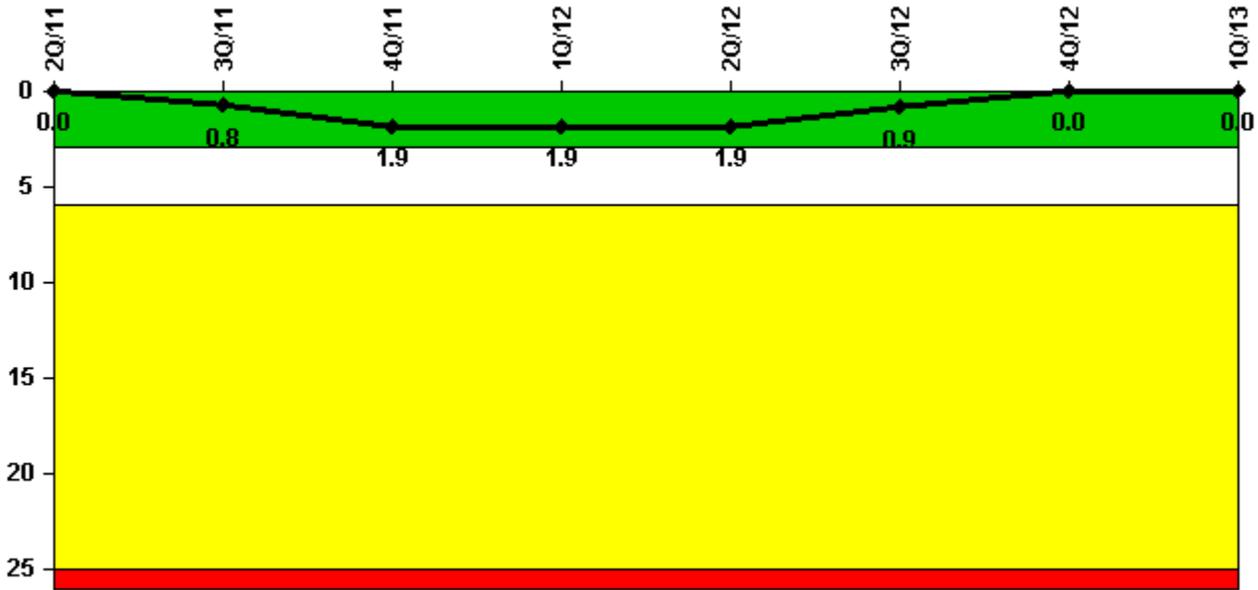


# Palo Verde 1

## 1Q/2013 Performance Indicators

Licensee's General Comments: none

### Unplanned Scrams per 7000 Critical Hrs



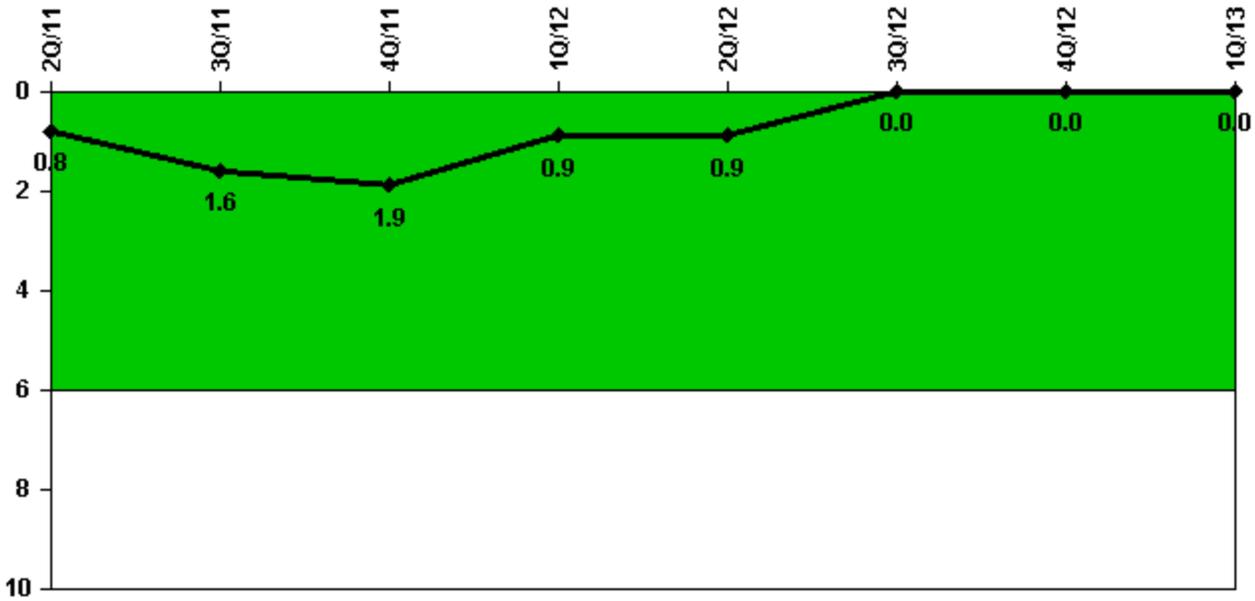
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

### Notes

Unplanned Scrams per 7000 Critical Hrs	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Unplanned scrams	0	1.0	1.0	0	0	0	0	0
Critical hours	2184.0	2108.3	1013.2	2184.0	2184.0	2208.0	2208.0	2112.0
<b>Indicator value</b>	<b>0</b>	<b>0.8</b>	<b>1.9</b>	<b>1.9</b>	<b>1.9</b>	<b>0.9</b>	<b>0</b>	<b>0</b>

