

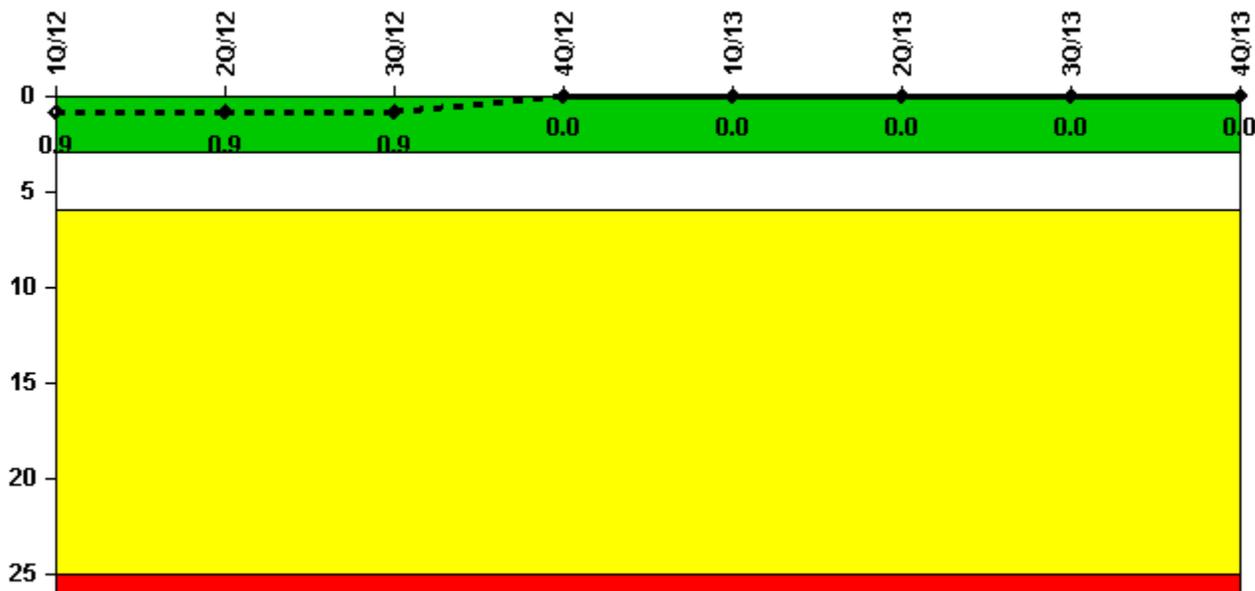
## Brunswick 2

### 4Q/2013 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: LER 2-2013-002, was submitted on 05/28/13 for the loss of safety function of 2-E11-F048 from vibration induced failure. Subsequently, further evaluation determined that the valve remained operable and no loss of safety function occurred. Therefore, the SSFF reported in May 2013 is no longer valid and has been removed from the performance indicator.

#### Unplanned Scrams per 7000 Critical Hrs



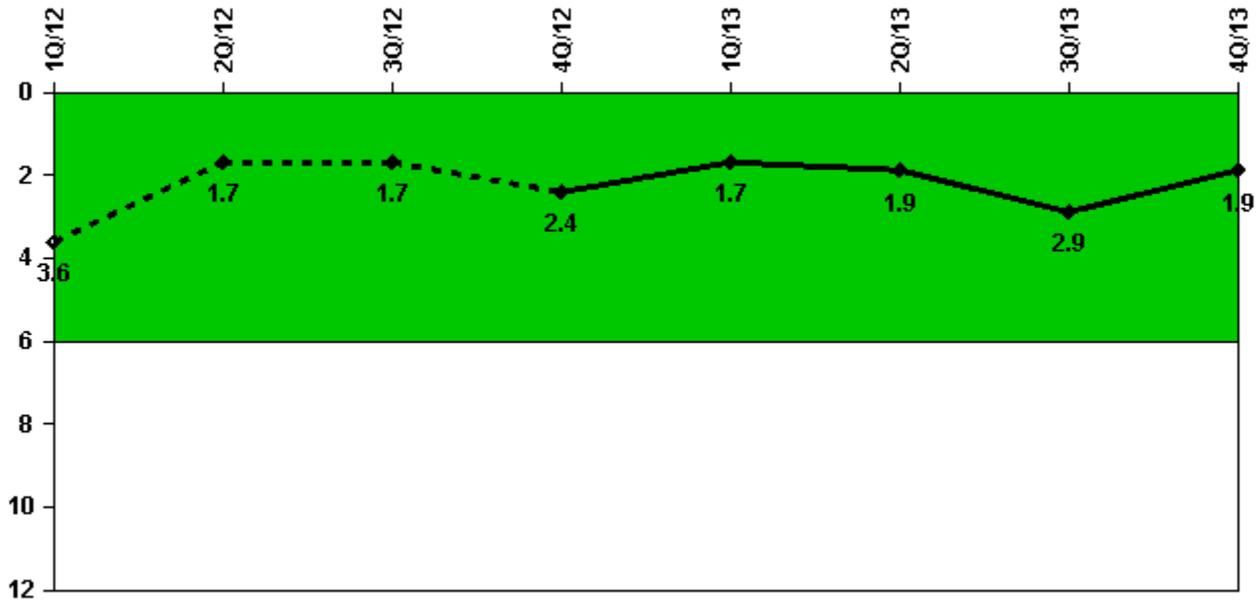
**Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0**

#### Notes

Unplanned Scrams per 7000 Critical Hrs	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Unplanned scrams	0	0	0	0	0	0	0	0
Critical hours	2183.0	2184.0	2208.0	2209.0	1460.9	1353.3	2208.0	2209.0
<b>Indicator value</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



