

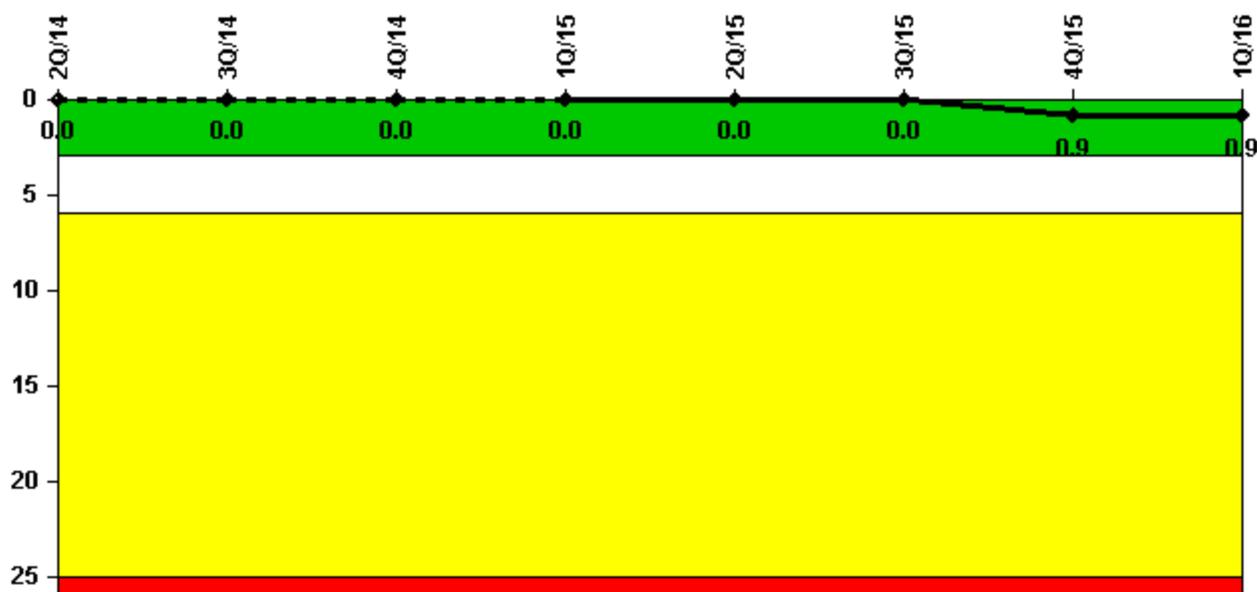
# Monticello

## 1Q/2016 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: none

### Unplanned Scrams per 7000 Critical Hrs



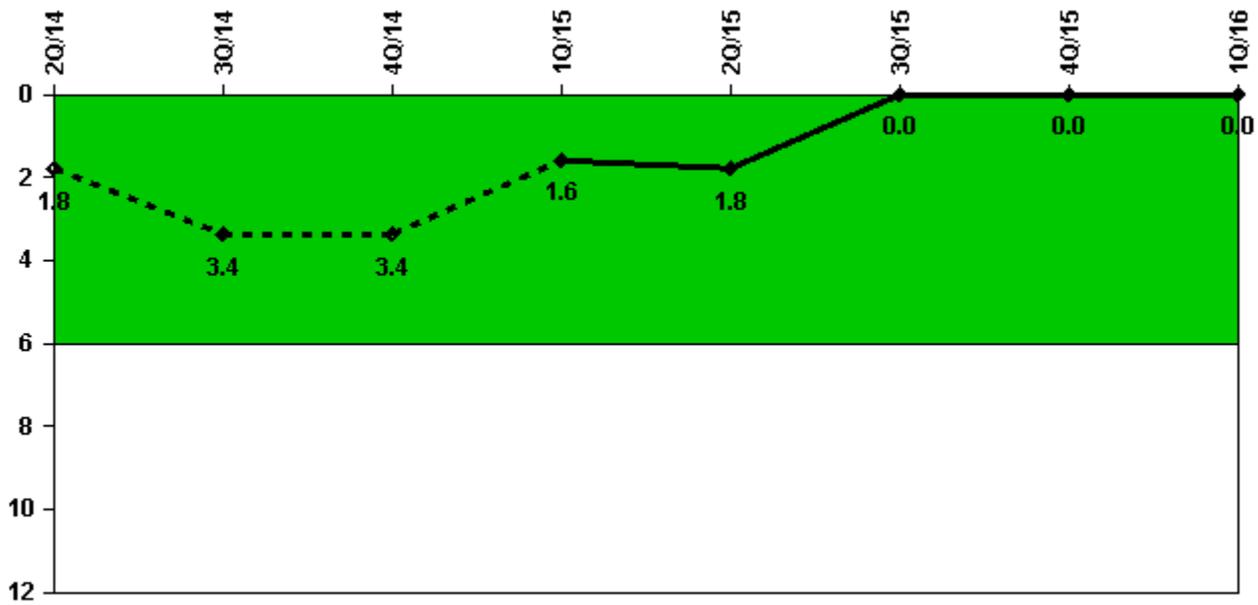
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

### Notes

Unplanned Scrams per 7000 Critical Hrs	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
Unplanned scrams	0	0	0	0	0	0	1.0	0
Critical hours	2184.0	2208.0	2209.0	2159.0	1075.2	2208.0	2050.0	2183.0
Indicator value	0	0	0	0	0	0	0.9	0.9

Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



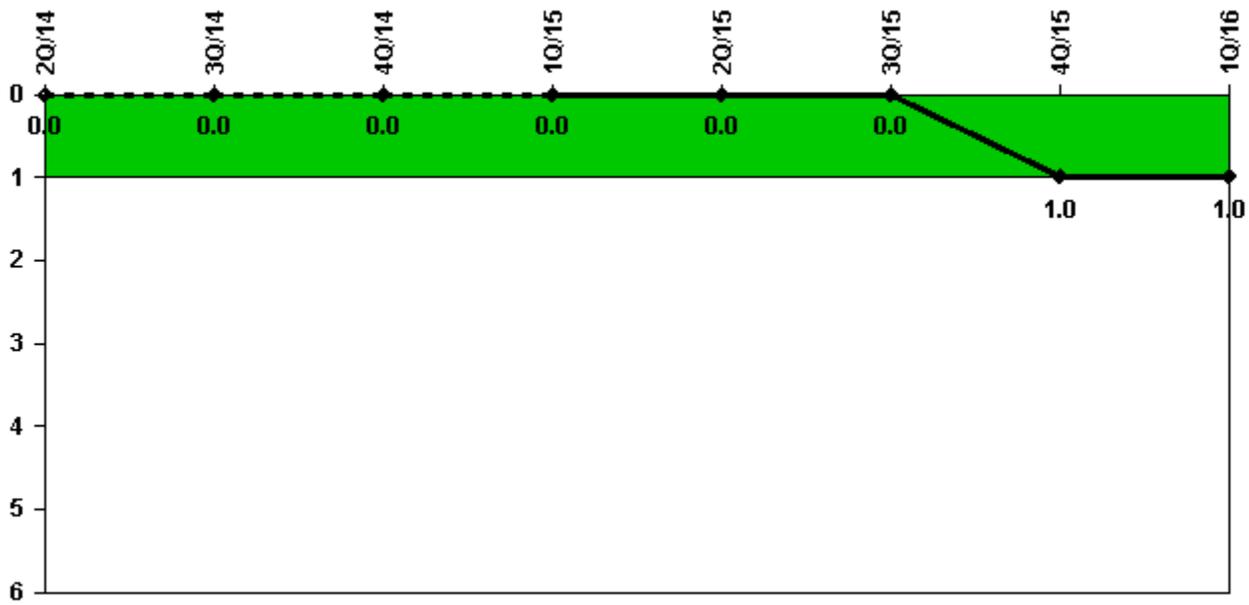
Thresholds: White > 6.0

#### Notes

Unplanned Power Changes per 7000 Critical Hrs	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
Unplanned power changes	0	2.0	0	0	0	0	0	0
Critical hours	2184.0	2208.0	2209.0	2159.0	1075.2	2208.0	2050.0	2183.0
<b>Indicator value</b>	<b>1.8</b>	<b>3.4</b>	<b>3.4</b>	<b>1.6</b>	<b>1.8</b>	<b>0</b>	<b>0</b>	<b>0</b>

Licensee Comments: none

### Unplanned Scrams with Complications



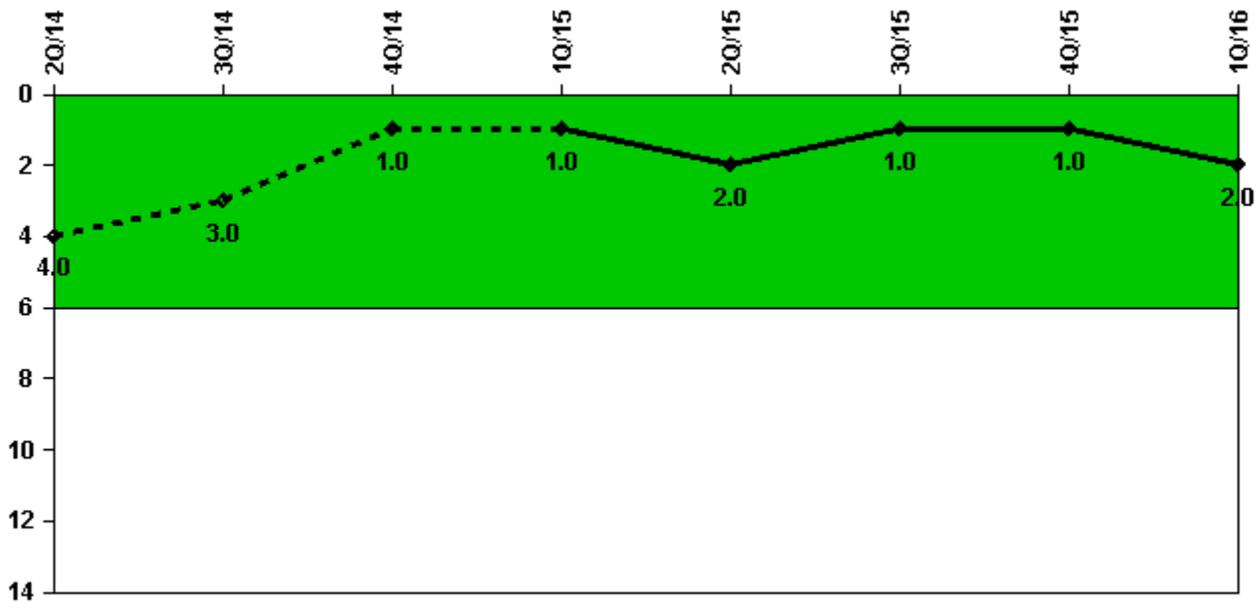
Thresholds: White > 1.0

#### Notes

Unplanned Scrams with Complications	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
Scrams with complications	0	0	0	0	0	0	1.0	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>1.0</b>	<b>1.0</b>

Licensee Comments: none

### Safety System Functional Failures (BWR)



Thresholds: White > 6.0

#### Notes

Safety System Functional Failures (BWR)	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
Safety System Functional Failures	0	1	0	0	1	0	0	1
<b>Indicator value</b>	<b>4</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>

Licensee Comments:

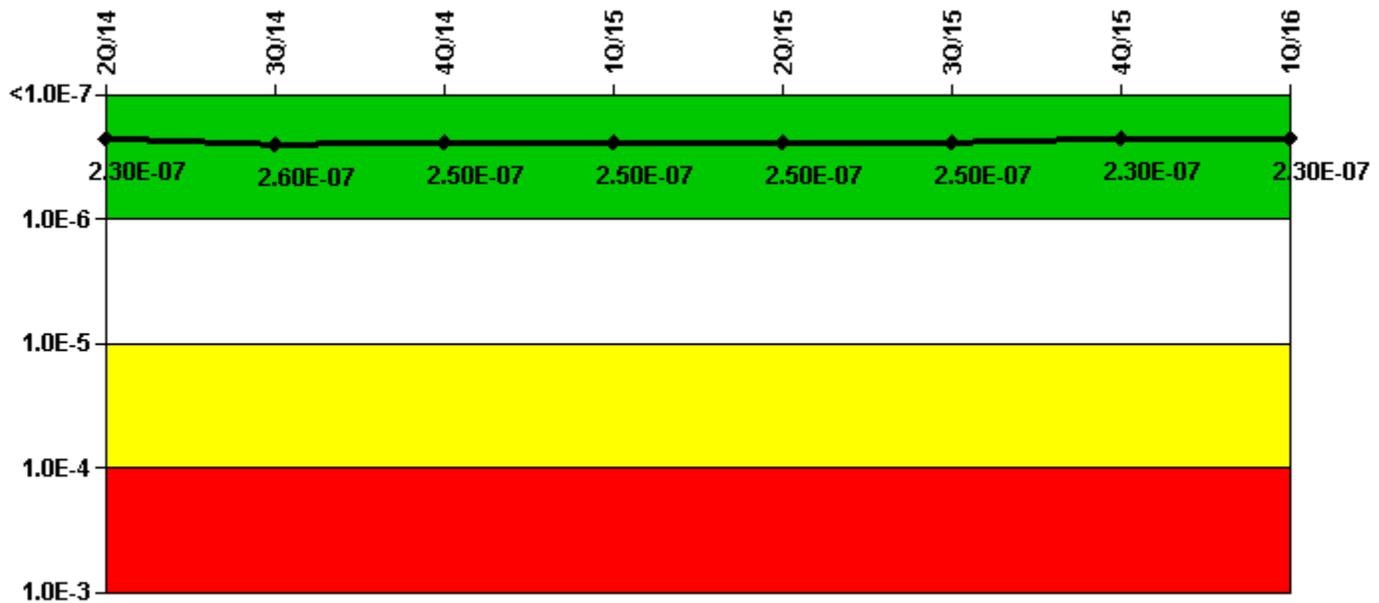
1Q/16: LER 2015-007, Loss of Residual Heat Removal Capability, reported as a Safety System Functional Failure on January 21, 2016.