Licensee Comments: none

### Unplanned Power Changes per 7000 Critical Hrs



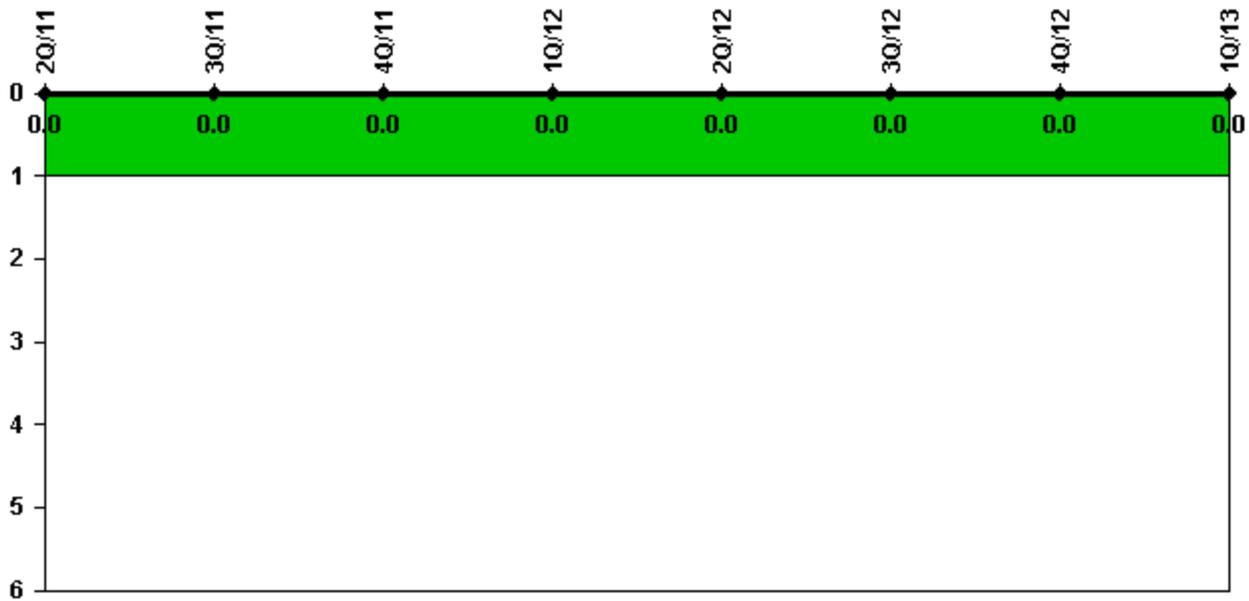
Thresholds: White > 6.0

#### Notes

Unplanned Power Changes per 7000 Critical Hrs	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Unplanned power changes	0	1.0	0	0	0	0	0	0
Critical hours	2184.0	2108.3	1013.2	2184.0	2184.0	2208.0	2208.0	2112.0
<b>Indicator value</b>	<b>0.8</b>	<b>1.6</b>	<b>1.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0</b>	<b>0</b>	<b>0</b>

Licensee Comments: none

### Unplanned Scrams with Complications



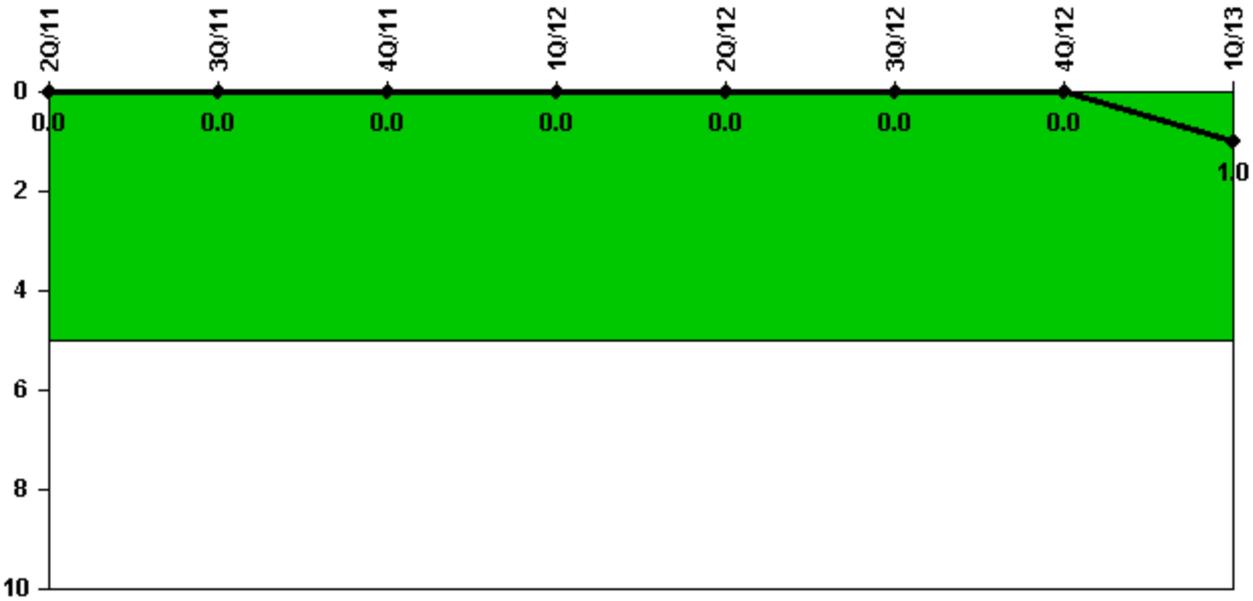
Thresholds: White > 1.0

#### Notes

Unplanned Scrams with Complications	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/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 (PWR)



Thresholds: White > 5.0

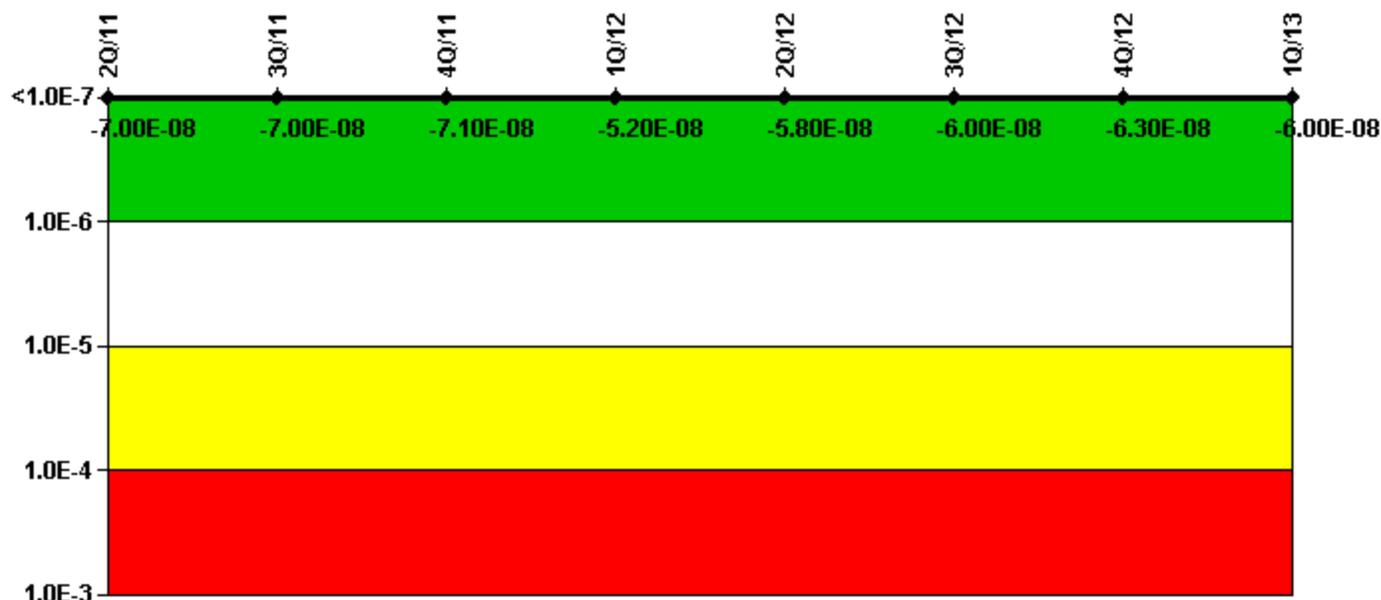
#### Notes

Safety System Functional Failures (PWR)	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Safety System Functional Failures	0	0	0	0	0	0	0	1
<b>Indicator value</b>	<b>0</b>	<b>1</b>						