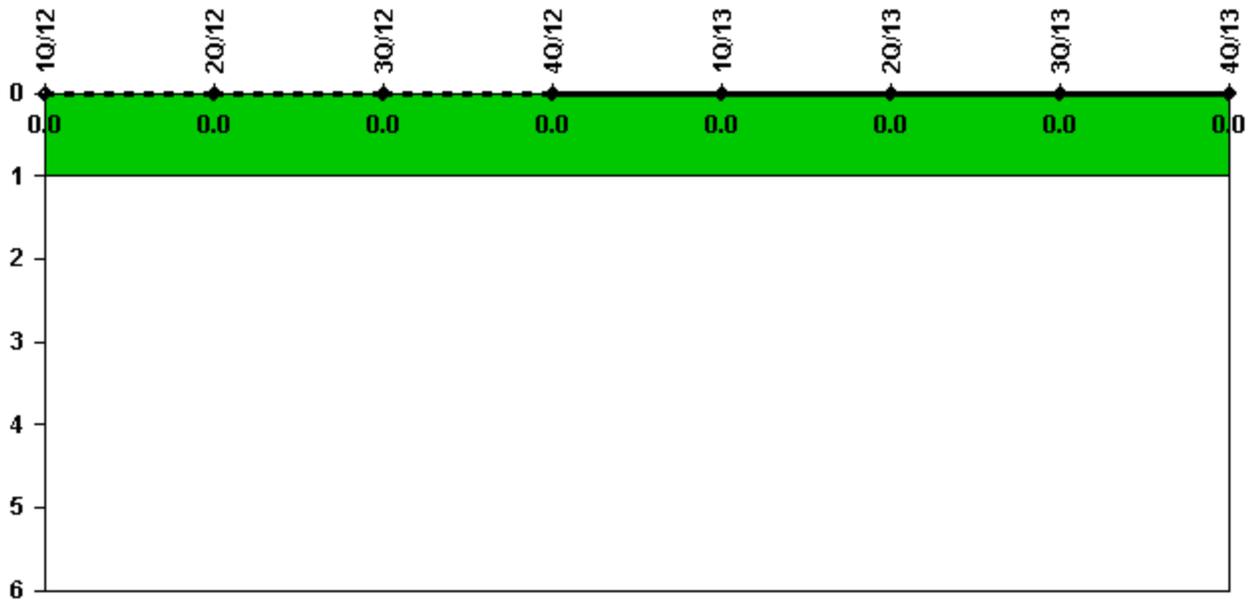
Thresholds: White > 6.0

#### Notes

Unplanned Power Changes per 7000 Critical Hrs	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Unplanned power changes	1.0	0	0	2.0	0	0	1.0	1.0
Critical hours	2183.0	2184.0	2208.0	2209.0	1460.9	1353.3	2208.0	2209.0
<b>Indicator value</b>	<b>3.6</b>	<b>1.7</b>	<b>1.7</b>	<b>2.4</b>	<b>1.7</b>	<b>1.9</b>	<b>2.9</b>	<b>1.9</b>

Licensee Comments: none

### Unplanned Scrams with Complications



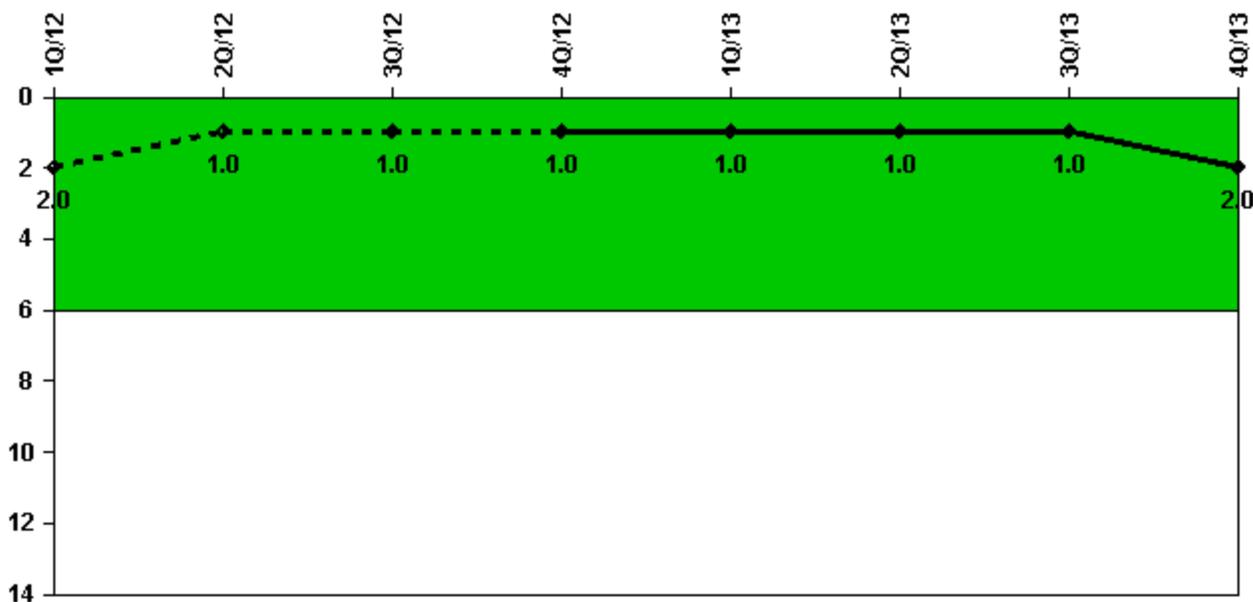
Thresholds: White > 1.0

#### Notes

Unplanned Scrams with Complications	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
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/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Safety System Functional Failures	1	0	0	0	1	0	0	1
<b>Indicator value</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>

#### Licensee Comments:

4Q/13: LER 2-2013-002, was submitted on 05/28/13 for the loss of safety function of 2-E11-F048 from vibration induced failure. Subsequently, further evaluation determined that the valve remained operable and no loss of safety function occurred. Therefore, the SSFF reported in May 2013 is no longer valid and has been removed from the performance indicator. Also, LER 1-02013-003 was submitted on 11/14/2013 for operation prohibited by Tech Specs when past operability evaluation determined that the Service Water system for both Unit 1 and Unit 2 may have not been able to perform its safety function due to postulated flooding.

