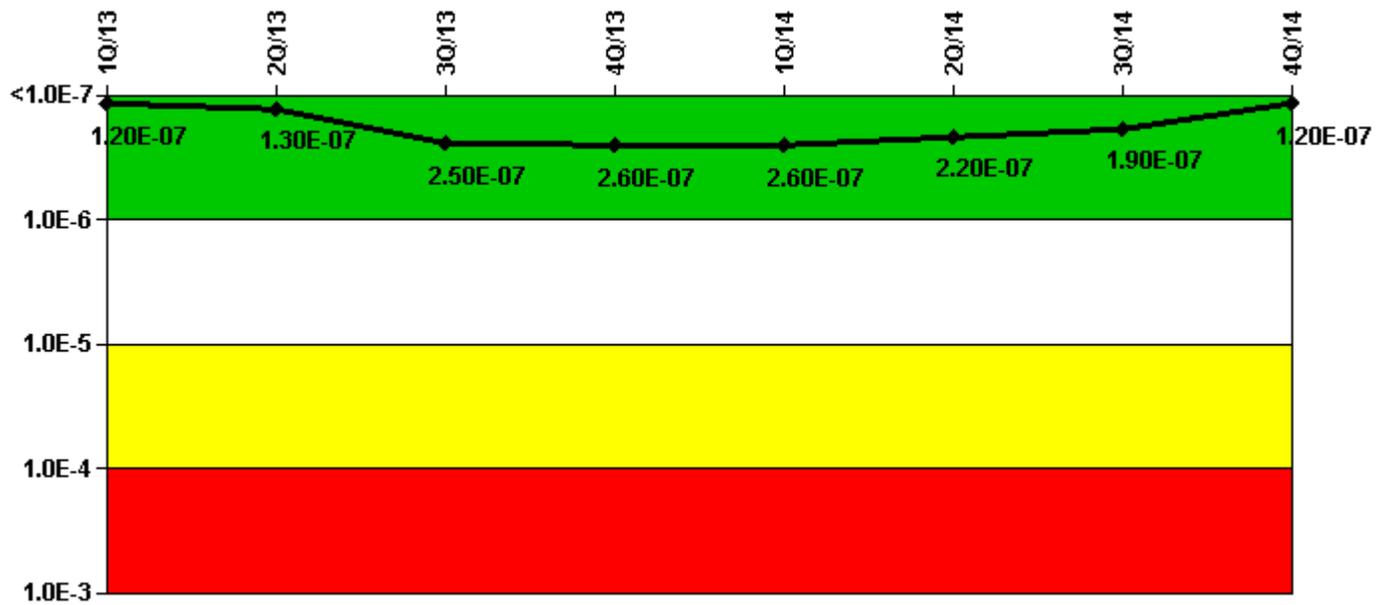
Licensee Comments:

1Q/14: During the first quarter of 2014, the following changes were made to numerical values in the INPO CDE database for the Browns Ferry Nuclear Plant (BFN). 1. Common Cause Factor (CCF) for 3-FCV-023-0034 was changed to the correct value of 2.00. Effective 2011-01 to present. 2. Operational Non-test demands(D) value

for 2-FCV-023-0046 was changed to the correct value of 82. Effective 2012-01 to present. 3. Operational Non-test demands(D) value for 3-FCV-023-0040 was changed to the correct value of 88. Effective 2012-01 to present. 4. Operational Non-test run-hours value for 1-PMP-074-0039 was changed to the correct value of 333.54 hours. Effective 2011-01 to present. 5. Test run-hours value for 1-PMP-074-0039 was changed to the correct value of 31.87 hours. Effective 2011-01 to present. These changes result in the BFN Residual Heat Removal System MSPI indicator values for past reporting periods to be different than previously reported, as indicated by the effective dates identified above. No MSPI color changes resulted from these changes to the numerical values. Reference BFN Problem Evaluation Report (PER) 851845.