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.

4Q/14: The indicator value for 4Q2013 added one safety system functional failure (LER 2013-007) to correct an omission error. The addition of this safety system functional failure does not change the indicator color.

3Q/14: LER 2014-009 The LER count was not omitted in the 3rd quarter, only the LER number in the comment. The value of the indicator did not change.

### 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/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
UAI (ΔCDF)	-5.21E-09	1.54E-08	1.07E-08	9.57E-09	1.06E-08	1.55E-08	1.77E-08	2.65E-08
URI (ΔCDF)	2.36E-07	2.41E-07	2.41E-07	2.40E-07	2.40E-07	2.39E-07	2.08E-07	2.08E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	2.30E-07	2.60E-07	2.50E-07	2.50E-07	2.50E-07	2.50E-07	2.30E-07	2.30E-07

#### Licensee Comments:

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.

1Q/15: The engineering evaluation for the EDG event that occurred late in 4th Quarter 2014 (12/28/14) has been complete. The evaluation determined this event was a MSPI Demand Failure of the 11 EDG (G3A). This constitutes resolution of the incomplete engineering evaluation from last quarter, per NEI 99-02 Rev. 7 Section F 2.2.2. This does not change the MSPI color for the Emergency AC Power Indicator.

4Q/14: Monticello is evaluating an event associated with the EDGs that occurred late in 4th Quarter 2014. The associated engineering evaluation is not yet complete for the 4th quarter 2014 data submittal. Preliminary

determination is no MSPI Failure against the Emergency AC Power indicator. 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 EDG event that occurred late in 4th Quarter 2014 (12/28/14) has been complete. The evaluation determined this event was a MSPI Demand Failure of the 11 EDG (G3A). This constitutes resolution of the incomplete engineering evaluation from last quarter, per NEI 99-02 Rev. 7 Section F 2.2.2. This does not change the MSPI color for the Emergency AC Power Indicator. MSPI Emergency AC Power unavailability hours values have been revised for these previously reported periods: 1Q2012, 2Q2012, 3Q2012, 4Q2012, 1Q2013, 2Q2013, 3Q2013, 4Q2013, 1Q2014, 2Q2014, 3Q2014, 4Q2014. This does not change the MSPI color. Extent of condition review from the EDG engineering evaluation identified multiple instances from January 2012 through December 2014 where unavailability hours were not documented per NEI 99-02. All instances corrected.

4Q/14: Monticello is evaluating an event associated with the EDGs that occurred late in 4th Quarter 2014. The associated engineering evaluation is not yet complete for the 4th quarter 2014 data submittal. Preliminary determination is no MSPI Failure against the Emergency AC Power indicator. Resolution to be submitted in the next quarterly submittal, per NEI 99-02 Rev. 7 Section F 2.2.2.

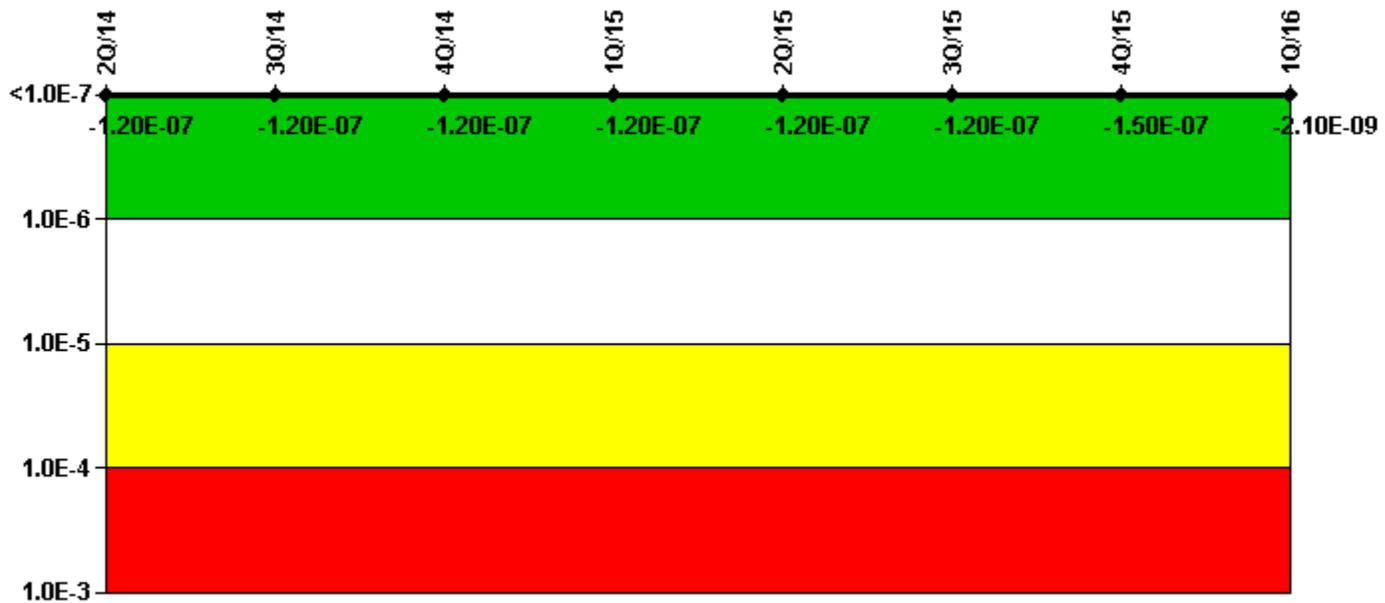
3Q/14: MSPI Emergency AC Power unavailability hours values have been revised for these previously reported periods: 1Q2012, 2Q2012, 3Q2012, 4Q2012, 1Q2013, 2Q2013, 3Q2013, 4Q2013, 1Q2014, 2Q2014, 3Q2014, 4Q2014. This does not change the MSPI color. Extent of condition review from the EDG engineering evaluation identified multiple instances from January 2012 through December 2014 where unavailability hours were not documented per NEI 99-02. All instances corrected.

3Q/14: Changed PRA Parameter(s).

2Q/14: Changed PRA Parameter(s). Revision to estimated test demands and run hours due to identification of a change > 25%, per NEI 99-02. Revision 3.2 of the Monticello PRA Level 1 Quantification Notebook (PRA-MT-QU) was approved March 31st, 2014 with a corresponding MSPI Basis document Revision 5 approved 7/09/2014. The Rev 3.2 PRA model incorporated the modification/procedure changes required to pin the condensate demineralizer AOVs. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

2Q/14: Revision to estimated test demands and run hours due to identification of a change > 25%, per NEI 99-02. Revision 3.2 of the Monticello PRA Level 1 Quantification Notebook (PRA-MT-QU) was approved March 31st, 2014 with a corresponding MSPI Basis document Revision 5 approved 7/09/2014. The Rev 3.2 PRA model incorporated the modification/procedure changes required to pin the condensate demineralizer AOVs. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised. MSPI Emergency AC Power unavailability hours values have been revised for these previously reported periods: 1Q2012, 2Q2012, 3Q2012, 4Q2012, 1Q2013, 2Q2013, 3Q2013, 4Q2013, 1Q2014, 2Q2014, 3Q2014, 4Q2014. This does not change the MSPI color. Extent of condition review from the EDG engineering evaluation identified multiple instances from January 2012 through December 2014 where unavailability hours were not documented per NEI 99-02. All instances corrected.