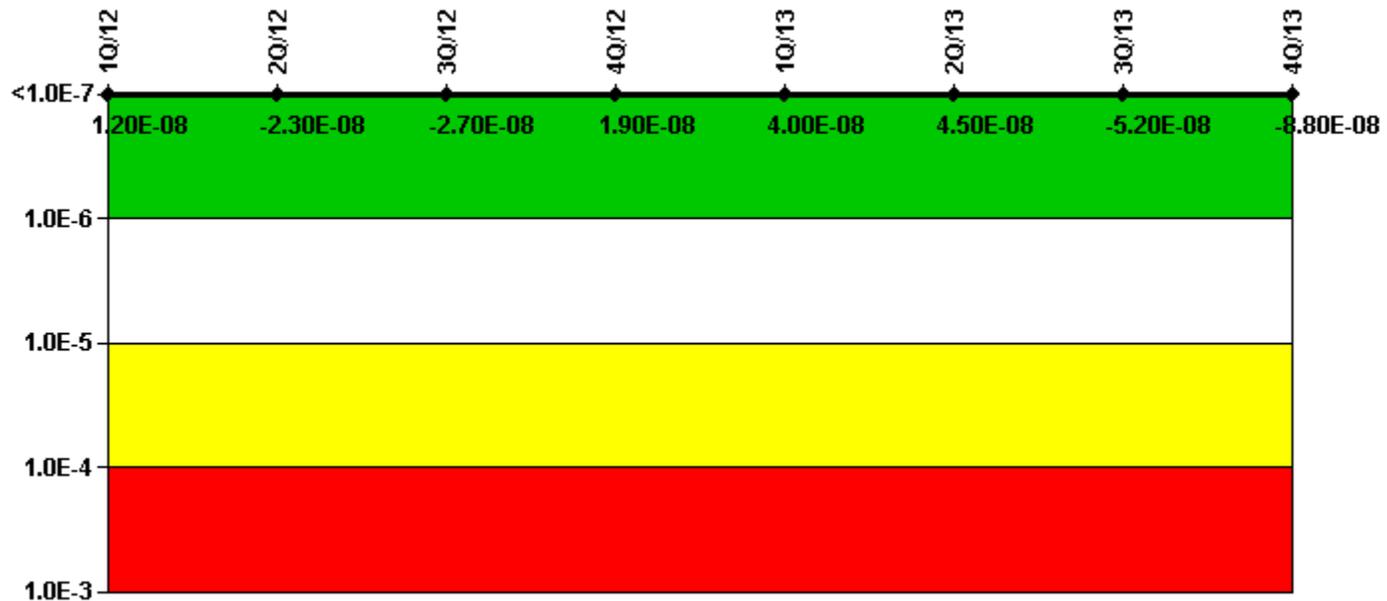
2Q/13: LER 2-2013-002 was submitted on May 28, 2013, for loss of safety function due to the A Loop of RHR being declared inoperable when a valve was discovered with broken yoke-to-bonnet stud, while the B Loop was inoperable due to scheduled maintenance.

2Q/13: LER 2-2013-002 was submitted on May 28, 2013, for loss of safety function due to the A Loop of RHR being declared inoperable when a valve was discovered with broken yoke-to-bonnet stud, while the B Loop was inoperable due to scheduled maintenance.

1Q/13: LER 1-2012-007 was submitted on February 12, 2013, for an MSPI Safety System Functional Failure (SSFF) that occurred on Unit 1 and Unit 2 for the loss of Control Room Emergency Ventilation (CREV). The loss of CREV occurred due to a human performance error during implementation of a plant modification. It is applicable to both Units since Brunswick has a shared control room.

1Q/12: LER 1-2011-003 was submitted on January 30, 2012, for loss of Control Room Air Conditioning and Emergency Ventilation (CREV) due to failure of the control building instrument air dryer.

### 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/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI ( $\Delta$ CDF)	1.09E-09	2.46E-09	-4.61E-09	1.48E-09	2.10E-08	2.42E-08	2.19E-08	2.97E-08
URI ( $\Delta$ CDF)	1.12E-08	-2.56E-08	-2.21E-08	1.79E-08	1.92E-08	2.05E-08	-7.38E-08	-1.18E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	<b>1.20E-08</b>	<b>-2.30E-08</b>	<b>-2.70E-08</b>	<b>1.90E-08</b>	<b>4.00E-08</b>	<b>4.50E-08</b>	<b>-5.20E-08</b>	<b>-8.80E-08</b>

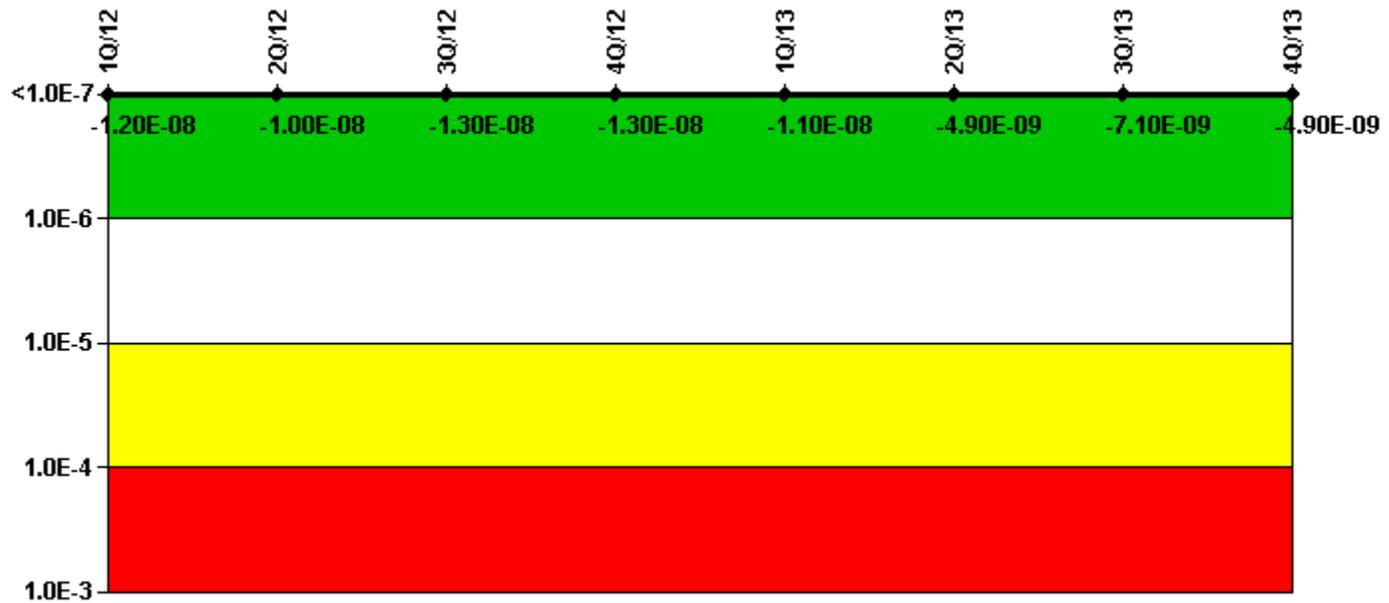
### Licensee Comments:

4Q/13: Changed PRA Parameter(s). The plants PRA model was revised in the 3rd quarter of 2013. The MSPI Basis Document was revised in the 4th quarter of 2013, and the resulting new MSPI coefficients were entered into CDE for the applicable systems. New MSPI coefficients existed on all five MSPI systems, along with change to the CDF.

1Q/12: The emergency diesel generators run time hours were revised to incorporate NRC approved FAQ 480. The

run time hours decreased, and were entered as estimated beginning in the first quarter of 2012. The Brunswick MSPI Basis Document was revised in the 4th quarter of 2011.