1Q/13: Changed PRA Parameter(s). MSPI Basis Documents and PRA Parameters were revised based on Calculation NDN-000-999-2010-003 Revision 007 to reflect Browns Ferry CAFTA PRA Model Revision 5 approved on 11/06/12. These changes are effective first quarter 2013.

### Mitigating Systems Performance Index, Cooling Water Systems



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

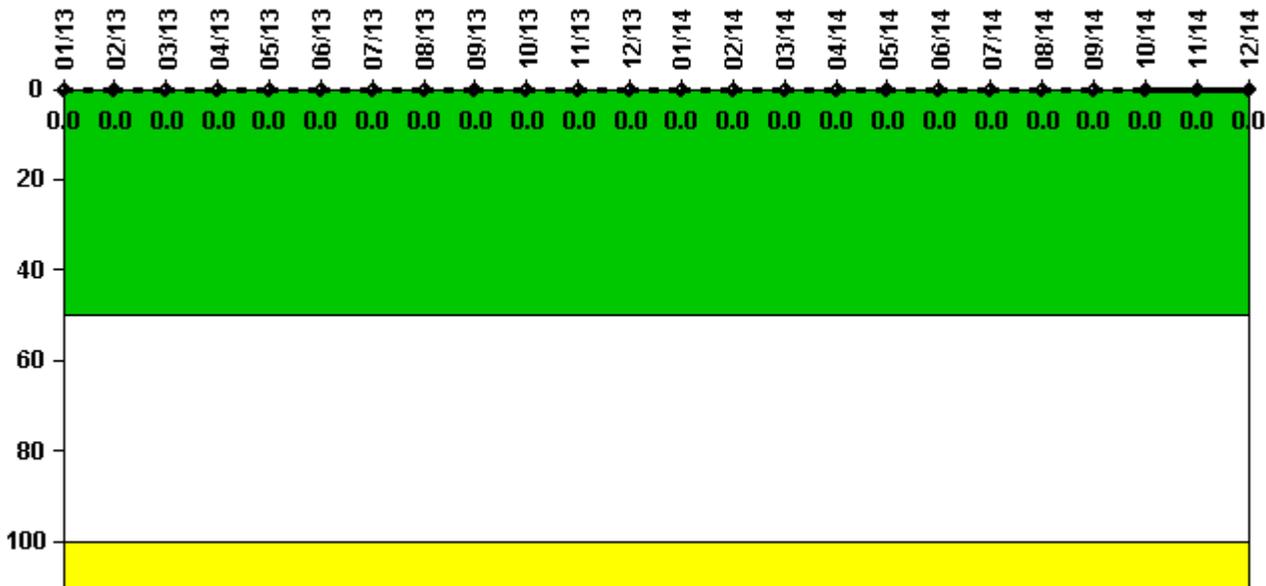
#### Notes

Mitigating Systems Performance Index, Cooling Water Systems	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
UAI (ΔCDF)	1.41E-07	1.58E-07	2.78E-07	2.85E-07	2.85E-07	2.65E-07	2.34E-07	1.65E-07
URI (ΔCDF)	-2.46E-08	-2.46E-08	-2.46E-08	-2.46E-08	-2.46E-08	-4.12E-08	-4.12E-08	-4.12E-08
PLE	NO							
Indicator value	1.20E-07	1.30E-07	2.50E-07	2.60E-07	2.60E-07	2.20E-07	1.90E-07	1.20E-07

Licensee Comments:

1Q/13: Changed PRA Parameter(s). MSPI Basis Documents and PRA Parameters were revised based on Calculation NDN-000-999-2010-003 Revision 007 to reflect Browns Ferry CAFTA PRA Model Revision 5 approved on 11/06/12. These changes are effective first quarter 2013.

### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

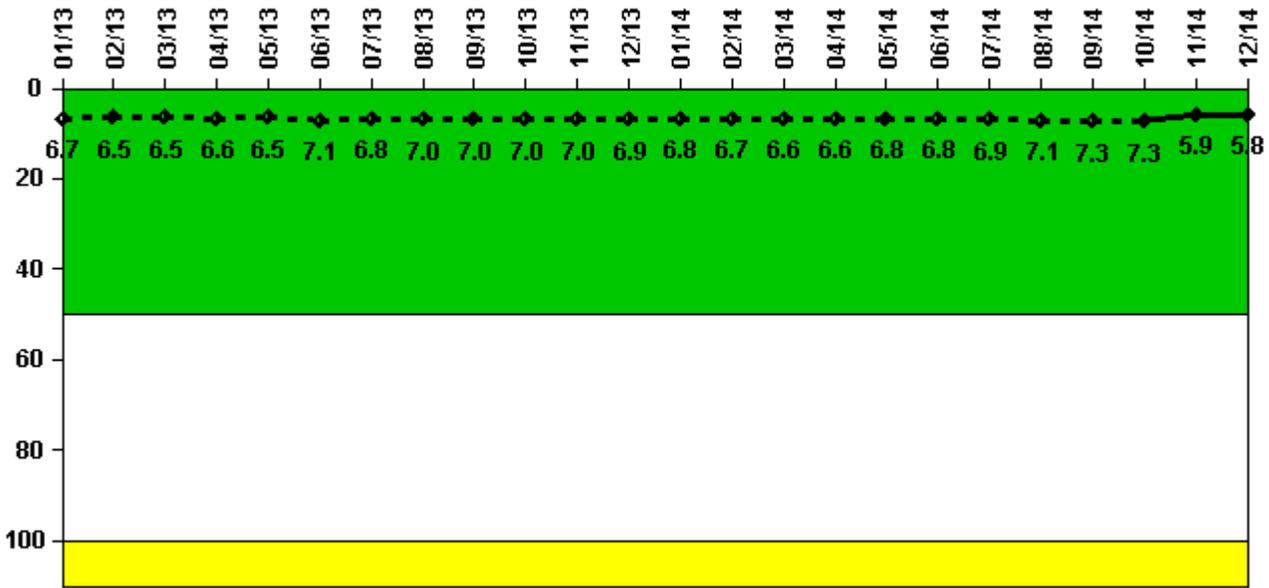
Notes

Reactor Coolant System Activity	1/13	2/13	3/13	4/13	5/13	6/13	7/13	8/13	9/13	10/13	11/13	12/13
Maximum activity	0.000110	0.000084	0.000150	0.000082	0.000081	0.000081	0.000123	0.000163	0.000069	0.000174	0.000184	0.000182
Technical specification limit	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Indicator value	0	0	0	0	0	0	0	0	0	0	0	0
Reactor Coolant System Activity	1/14	2/14	3/14	4/14	5/14	6/14	7/14	8/14	9/14	10/14	11/14	12/14
Maximum												

activity	0.000143	0.000203	0.000162	0.000190	0.000137	0.000130	0.000089	0.000153	0.000152	0.000112	0.000072	0.000030
Technical specification limit	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
<b>Indicator value</b>	<b>0</b>											