Licensee Comments:

1Q/13: LER 0500528/0500529/0500530-2012-006-00 for SSFF reported in February 2013 in each of the three units.

### Mitigating Systems Performance Index, Emergency AC Power System



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

#### Notes

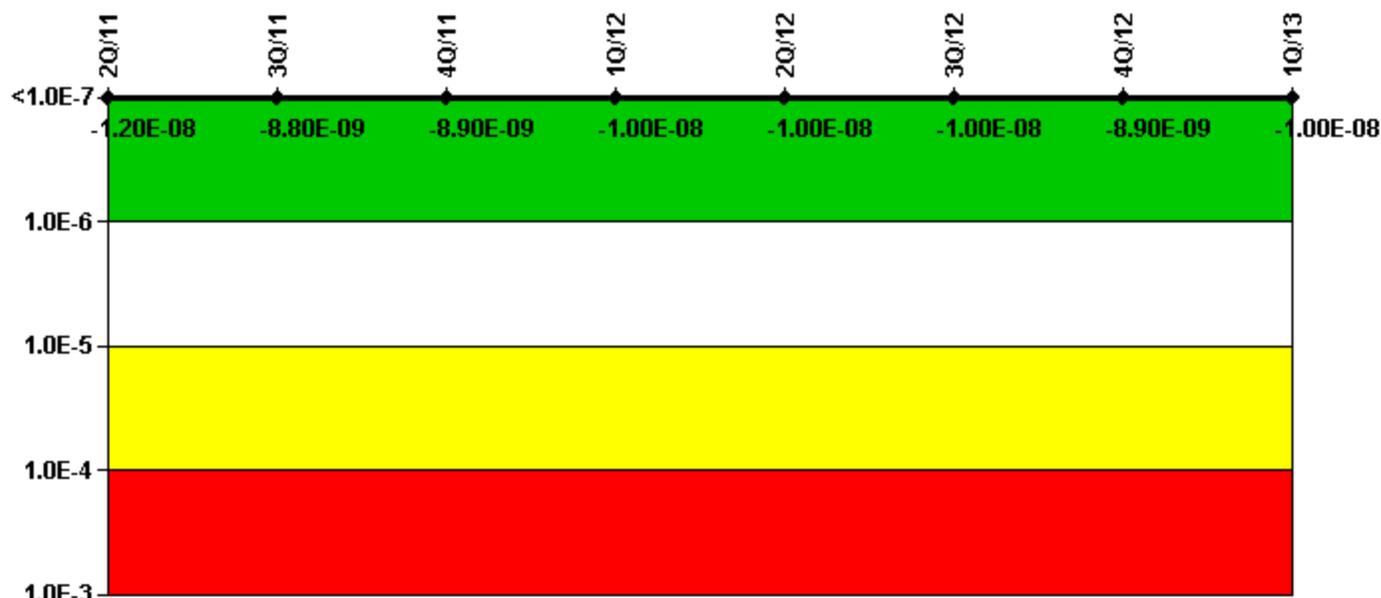
Mitigating Systems Performance Index, Emergency AC Power System	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
UAI ( $\Delta$ CDF)	-4.11E-09	-4.11E-09	-4.10E-09	1.42E-08	7.42E-09	5.13E-09	1.52E-09	2.45E-09
URI ( $\Delta$ CDF)	-6.56E-08	-6.63E-08	-6.69E-08	-6.64E-08	-6.59E-08	-6.54E-08	-6.41E-08	-6.28E-08
PLE	NO							
Indicator value	-7.00E-08	-7.00E-08	-7.10E-08	-5.20E-08	-5.80E-08	-6.00E-08	-6.30E-08	-6.00E-08

#### Licensee Comments:

4Q/11: Revised MSPI Bases Document (Rev 9) in 12/2011 for emergency AC power system. Per FAQ 468, returned all Planned Unavailability Baselines to 2002 ??? 2004, 36 month historical plant data. Revised emergency AC diesel generator demands/runtimes per FAQ 480. No MSPI PRA coefficients were changed.

2Q/11: Changed PRA Parameter(s). A PVNGS PRA Model was completed in January 2011 with a corresponding MSPI Basis Document revision in March 2011. The PRA model revision was a periodic update to the model. As a result of the PRA model change, the Core Damage Frequency and Fussel-Vesely for all monitored trains and components were revised in CDE.