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



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

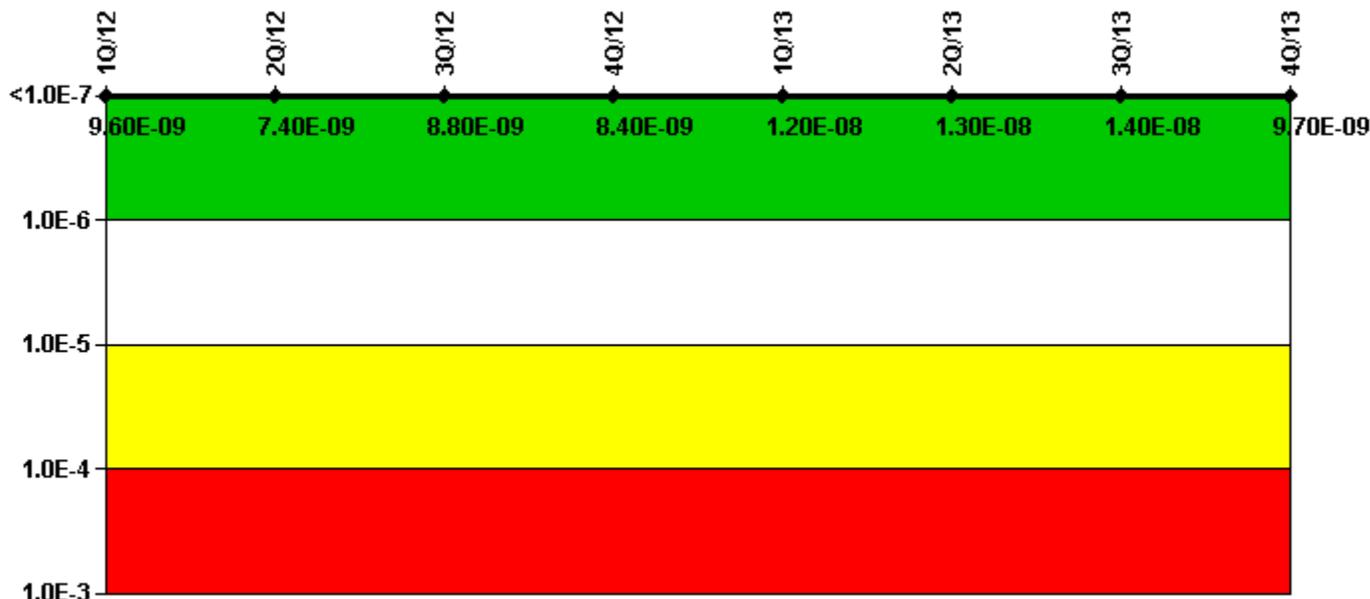
#### Notes

Mitigating Systems Performance Index, High Pressure Injection System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI ( $\Delta$ CDF)	-3.45E-09	-1.51E-09	-4.24E-09	-4.24E-09	-2.86E-09	3.70E-09	1.58E-09	1.16E-09
URI ( $\Delta$ CDF)	-8.63E-09	-6.11E-09						
PLE	NO							
Indicator value	-1.20E-08	-1.00E-08	-1.30E-08	-1.30E-08	-1.10E-08	-4.90E-09	-7.10E-09	-4.90E-09

#### Licensee Comments:

4Q/13: Changed PRA Parameter(s). The plants PRA model was revised in the 3rd quarter of 2013. The MSPI Basis Document was revised in the 4th quarter of 2013, and the resulting new MSPI coefficients were entered into CDE for the applicable systems. New MSPI coefficients existed on all five MSPI systems, along with change to the CDF.

### Mitigating Systems Performance Index, Heat Removal System



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

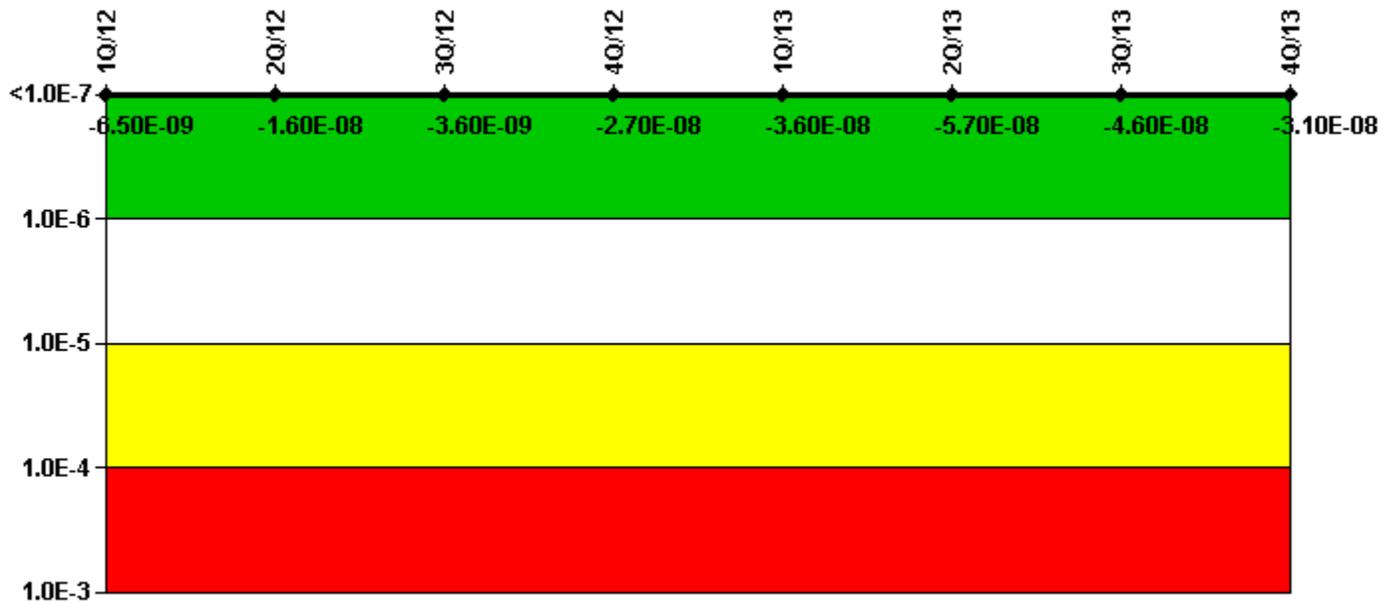
#### Notes

Mitigating Systems Performance Index, Heat Removal System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI ( $\Delta$ CDF)	1.00E-08	8.07E-09	9.78E-09	9.63E-09	1.28E-08	1.37E-08	1.55E-08	1.05E-08
URI ( $\Delta$ CDF)	-4.00E-10	-6.70E-10	-9.35E-10	-1.19E-09	-1.19E-09	-1.19E-09	-1.19E-09	-8.26E-10
PLE	NO							
Indicator value	9.60E-09	7.40E-09	8.80E-09	8.40E-09	1.20E-08	1.30E-08	1.40E-08	9.70E-09

#### Licensee Comments:

4Q/13: Changed PRA Parameter(s). The plants PRA model was revised in the 3rd quarter of 2013. The MSPI Basis Document was revised in the 4th quarter of 2013, and the resulting new MSPI coefficients were entered into CDE for the applicable systems. New MSPI coefficients existed on all five MSPI systems, along with change to the CDF.