Licensee Comments: none

### Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

### Notes

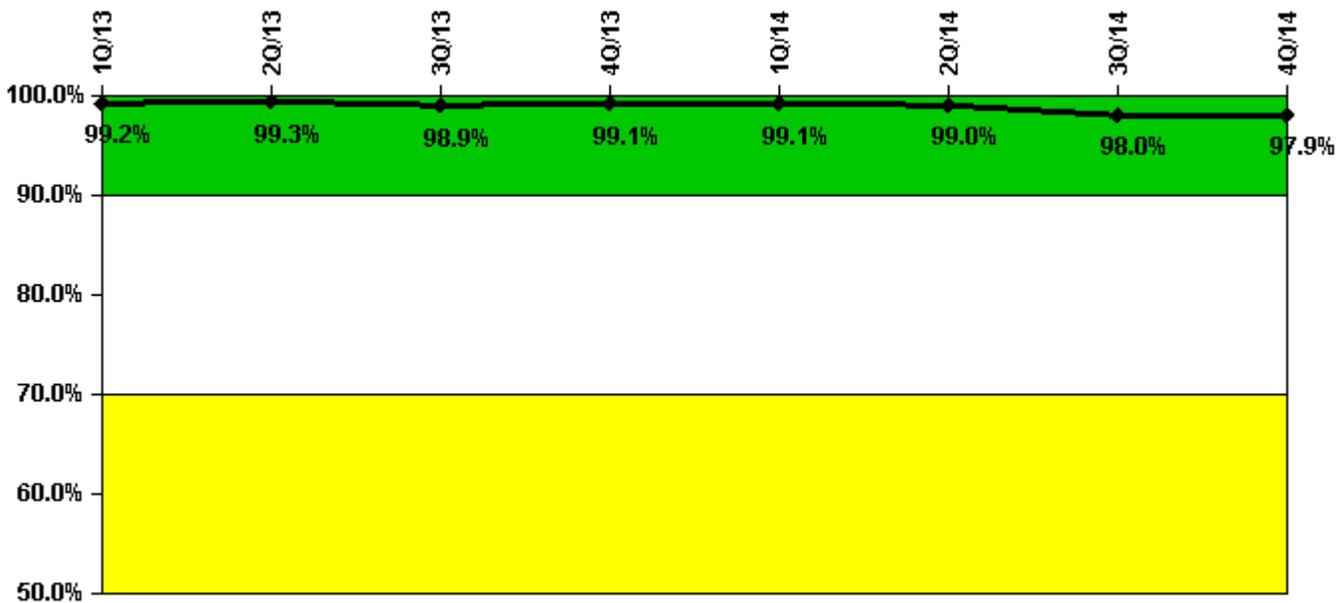
Reactor Coolant System Leakage	1/13	2/13	3/13	4/13	5/13	6/13	7/13	8/13	9/13	10/13	11/13	12/13
Maximum leakage	2.010	1.960	1.950	1.970	1.960	2.120	2.030	2.100	2.100	2.090	2.100	2.070
Technical specification limit	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
<b>Indicator value</b>	<b>6.7</b>	<b>6.5</b>	<b>6.5</b>	<b>6.6</b>	<b>6.5</b>	<b>7.1</b>	<b>6.8</b>	<b>7.0</b>	<b>7.0</b>	<b>7.0</b>	<b>7.0</b>	<b>6.9</b>
Reactor Coolant System Leakage	1/14	2/14	3/14	4/14	5/14	6/14	7/14	8/14	9/14	10/14	11/14	12/14
Maximum leakage	2.050	2.010	1.990	1.990	2.030	2.050	2.070	2.130	2.190	2.190	1.780	1.750
Technical specification limit	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0

Indicator value	6.8	6.7	6.6	6.6	6.8	6.8	6.9	7.1	7.3	7.3	5.9	5.8
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Licensee Comments:

6/13: The Maximum RCS Identified Leakage (gpm) was updated to reflect the correct leakage. This condition was identified in PER 694496. This affected July 2012 to December 2012. There was no color change.

### Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

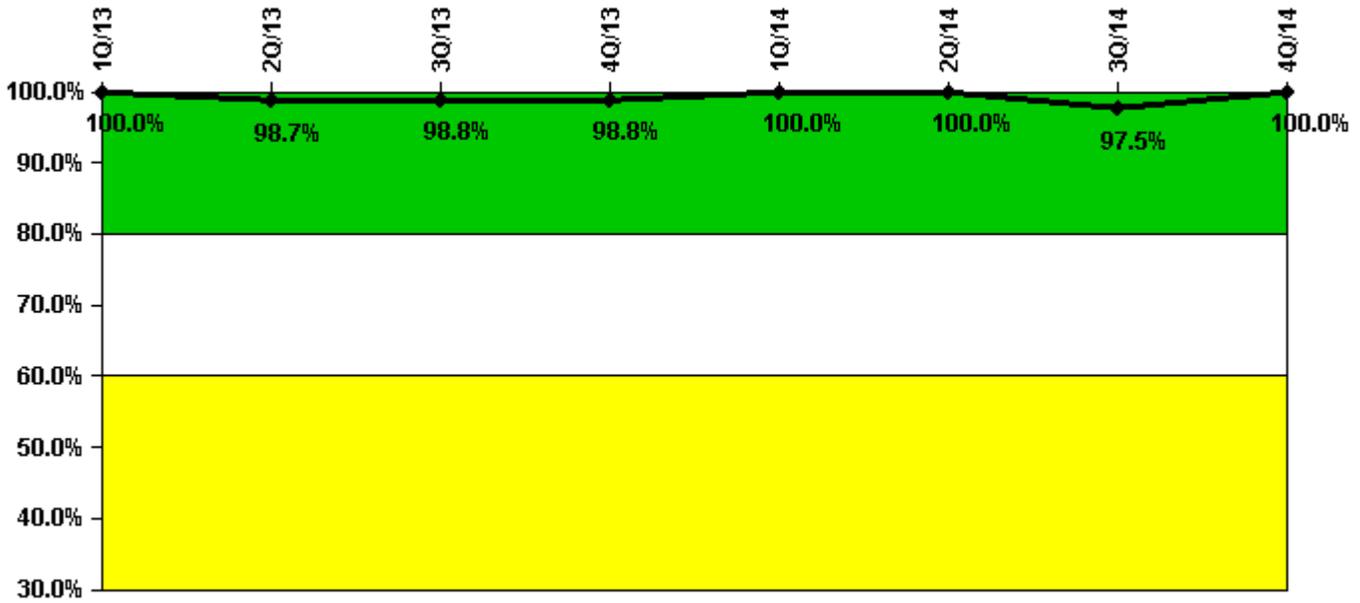
### Notes

Drill/Exercise Performance	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
Successful opportunities	24.0	26.0	40.0	70.0	12.0	63.0	86.0	4.0
Total opportunities	24.0	26.0	42.0	70.0	12.0	64.0	90.0	4.0
Indicator value	99.2%	99.3%	98.9%	99.1%	99.1%	99.0%	98.0%	97.9%

Licensee Comments:

1Q/14: Revised Successful drill, exer & event opportunities to reflect an additional DEP failure for the September (3rd quarter) 2013 report period. This revision did not result in a color change. PER # 836157