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



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

#### Notes

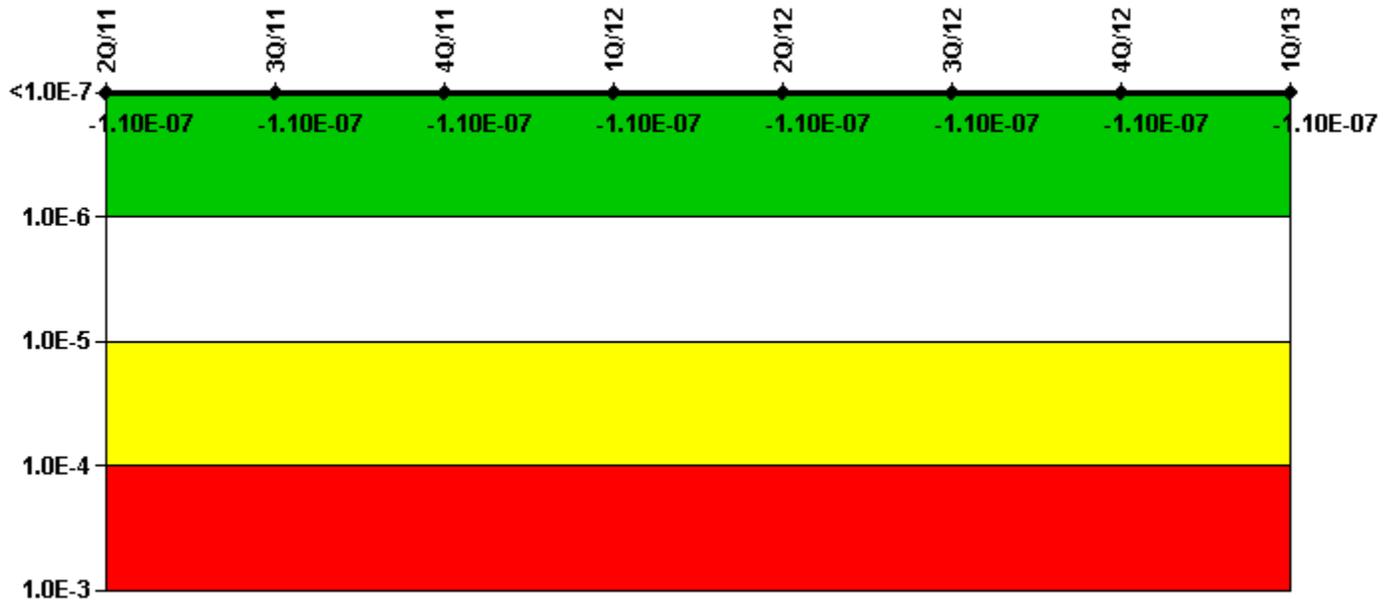
Mitigating Systems Performance Index, High Pressure Injection System	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
UAI ( $\Delta$ CDF)	-1.96E-10	2.68E-09	2.26E-09	9.42E-10	9.45E-10	9.93E-10	2.06E-09	4.99E-10
URI ( $\Delta$ CDF)	-1.17E-08	-1.14E-08	-1.12E-08	-1.11E-08	-1.11E-08	-1.10E-08	-1.10E-08	-1.09E-08
PLE	NO							
Indicator value	-1.20E-08	-8.80E-09	-8.90E-09	-1.00E-08	-1.00E-08	-1.00E-08	-8.90E-09	-1.00E-08

#### Licensee Comments:

4Q/11: Revised MSPI Bases Document (Rev 9) in 12/2011 for high pressure safety injection system. Per FAQ 468, returned all Planned Unavailability Baselines to 2002 ??? 2004, 36 month historical plant data. The change also reflected a change in maintenance philosophy. Revised HPSI demands/runtimes to address greater than 25% deviation. No MSPI PRA coefficients were changed.

2Q/11: Changed PRA Parameter(s). A PVNGS PRA Model was completed in January 2011 with a corresponding MSPI Basis Document revision in March 2011. The PRA model revision was a periodic update to the model. As a result of the PRA model change, the Core Damage Frequency and Fussel-Vesely for all monitored trains and components were revised in CDE.

### Mitigating Systems Performance Index, Heat Removal System



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

#### Notes

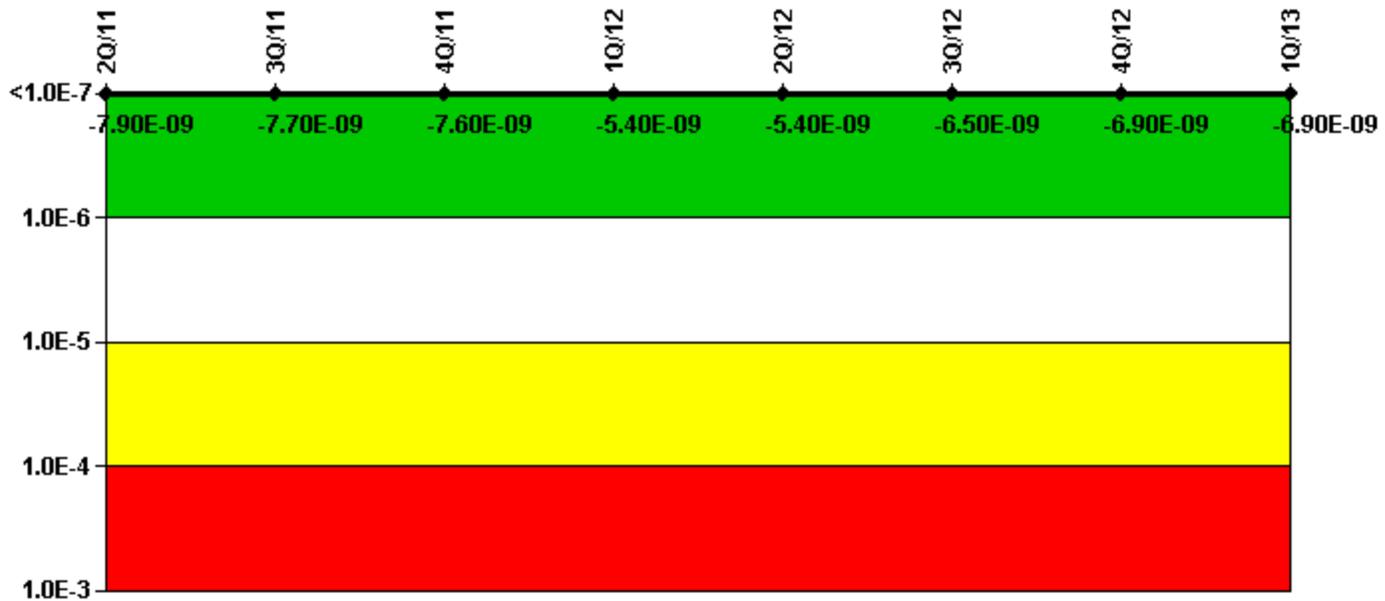
Mitigating Systems Performance Index, Heat Removal System	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
UAI ( $\Delta$ CDF)	-4.84E-08							
URI ( $\Delta$ CDF)	-6.29E-08	-6.44E-08	-6.58E-08	-6.57E-08	-6.56E-08	-6.56E-08	-6.41E-08	-6.27E-08
PLE	NO							
Indicator value	-1.10E-07							

#### Licensee Comments:

4Q/11: Revised MSPI Bases Document (Rev 9) in 12/2011 for heat removal system. Per FAQ 468, returned all Planned Unavailability Baselines to 2002 ??? 2004, 36 month historical plant data. Revised heat removal system demands/runtimes to address greater than 25% deviation. No MSPI PRA coefficients were changed.

2Q/11: Changed PRA Parameter(s). A PVNGS PRA Model was completed in January 2011 with a corresponding MSPI Basis Document revision in March 2011. The PRA model revision was a periodic update to the model. As a result of the PRA model change, the Core Damage Frequency and Fussel-Vesely for all monitored trains and components were revised in CDE.