### Mitigating Systems Performance Index, Residual Heat Removal System



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

#### Notes

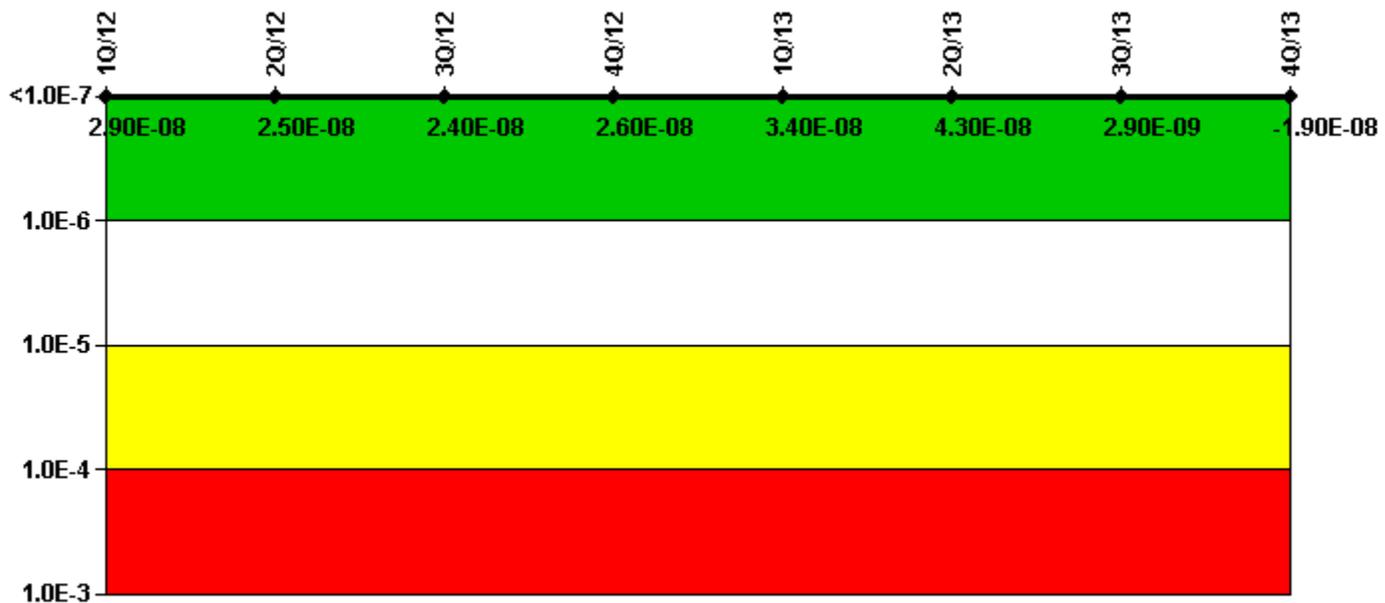
Mitigating Systems Performance Index, Residual Heat Removal System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI ( $\Delta$ CDF)	7.99E-08	6.84E-08	7.89E-08	5.28E-08	4.38E-08	2.37E-08	3.47E-08	3.75E-08
URI ( $\Delta$ CDF)	-8.64E-08	-8.45E-08	-8.24E-08	-8.03E-08	-8.03E-08	-8.03E-08	-8.03E-08	-6.81E-08
PLE	NO							
Indicator value	-6.50E-09	-1.60E-08	-3.60E-09	-2.70E-08	-3.60E-08	-5.70E-08	-4.60E-08	-3.10E-08

#### Licensee Comments:

4Q/13: Changed PRA Parameter(s). The plants PRA model was revised in the 3rd quarter of 2013. The MSPI Basis Document was revised in the 4th quarter of 2013, and the resulting new MSPI coefficients were entered into CDE for the applicable systems. New MSPI coefficients existed on all five MSPI systems, along with change to the CDF.

1Q/12: Changed PRA Parameter(s). The planned baseline unavailability hours were revised to include a chemical decontamination of the Unit 2 RHR system (an infrequent activity). These hours shall be removed beginning in the 4th quarter of 2014. The Brunswick MSPI Basis Document was revised in the 4th quarter of 2011, incorporating these changes.