### ERO Drill Participation



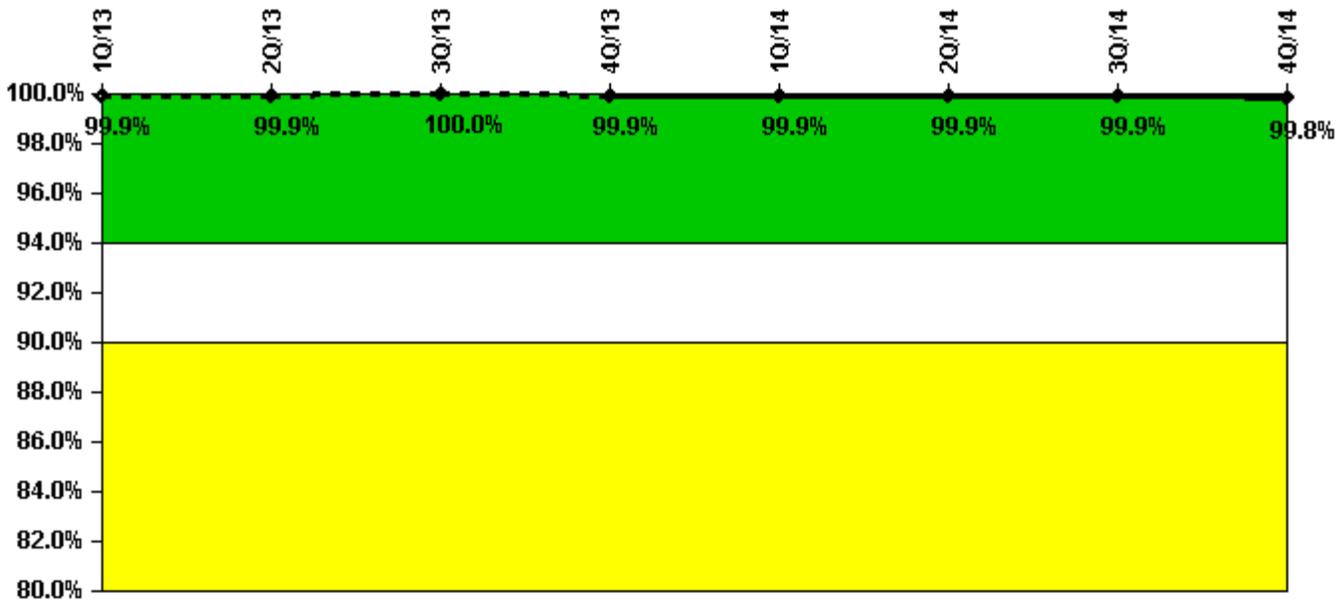
Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

ERO Drill Participation	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
Participating Key personnel	76.0	76.0	79.0	81.0	76.0	78.0	77.0	76.0
Total Key personnel	76.0	77.0	80.0	82.0	76.0	78.0	79.0	76.0
Indicator value	100.0%	98.7%	98.8%	98.8%	100.0%	100.0%	97.5%	100.0%

Licensee Comments: none

### Alert & Notification System



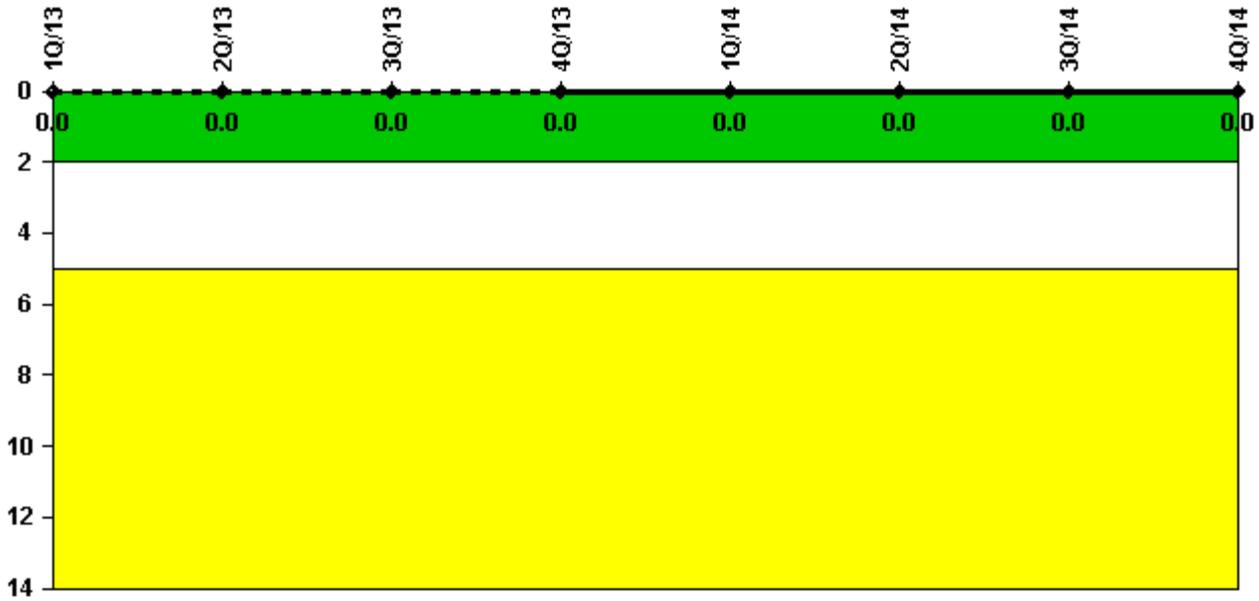
Thresholds: White < 94.0% Yellow < 90.0%