### 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/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
UAI ( $\Delta$ CDF)	-4.33E-08	-4.33E-08	-4.33E-08	-4.33E-08	-4.33E-08	-4.33E-08	-5.00E-08	-5.00E-08
URI ( $\Delta$ CDF)	-7.32E-08	-7.42E-08	-7.52E-08	-7.62E-08	-7.71E-08	-7.80E-08	-9.51E-08	4.79E-08
PLE	NO							
Indicator value	-1.20E-07	-1.20E-07	-1.20E-07	-1.20E-07	-1.20E-07	-1.20E-07	-1.50E-07	-2.10E-09

#### Licensee Comments:

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.

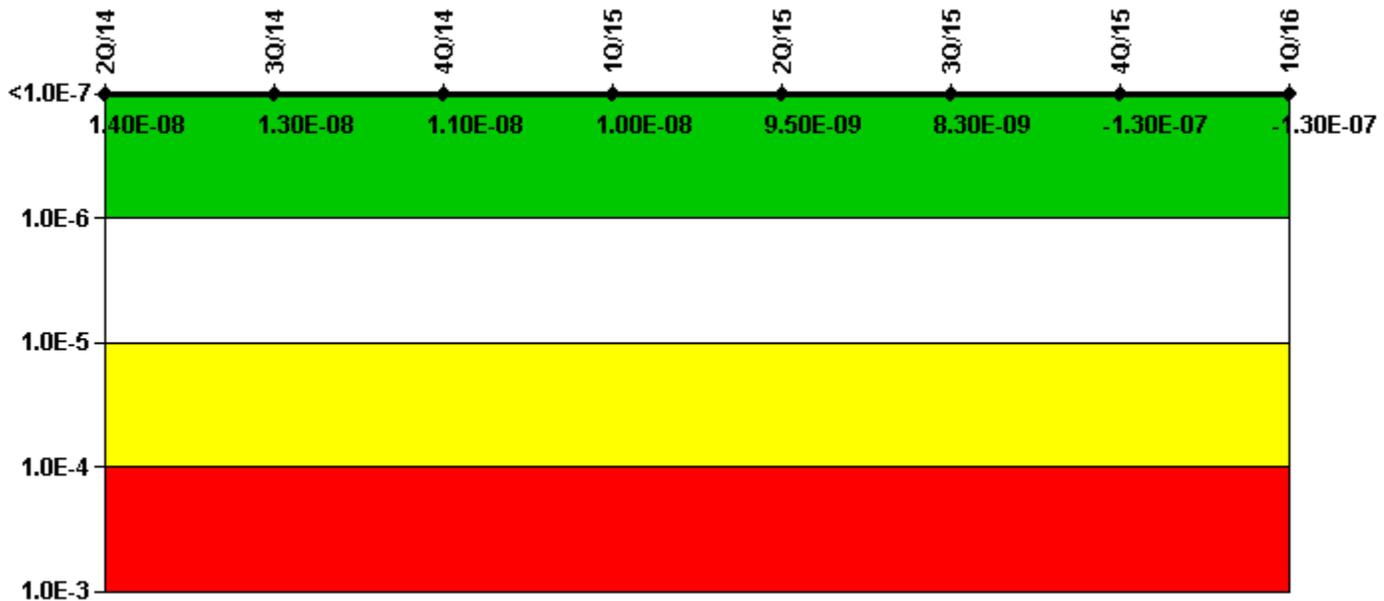
4Q/15: Changed PRA Parameter(s). The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The MSPI Basis document and new MSPI coefficients were updated effective 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions,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

3Q/14: Changed PRA Parameter(s).

2Q/14: Changed PRA Parameter(s). Revision to estimated test demands and run hours due to identification of a change > 25%, per NEI 99-02. Revision 3.2 of the Monticello PRA Level 1 Quantification Notebook (PRA-MT-QU)

was approved March 31st, 2014 with a corresponding MSPI Basis document Revision 5 approved 7/09/2014. The Rev 3.2 PRA model incorporated the modification/procedure changes required to pin the condensate demineralizer AOVs. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

### 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/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
UAI (ΔCDF)	-2.73E-08	-2.73E-08	-2.75E-08	-2.74E-08	-2.71E-08	-2.71E-08	-4.71E-08	-4.71E-08
URI (ΔCDF)	4.12E-08	4.00E-08	3.88E-08	3.77E-08	3.65E-08	3.54E-08	-7.95E-08	-8.07E-08
PLE	NO							
Indicator value	1.40E-08	1.30E-08	1.10E-08	1.00E-08	9.50E-09	8.30E-09	-1.30E-07	-1.30E-07

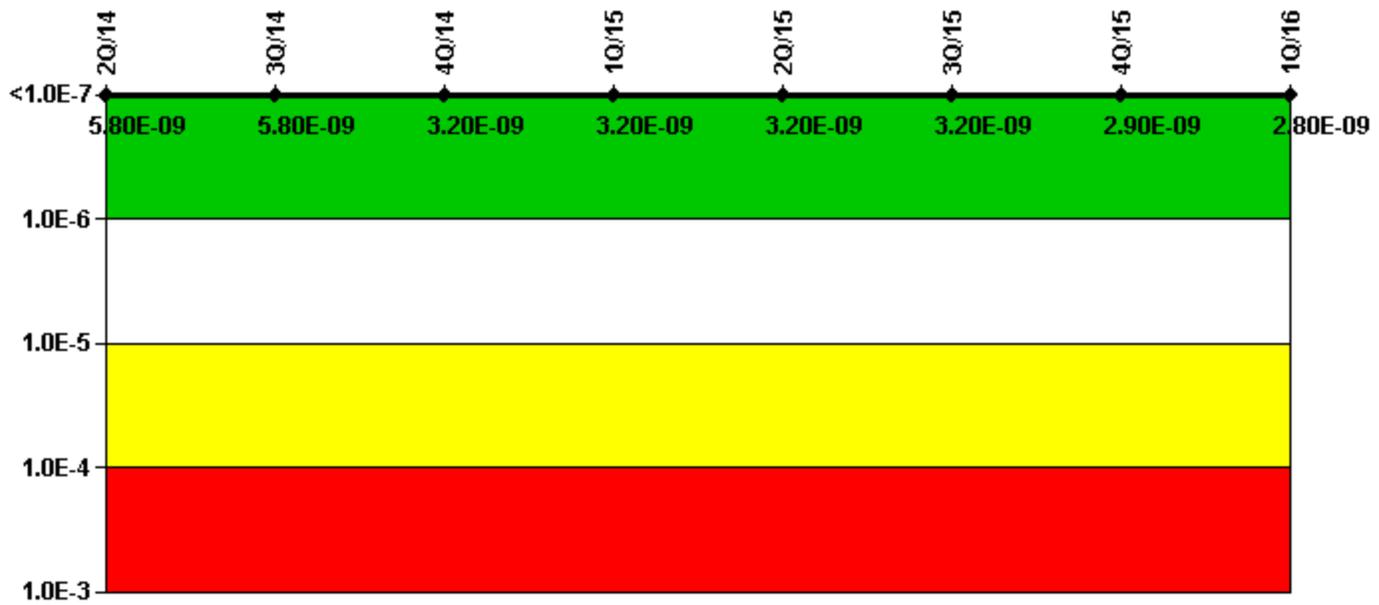
#### Licensee Comments:

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/14: Changed PRA Parameter(s).