### Mitigating Systems Performance Index, Cooling Water Systems



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

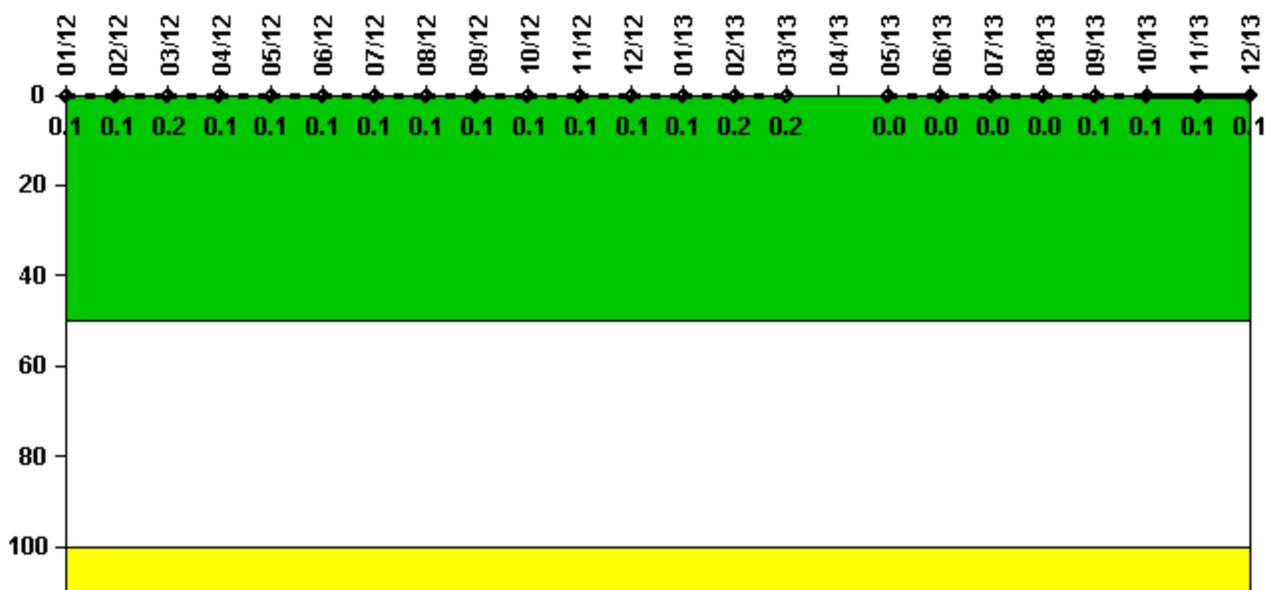
#### Notes

Mitigating Systems Performance Index, Cooling Water Systems	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
UAI ( $\Delta$ CDF)	3.26E-08	2.89E-08	2.81E-08	2.94E-08	3.73E-08	4.57E-08	5.44E-09	-2.06E-09
URI ( $\Delta$ CDF)	-3.70E-09	-3.71E-09	-3.71E-09	-3.72E-09	-3.73E-09	-2.39E-09	-2.51E-09	-1.72E-08
PLE	NO							
Indicator value	2.90E-08	2.50E-08	2.40E-08	2.60E-08	3.40E-08	4.30E-08	2.90E-09	-1.90E-08

#### Licensee Comments:

4Q/13: Changed PRA Parameter(s). The plants PRA model was revised in the 3rd quarter of 2013. The MSPI Basis Document was revised in the 4th quarter of 2013, and the resulting new MSPI coefficients were entered into CDE for the applicable systems. New MSPI coefficients existed on all five MSPI systems, along with change to the CDF.

### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

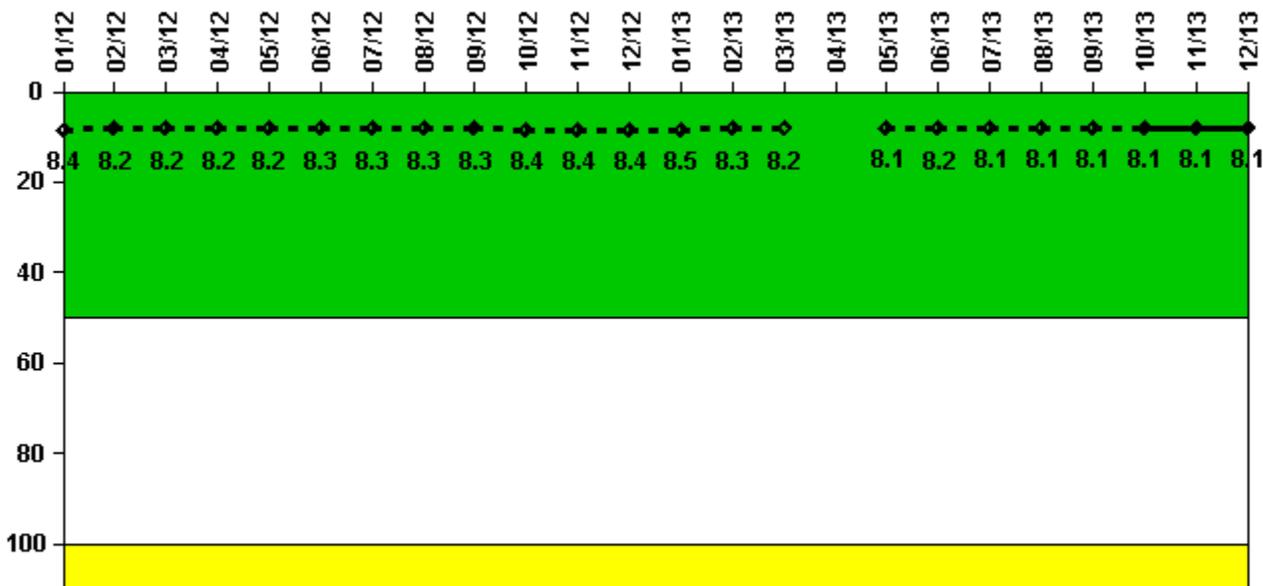
#### Notes

Reactor Coolant System Activity	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12
Maximum activity	0.000230	0.000236	0.000312	0.000262	0.000248	0.000233	0.000245	0.000290	0.000248	0.000224	0.000209	0.000225
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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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	0.000207	0.000314	0.000345	N/A	0.000074	0.000086	0.000089	0.000097	0.000105	0.000106	0.000102	0.000106
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	0.2	0.2	N/A	0	0	0	0	0.1	0.1	0.1	0.1

#### Licensee Comments:

6/13: RCS Specific Activity calculations were unavailable for the month of April due to existing plant conditions while Unit 2 was in refueling outage B221R1 the entire month.

### Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

**Notes**

Reactor Coolant System Leakage	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12
Maximum leakage	2.110	2.040	2.040	2.040	2.060	2.070	2.080	2.070	2.080	2.090	2.090	2.100
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	8.4	8.2	8.2	8.2	8.2	8.3	8.3	8.3	8.3	8.4	8.4	8.4