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



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

#### Notes

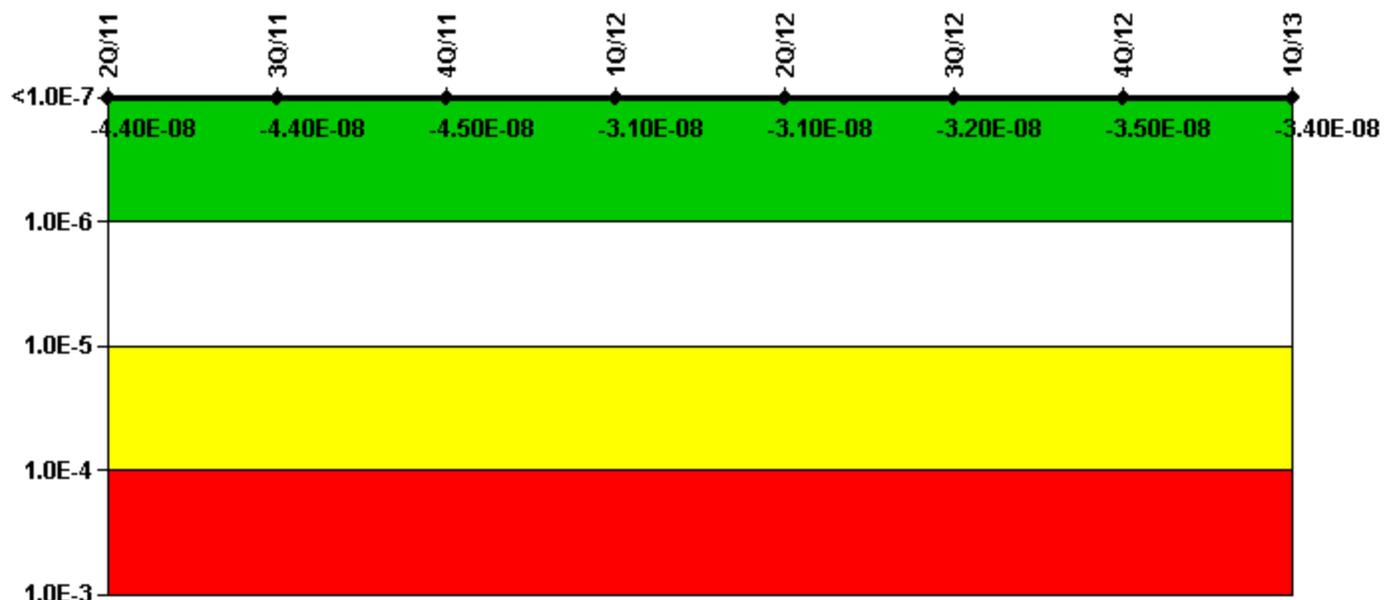
Mitigating Systems Performance Index, Residual Heat Removal System	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
UAI ( $\Delta$ CDF)	-1.46E-09	-1.46E-09	-1.46E-09	8.16E-10	9.04E-10	-8.38E-11	-5.42E-10	-5.35E-10
URI ( $\Delta$ CDF)	-6.41E-09	-6.29E-09	-6.16E-09	-6.23E-09	-6.30E-09	-6.37E-09	-6.37E-09	-6.37E-09
PLE	NO							
Indicator value	-7.90E-09	-7.70E-09	-7.60E-09	-5.40E-09	-5.40E-09	-6.50E-09	-6.90E-09	-6.90E-09

#### Licensee Comments:

4Q/11: Revised MSPI Bases Document (Rev 9) in 12/2011 for residual heat removal system. Per FAQ 468, returned all Planned Unavailability Baselines to 2002 ??? 2004, 36 month historical plant data. The change also reflected a change in maintenance philosophy. No MSPI PRA coefficients were changed.

2Q/11: Changed PRA Parameter(s). A PVNGS PRA Model was completed in January 2011 with a corresponding MSPI Basis Document revision in March 2011. The PRA model revision was a periodic update to the model. As a result of the PRA model change, the Core Damage Frequency and Fussel-Vesely for all monitored trains and components were revised in CDE.

### Mitigating Systems Performance Index, Cooling Water Systems



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

#### Notes

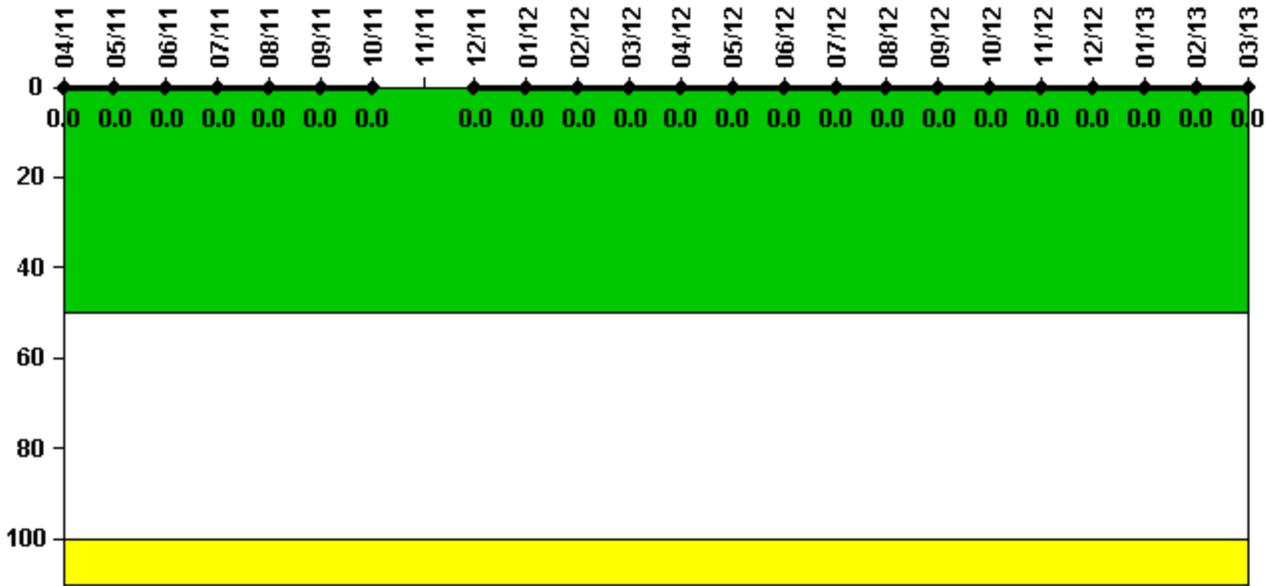
Mitigating Systems Performance Index, Cooling Water Systems	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
UAI ( $\Delta$ CDF)	3.30E-11	7.14E-11	0.00E+00	1.38E-08	1.40E-08	1.42E-08	1.09E-08	1.22E-08
URI ( $\Delta$ CDF)	-4.40E-08	-4.44E-08	-4.47E-08	-4.51E-08	-4.54E-08	-4.57E-08	-4.57E-08	-4.57E-08
PLE	NO							
Indicator value	-4.40E-08	-4.40E-08	-4.50E-08	-3.10E-08	-3.10E-08	-3.20E-08	-3.50E-08	-3.40E-08

#### Licensee Comments:

4Q/11: Revised MSPI Bases Document (Rev 9) in 12/2011 for cooling water systems. Per FAQ 468, returned all Planned Unavailability Baselines to 2002 – 2004, 36 month historical plant data.