2Q/14: Changed PRA Parameter(s). Revision to estimated test demands and run hours due to identification of a change > 25%, per NEI 99-02. Revision 3.2 of the Monticello PRA Level 1 Quantification Notebook (PRA-MT-QU) was approved March 31st, 2014 with a corresponding MSPI Basis document Revision 5 approved 7/09/2014. The Rev 3.2 PRA model incorporated the modification/procedure changes required to pin the condensate demineralizer AOVs. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

### 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/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
UAI (ΔCDF)	-3.63E-10	-3.82E-10	-3.82E-10	-3.51E-10	-3.37E-10	-3.32E-10	-1.88E-10	-2.76E-10
URI (ΔCDF)	6.16E-09	6.16E-09	3.57E-09	3.57E-09	3.57E-09	3.57E-09	3.05E-09	3.05E-09
PLE	NO							
Indicator value	5.80E-09	5.80E-09	3.20E-09	3.20E-09	3.20E-09	3.20E-09	2.90E-09	2.80E-09

Licensee Comments:

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.

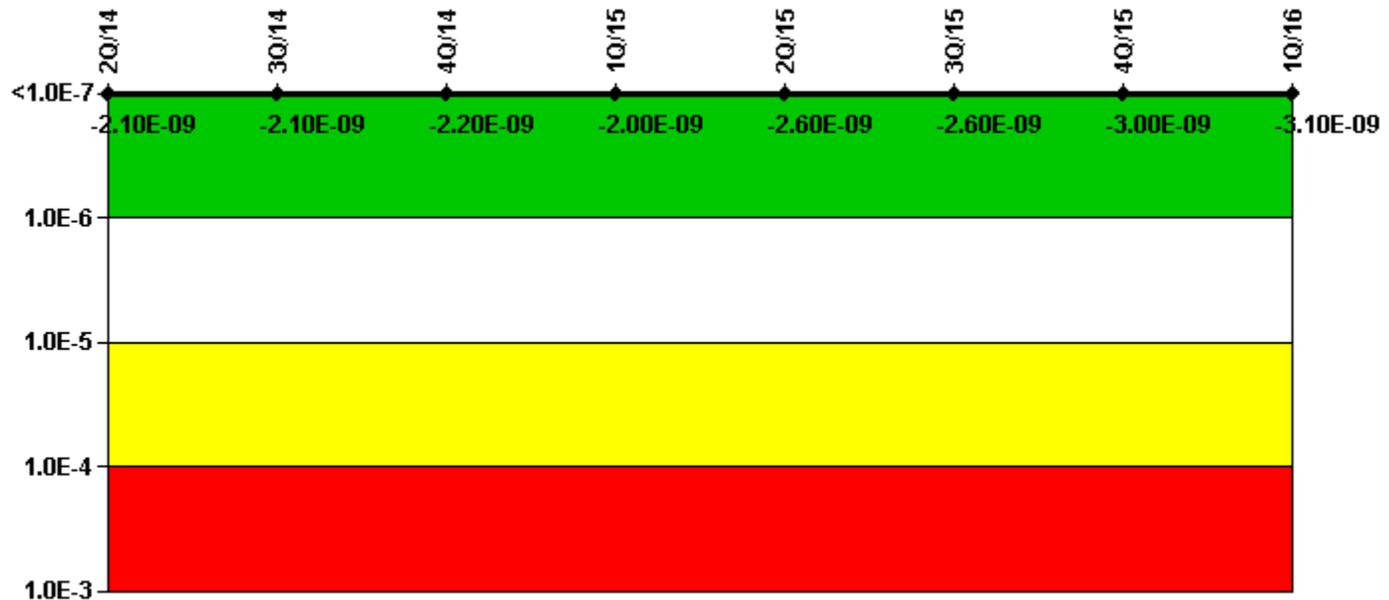
4Q/14: Revision to estimated demands and run hours due to identification of a change > 25% for RHR estimated run hours, per NEI 99-02. Update applied to site MSPI Basis Document and applicable CDE fields. Revised data for 2Q2012, 3Q2012, 1Q2013, 3Q2013 and 4Q2013 to include short duration unavailability and unavailability hours when reactor not critical. This does not affect the MSPI color for any system.

3Q/14: Changed PRA Parameter(s).

2Q/14: Revision 3.2 of the Monticello PRA Level 1 Quantification Notebook (PRA-MT-QU) was approved March 31st, 2014 with a corresponding MSPI Basis document Revision 5 approved 7/09/2014. The Rev 3.2 PRA model incorporated the modification/procedure changes required to pin the condensate demineralizer AOVs. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

2Q/14: Changed PRA Parameter(s). Revision 3.2 of the Monticello PRA Level 1 Quantification Notebook (PRA-MT-QU) was approved March 31st, 2014 with a corresponding MSPI Basis document Revision 5 approved 7/09/2014. The Rev 3.2 PRA model incorporated the modification/procedure changes required to pin the condensate demineralizer AOVs. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

### Mitigating Systems Performance Index, Cooling Water Systems



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

**Notes**

<b>Mitigating Systems Performance Index, Cooling Water Systems</b>	<b>2Q/14</b>	<b>3Q/14</b>	<b>4Q/14</b>	<b>1Q/15</b>	<b>2Q/15</b>	<b>3Q/15</b>	<b>4Q/15</b>	<b>1Q/16</b>
UAI ( $\Delta$ CDF)	-2.19E-09	-2.19E-09	-2.22E-09	-2.03E-09	-2.60E-09	-2.65E-09	-3.04E-09	-3.06E-09
URI ( $\Delta$ CDF)	3.89E-11	3.89E-11	3.98E-11	6.72E-12	7.25E-12	7.80E-12	3.03E-13	3.25E-13
PLE	NO							
<b>Indicator value</b>	<b>-2.10E-09</b>	<b>-2.10E-09</b>	<b>-2.20E-09</b>	<b>-2.00E-09</b>	<b>-2.60E-09</b>	<b>-2.60E-09</b>	<b>-3.00E-09</b>	<b>-3.10E-09</b>