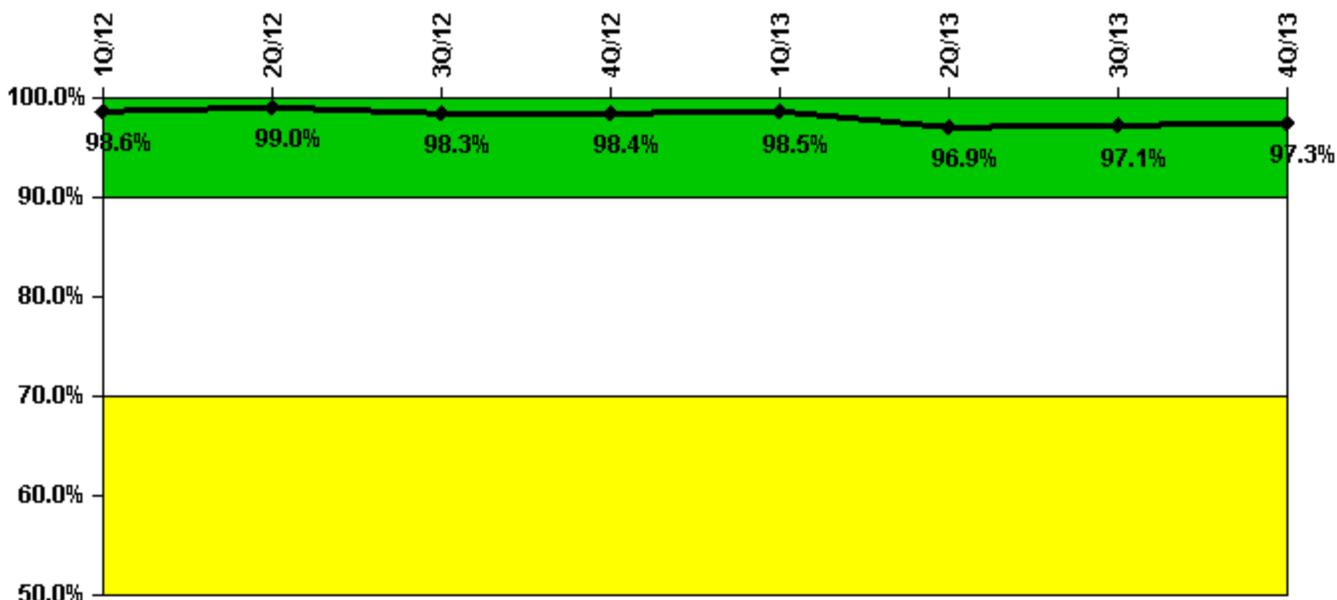
  

Reactor Coolant System Leakage	1/13	2/13	3/13	4/13	5/13	6/13	7/13	8/13	9/13	10/13	11/13	12/13
Maximum leakage	2.120	2.080	2.040	N/A	2.020	2.060	2.030	2.035	2.037	2.028	2.037	2.016
Technical specification limit	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Indicator value	8.5	8.3	8.2	N/A	8.1	8.2	8.1	8.1	8.1	8.1	8.1	8.1

Licensee Comments:

6/13: RCS Leakage calculations were unavailable for the month of April due to existing plant conditions while Unit 2 was in refueling outage B221R1 the entire month.

### Drill/Exercise Performance



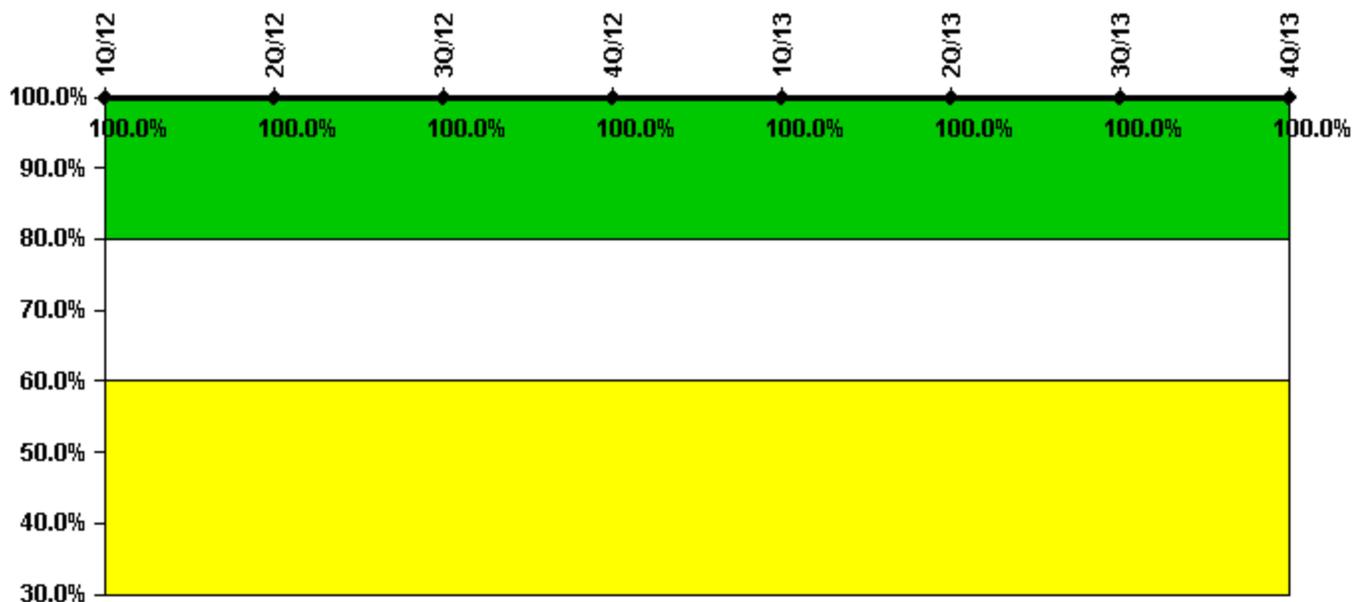
Thresholds: White < 90.0% Yellow < 70.0%

#### Notes

Drill/Exercise Performance	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Successful opportunities	8.0	17.0	26.0	46.0	22.0	25.0	18.0	54.0
Total opportunities	8.0	18.0	27.0	47.0	22.0	28.0	18.0	54.0
Indicator value	98.6%	99.0%	98.3%	98.4%	98.5%	96.9%	97.1%	97.3%

Licensee Comments: none

### ERO Drill Participation



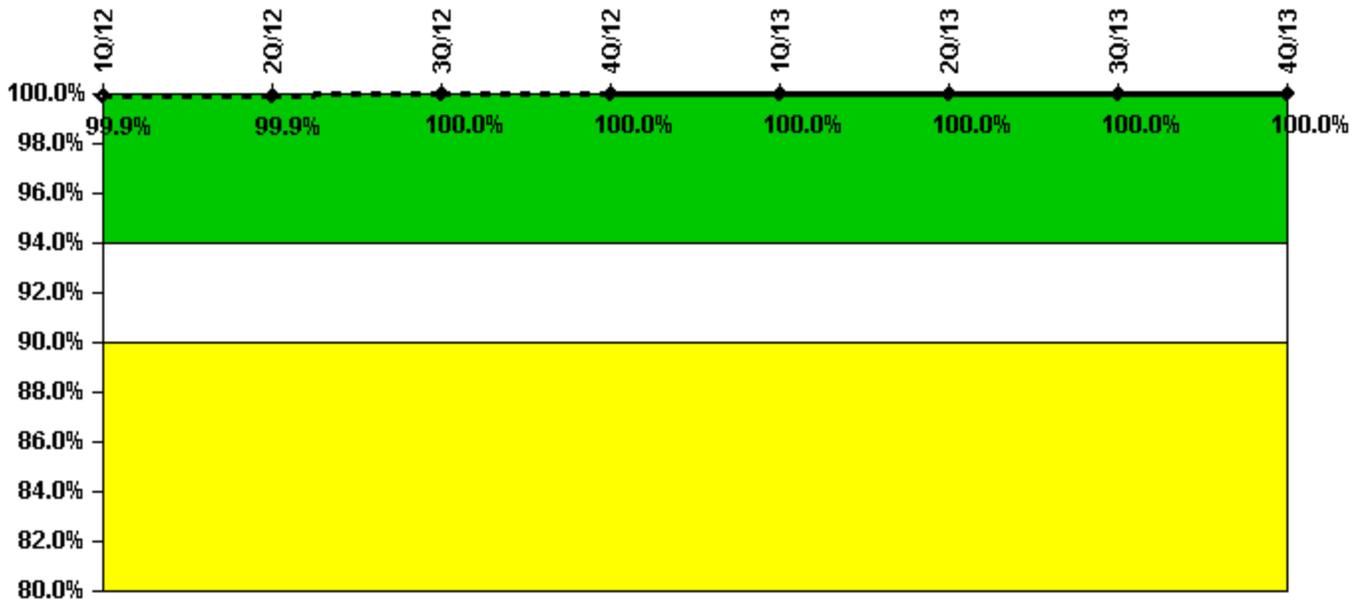
Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