#### Notes

Alert & Notification System	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
Successful siren-tests	900	800	932	622	1040	624	1038	621
Total sirens-tests	900	800	932	624	1040	624	1040	624
Indicator value	99.9%	99.9%	100.0%	99.9%	99.9%	99.9%	99.9%	99.8%

Licensee Comments: none

### Occupational Exposure Control Effectiveness



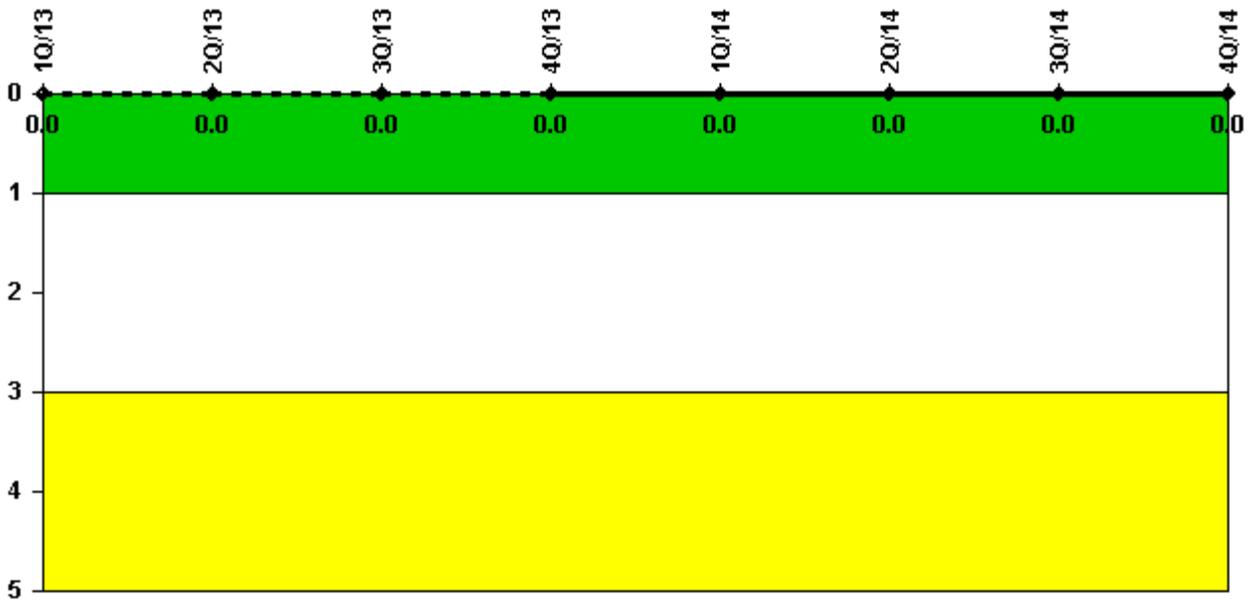
Thresholds: White > 2.0 Yellow > 5.0

#### Notes

Occupational Exposure Control Effectiveness	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
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>							

Licensee Comments: none

### RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

#### Notes

RETS/ODCM Radiological Effluent	1Q/13	2Q/13	3Q/13	4Q/13	1Q/14	2Q/14	3Q/14	4Q/14
RETS/ODCM occurrences	0	0	0	0	0	0	0	0
Indicator value	0	0	0	0	0	0	0	0

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: February 3, 2015*