## Licensee Comments:

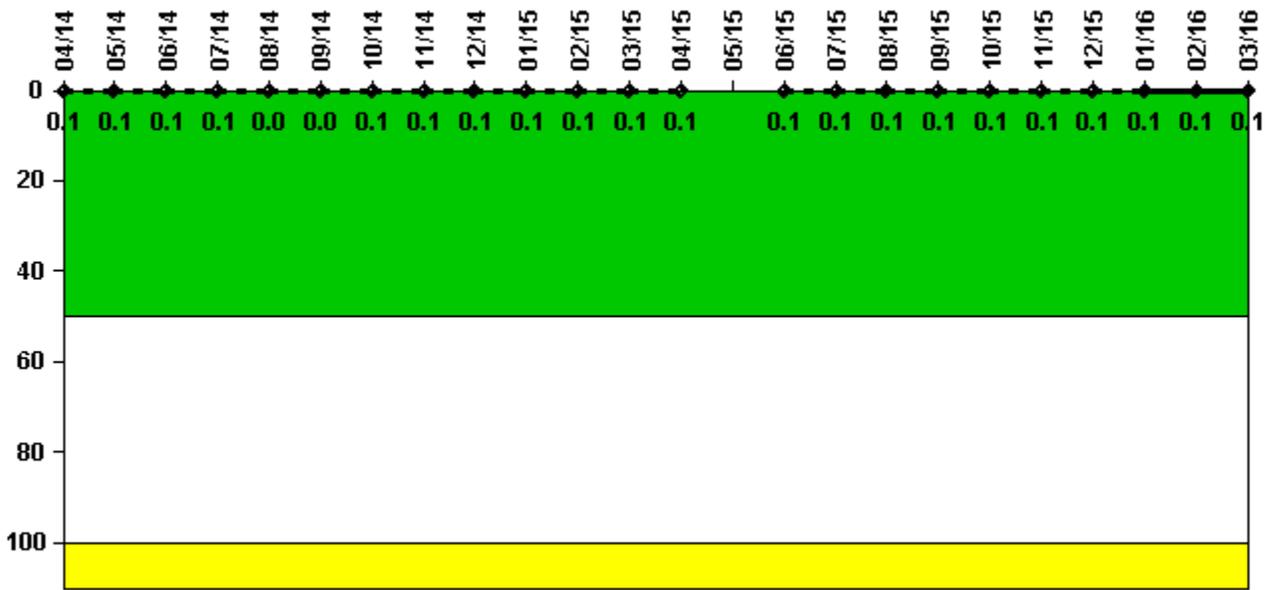
4Q/15: Changed PRA Parameter(s). The site PRA model was revised during 3Q2015 to reflect the diesel fuel oil modification. The MSPI Basis document and new MSPI coefficients were updated effective 4Q2015. The modification did not result in a change to segment or train boundaries, monitored functions,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

4Q/14: Revision to estimated demands and run hours to incorporate the results of a recent review and reflect current maintenance strategy. This review did not identify a change >25%, but data was updated so the time period of the estimated data is consistent with the update for the MSPI Residual Heat Removal System.

3Q/14: Changed PRA Parameter(s).

2Q/14: Changed PRA Parameter(s). Revision 3.2 of the Monticello PRA Level 1 Quantification Notebook (PRA-MT-QU) was approved March 31st, 2014 with a corresponding MSPI Basis document Revision 5 approved 7/09/2014. The Rev 3.2 PRA model incorporated the modification/procedure changes required to pin the condensate demineralizer AOVs. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

#### Notes

Reactor Coolant System Activity	4/14	5/14	6/14	7/14	8/14	9/14	10/14	11/14	12/14	1/15	2/15	3/15
Maximum activity	0.000160	0.000114	0.000131	0.000110	0.000094	0.000075	0.000158	0.000139	0.000158	0.000136	0.000146	0.000129
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	0	0.1	0.1	0.1	0.1	0.1	0.1

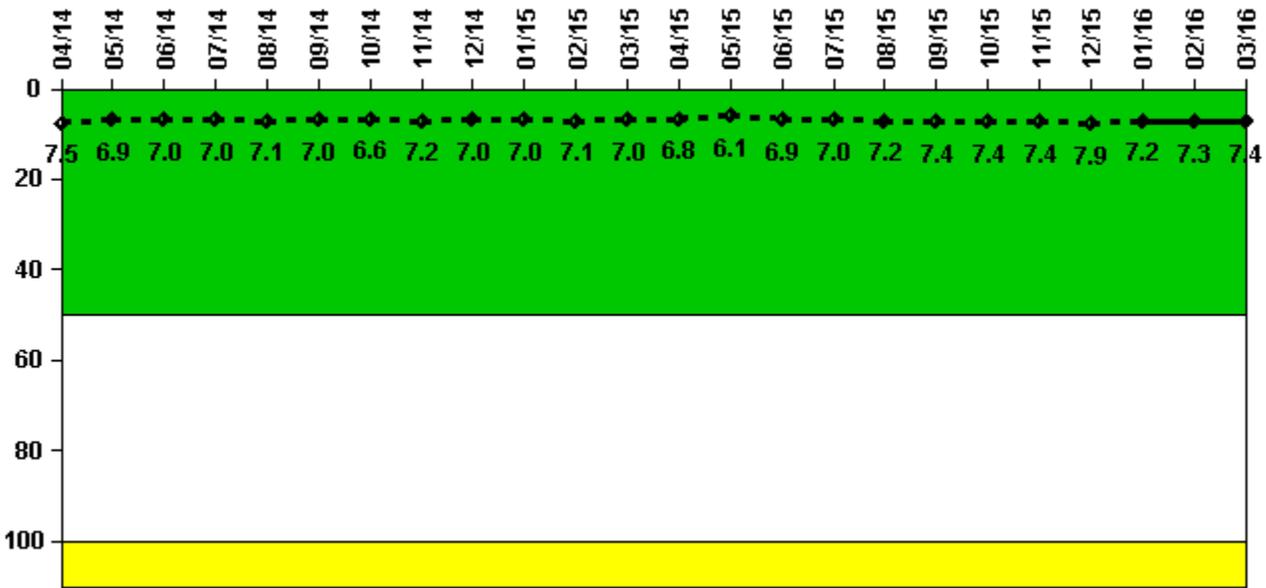
  

Reactor Coolant System Activity	4/15	5/15	6/15	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16
Maximum activity	0.000125	N/A	0.000124	0.000107	0.000113	0.000104	0.000115	0.000109	0.000195	0.000189	0.000215	0.000153
Technical specification limit	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Indicator 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