2Q/11: Changed PRA Parameter(s). A PVNGS PRA Model was completed in January 2011 with a corresponding MSPI Basis Document revision in March 2011. The PRA model revision was a periodic update to the model. As a result of the PRA model change, the Core Damage Frequency and Fussel-Vesely for all monitored trains and components were revised in CDE.

### Reactor Coolant System Activity



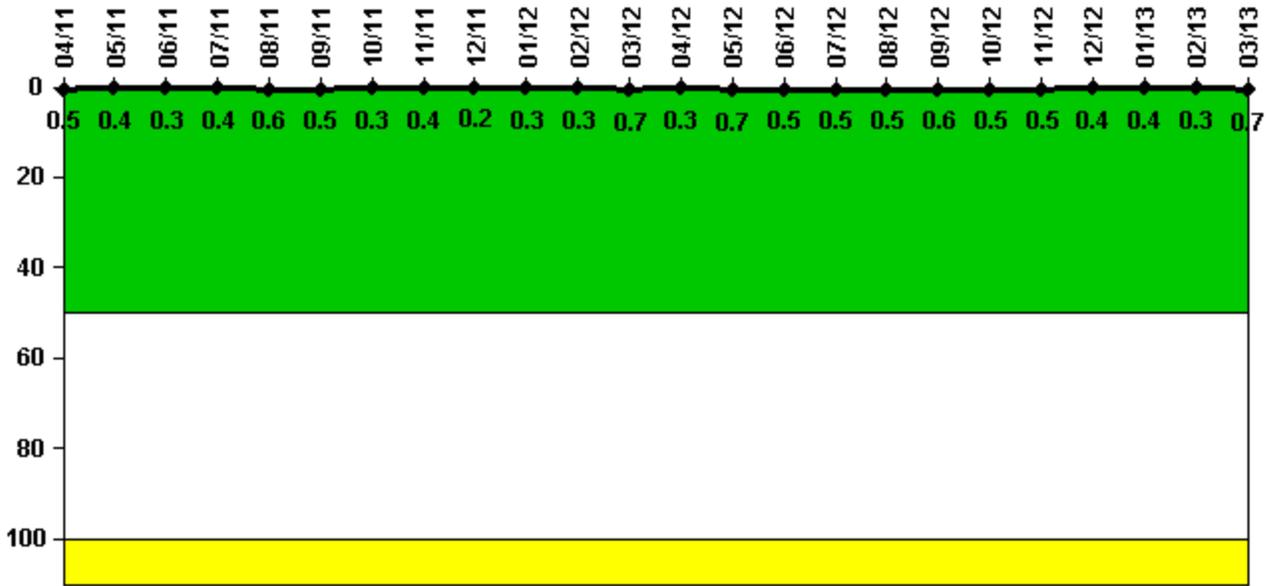
Thresholds: White > 50.0 Yellow > 100.0

#### Notes

Reactor Coolant System Activity	4/11	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11	1/12	2/12	3/12
Maximum activity	0.000327	0.000452	0.000340	0.000364	0.000349	0.000389	0.000303	N/A	0.000226	0.000370	0.000223	0.000217
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	0	0	0	0	0	N/A	0	0	0	0
Reactor Coolant System Activity	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	1/13	2/13	3/13
Maximum activity	0.000228	0.000246	0.000254	0.000270	0.000257	0.000272	0.000289	0.000287	0.000291	0.000298	0.000320	0.000312
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	0	0	0	0	0	0	0	0	0	0