ERO Drill Participation	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Participating Key personnel	103.0	103.0	100.0	97.0	98.0	94.0	95.0	98.0
Total Key personnel	103.0	103.0	100.0	97.0	98.0	94.0	95.0	98.0
Indicator value	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Licensee Comments: none

### Alert & Notification System



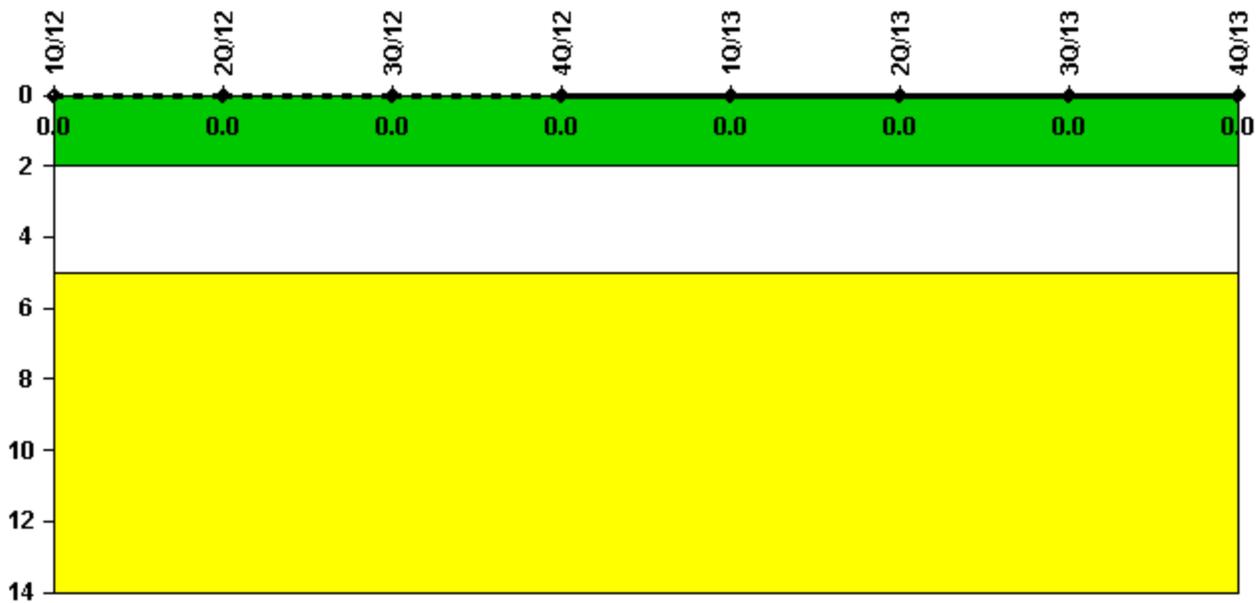
Thresholds: White < 94.0% Yellow < 90.0%

#### Notes

Alert & Notification System	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
Successful siren-tests	532	532	531	570	532	532	532	608
Total sirens-tests	532	532	532	570	532	532	532	608
Indicator value	99.9%	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Licensee Comments: none

### Occupational Exposure Control Effectiveness



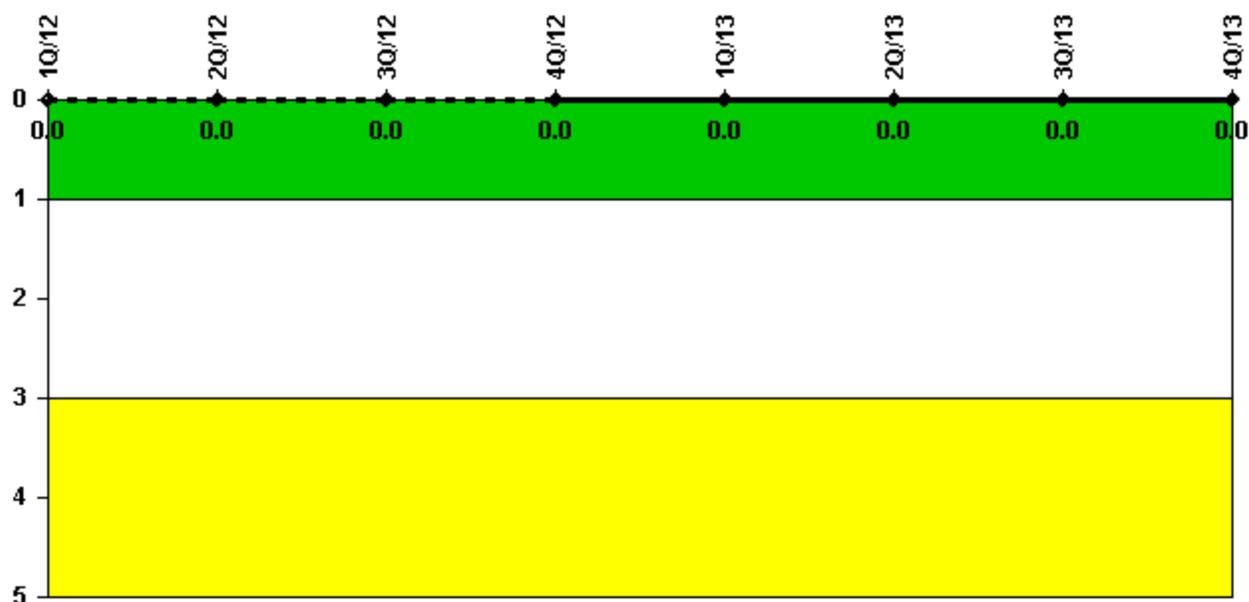
Thresholds: White > 2.0 Yellow > 5.0

#### Notes

Occupational Exposure Control Effectiveness	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
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/12	2Q/12	3Q/12	4Q/12	1Q/13	2Q/13	3Q/13	4Q/13
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: January 22, 2014*