#### 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

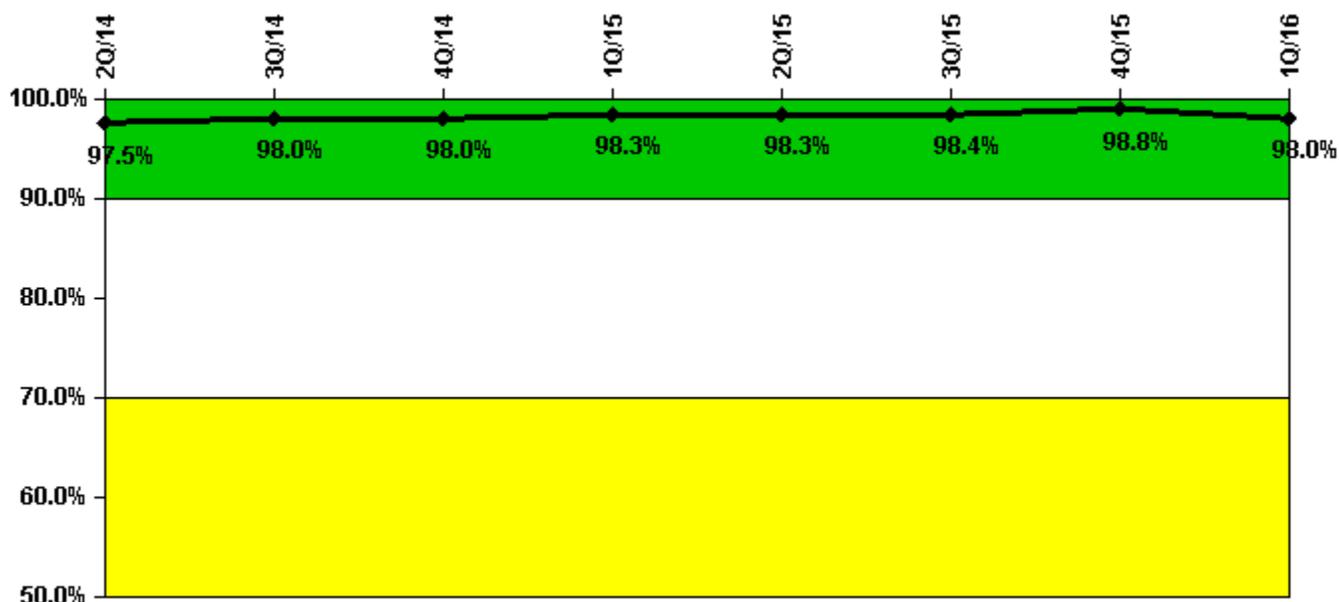
Reactor Coolant System Leakage	4/14	5/14	6/14	7/14	8/14	9/14	10/14	11/14	12/14	1/15	2/15	3/15
Maximum leakage	1.880	1.730	1.760	1.760	1.780	1.760	1.650	1.800	1.750	1.740	1.770	1.750
Technical specification limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Indicator value	7.5	6.9	7.0	7.0	7.1	7.0	6.6	7.2	7.0	7.0	7.1	7.0

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

Licensee Comments: none

### Drill/Exercise Performance



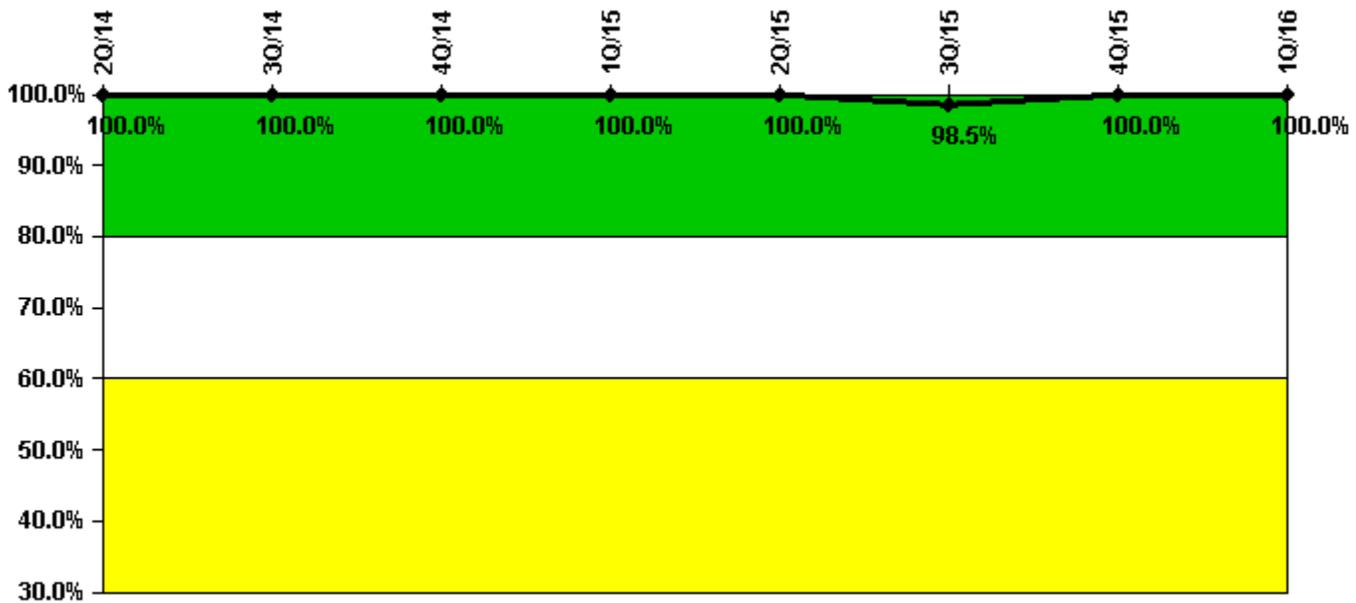
Thresholds: White < 90.0% Yellow < 70.0%

#### Notes

Drill/Exercise Performance	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
Successful opportunities	92.0	46.0	35.0	21.0	19.0	42.0	44.0	52.0
Total opportunities	92.0	46.0	35.0	23.0	19.0	44.0	44.0	55.0
Indicator value	97.5%	98.0%	98.0%	98.3%	98.3%	98.4%	98.8%	98.0%

Licensee Comments: none

### ERO Drill Participation



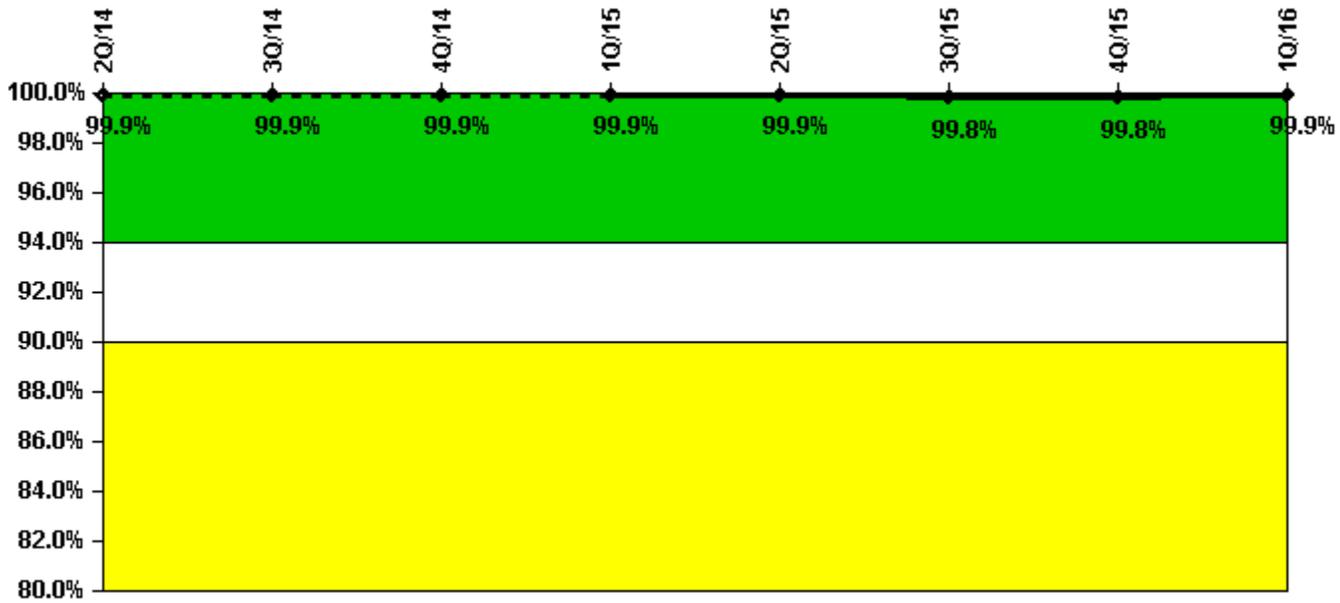
Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