Licensee Comments: none

### Reactor Coolant System Leakage



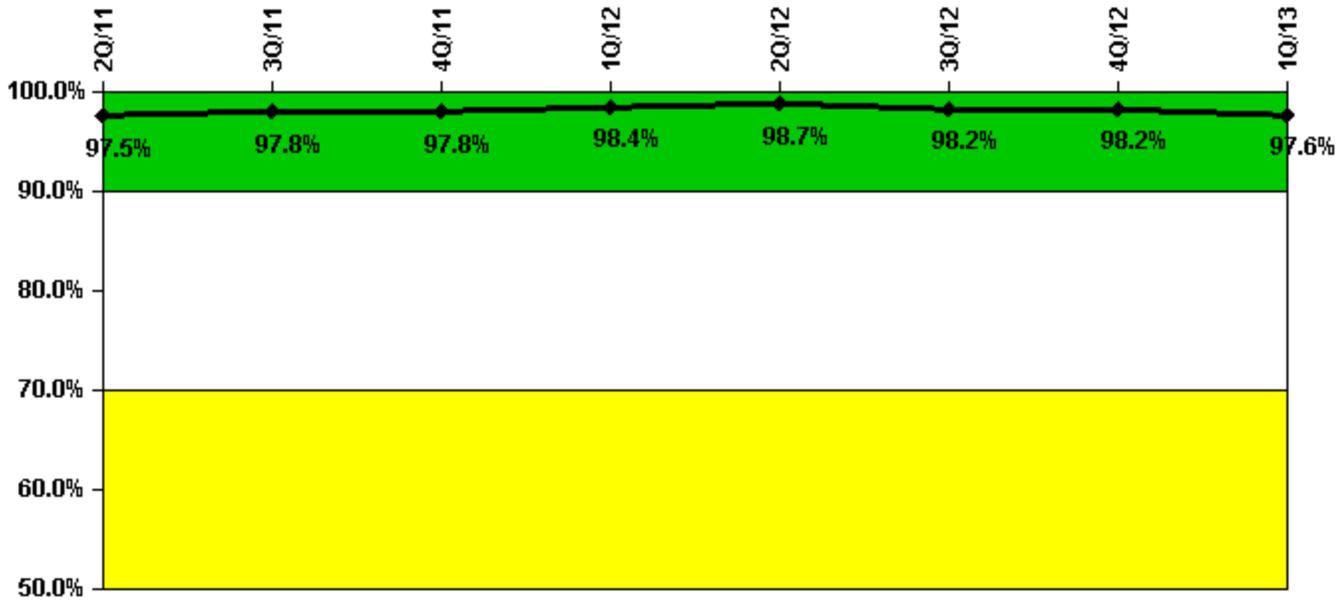
Thresholds: White > 50.0 Yellow > 100.0

#### Notes

Reactor Coolant System Leakage	4/11	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11	1/12	2/12	3/12
Maximum leakage	0.054	0.038	0.033	0.038	0.055	0.048	0.034	0.039	0.023	0.034	0.026	0.070
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>0.4</b>	<b>0.3</b>	<b>0.4</b>	<b>0.6</b>	<b>0.5</b>	<b>0.3</b>	<b>0.4</b>	<b>0.2</b>	<b>0.3</b>	<b>0.3</b>	<b>0.7</b>
Reactor Coolant System Leakage	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12	1/13	2/13	3/13
Maximum leakage	0.032	0.074	0.049	0.049	0.050	0.057	0.046	0.049	0.040	0.041	0.029	0.067
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>0.3</b>	<b>0.7</b>	<b>0.5</b>	<b>0.5</b>	<b>0.5</b>	<b>0.6</b>	<b>0.5</b>	<b>0.5</b>	<b>0.4</b>	<b>0.4</b>	<b>0.3</b>	<b>0.7</b>

Licensee Comments: none

### Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

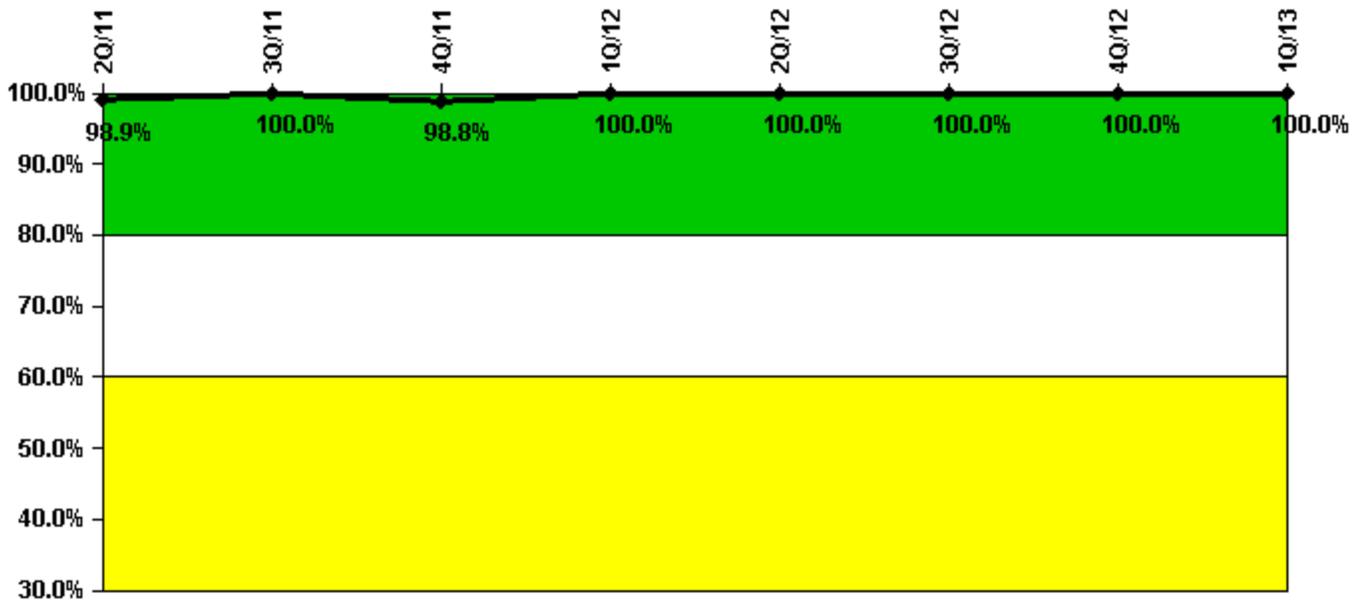
#### Notes

Drill/Exercise Performance	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Successful opportunities	10.0	184.0	33.0	73.0	15.0	182.0	2.0	35.0
Total opportunities	10.0	187.0	34.0	73.0	15.0	187.0	2.0	39.0
Indicator value	97.5%	97.8%	97.8%	98.4%	98.7%	98.2%	98.2%	97.6%

Licensee Comments:

3Q/12: Drill and exercise successes and opportunities were corrected for September 2012. No color change resulted.

## ERO Drill Participation



**Thresholds: White < 80.0% Yellow < 60.0%**

### Notes

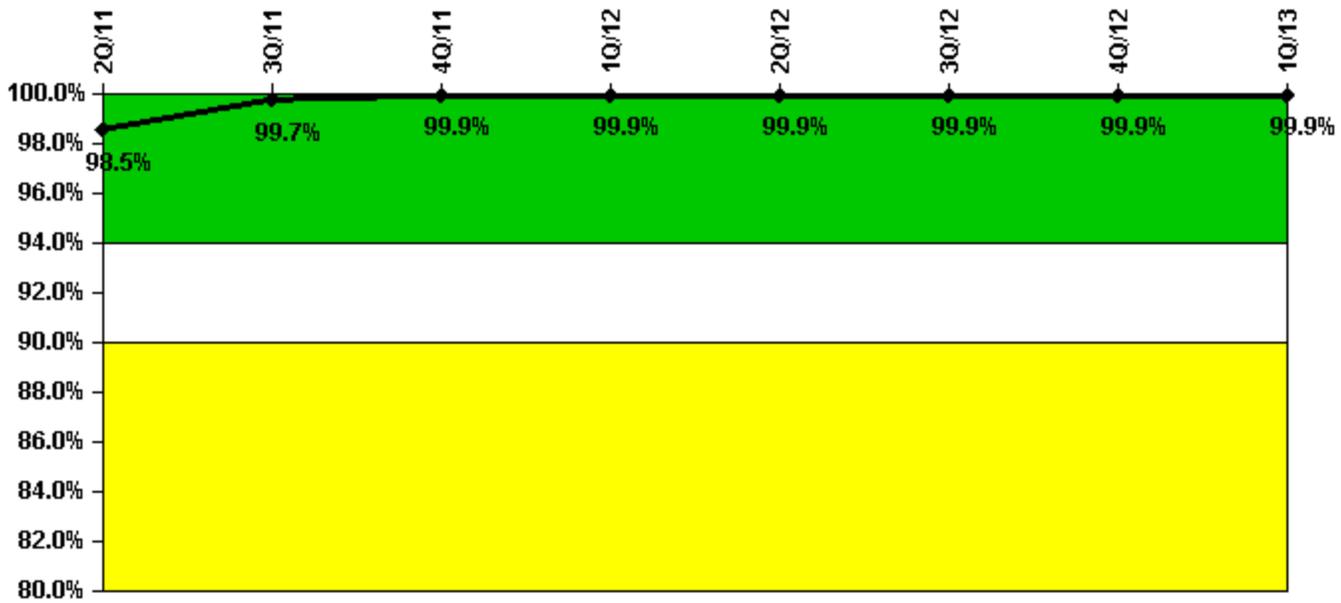
ERO Drill Participation	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Participating Key personnel	90.0	88.0	85.0	99.0	95.0	95.0	90.0	88.0
Total Key personnel	91.0	88.0	86.0	99.0	95.0	95.0	90.0	88.0
<b>Indicator value</b>	<b>98.9%</b>	<b>100.0%</b>	<b>98.8%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

### Licensee Comments:

4Q/11: January and March 2011 participation results were revised based on a self-assessment review. This does not affect current quarter results and no-color change resulted.

3Q/11: Routine review of prior data submissions identified errors in May and June 2011 inputs. No color change occurred as a result of the corrections.

### Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

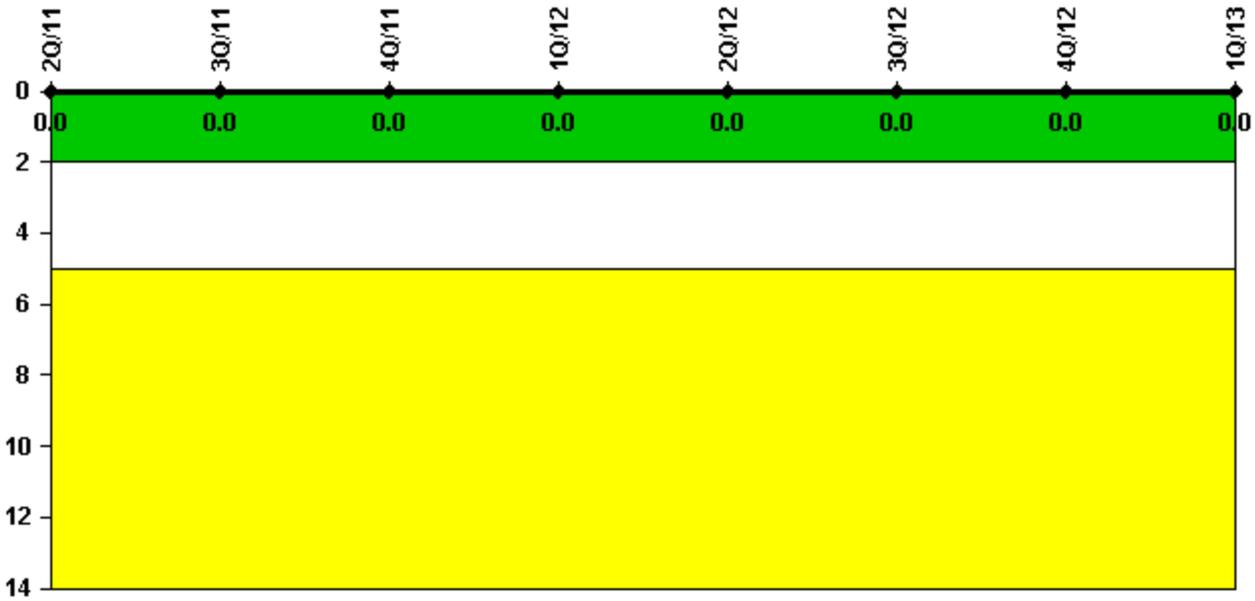
#### Notes

Alert & Notification System	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
Successful siren-tests	912	910	1008	910	912	911	1007	912
Total sirens-tests	912	912	1008	912	912	912	1008	912
Indicator value	98.5%	99.7%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%

Licensee Comments:

1Q/13: Two scheduled tests from the Maricopa County Sherriff's Office ANS station were not completed in February 2013.

### Occupational Exposure Control Effectiveness



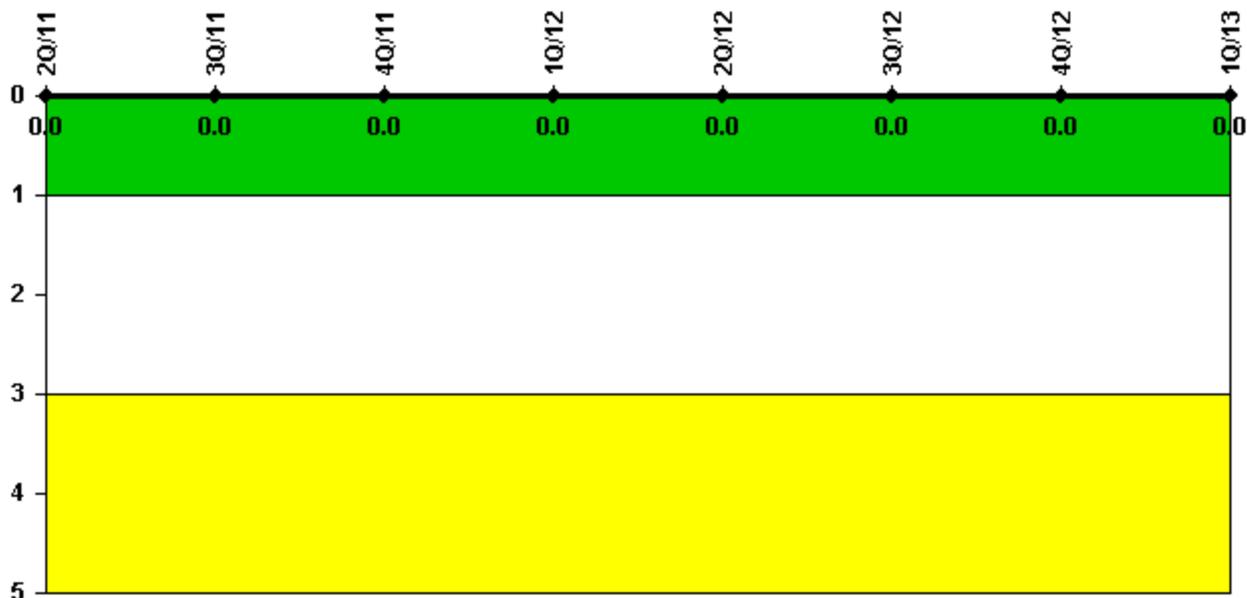
Thresholds: White > 2.0 Yellow > 5.0

#### Notes

Occupational Exposure Control Effectiveness	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/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	2Q/11	3Q/11	4Q/11	1Q/12	2Q/12	3Q/12	4Q/12	1Q/13
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, 2013*