ERO Drill Participation	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
Participating Key personnel	154.0	151.0	144.0	148.0	136.0	129.0	136.0	133.0
Total Key personnel	154.0	151.0	144.0	148.0	136.0	131.0	136.0	133.0
Indicator value	100.0%	100.0%	100.0%	100.0%	100.0%	98.5%	100.0%	100.0%

Licensee Comments: none

### Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

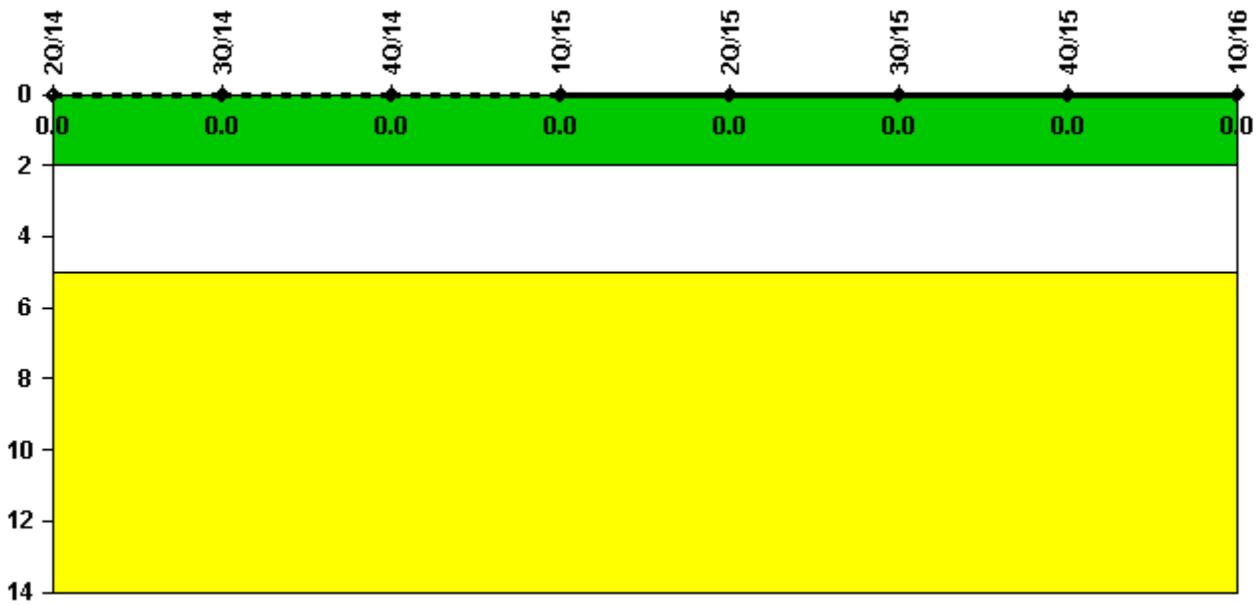
#### Notes

Alert & Notification System	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
Successful siren-tests	1377	1319	1482	1270	1377	1479	1376	1378
Total sirens-tests	1378	1320	1484	1272	1378	1484	1378	1378
Indicator value	99.9%	99.9%	99.9%	99.9%	99.9%	99.8%	99.8%	99.9%

#### Licensee Comments:

3Q/14: On September 3, 2014 a regularly scheduled test of the Alert and Notification System was only partially performed. The 48 sirens in Sherburne County were all tested successfully. Wright County chose not to test their 58 sirens due to severe weather alerts during the test period. These were considered non-opportunities in accordance with the guidance found in NEI 99-02 Rev. 7.

### Occupational Exposure Control Effectiveness



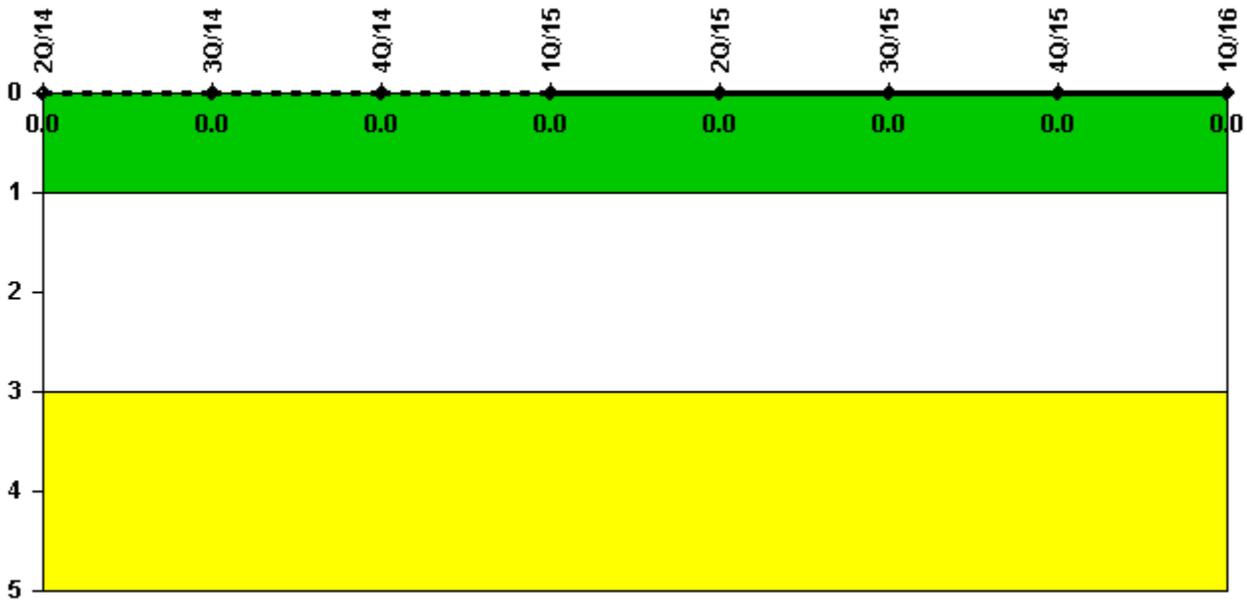
Thresholds: White > 2.0 Yellow > 5.0

#### Notes

Occupational Exposure Control Effectiveness	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/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>							

Licensee Comments: none

### RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

#### Notes

RETS/ODCM Radiological Effluent	2Q/14	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16
RETS/ODCM occurrences	0	0	0	0	0	0	0	0
<b>Indicator value</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: April 23, 2016*