

# Palo Verde 2

## 4Q/2011 Performance Indicators

Licensee's General Comments: none

### Unplanned Scrams per 7000 Critical Hrs



Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

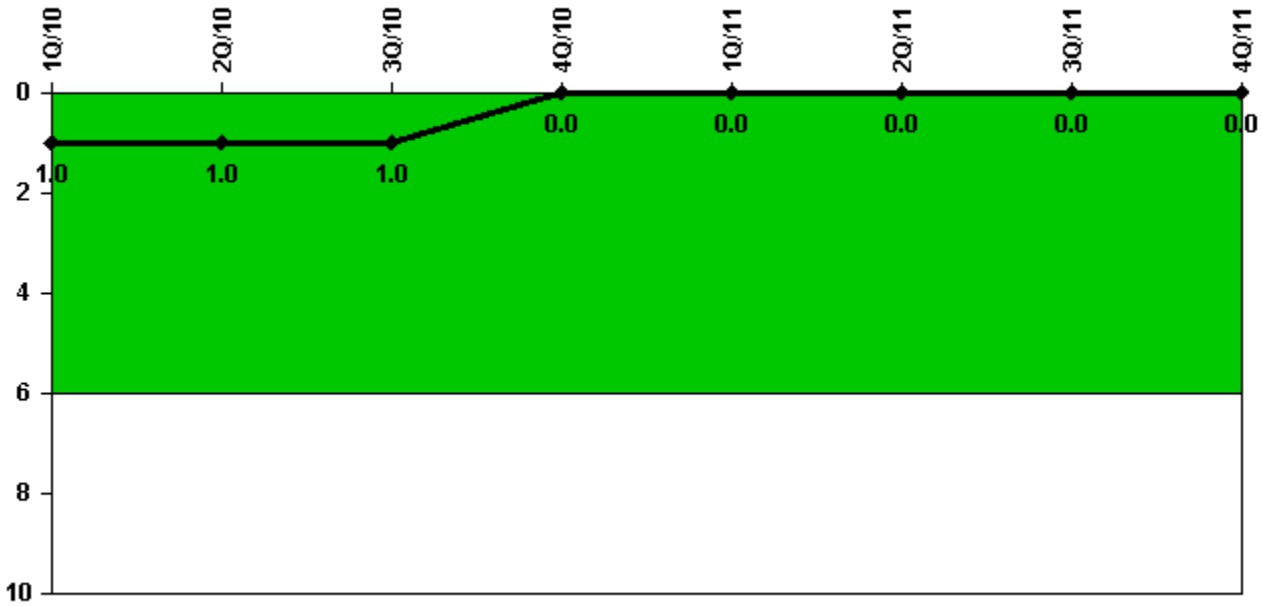
### Notes

Unplanned Scrams per 7000 Critical Hrs	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
Unplanned scrams	0	0	0	0	0	0	0	0
Critical hours	2160.0	2184.0	2208.0	2208.0	2160.0	1384.5	2208.0	2208.0
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

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## Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

### Notes

Unplanned Power Changes per 7000 Critical Hrs	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	2160.0	2184.0	2208.0	2208.0	2160.0	1384.5	2208.0	2208.0
Indicator value	1.0	1.0	1.0	0	0	0	0	0

Licensee Comments: none

# Unplanned Scrams with Complications



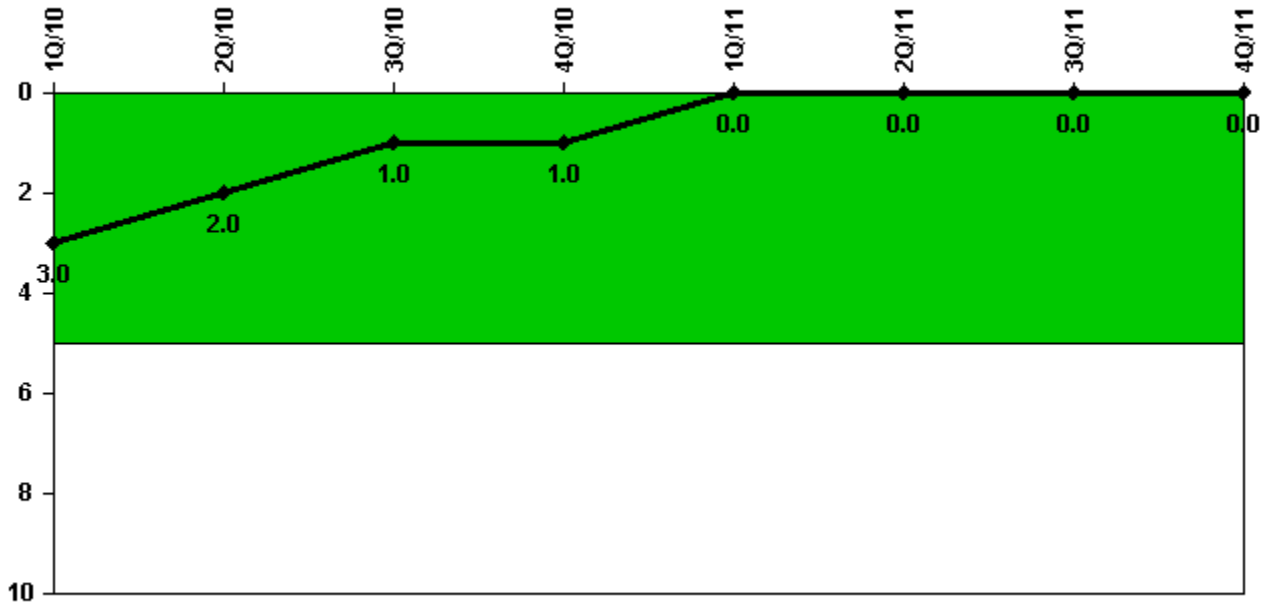
Thresholds: White > 1.0

## Notes

Unplanned Scrams with Complications	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
Scrams with complications	0	0	0	0	0	0	0	0
Indicator value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Licensee Comments: none

## Safety System Functional Failures (PWR)



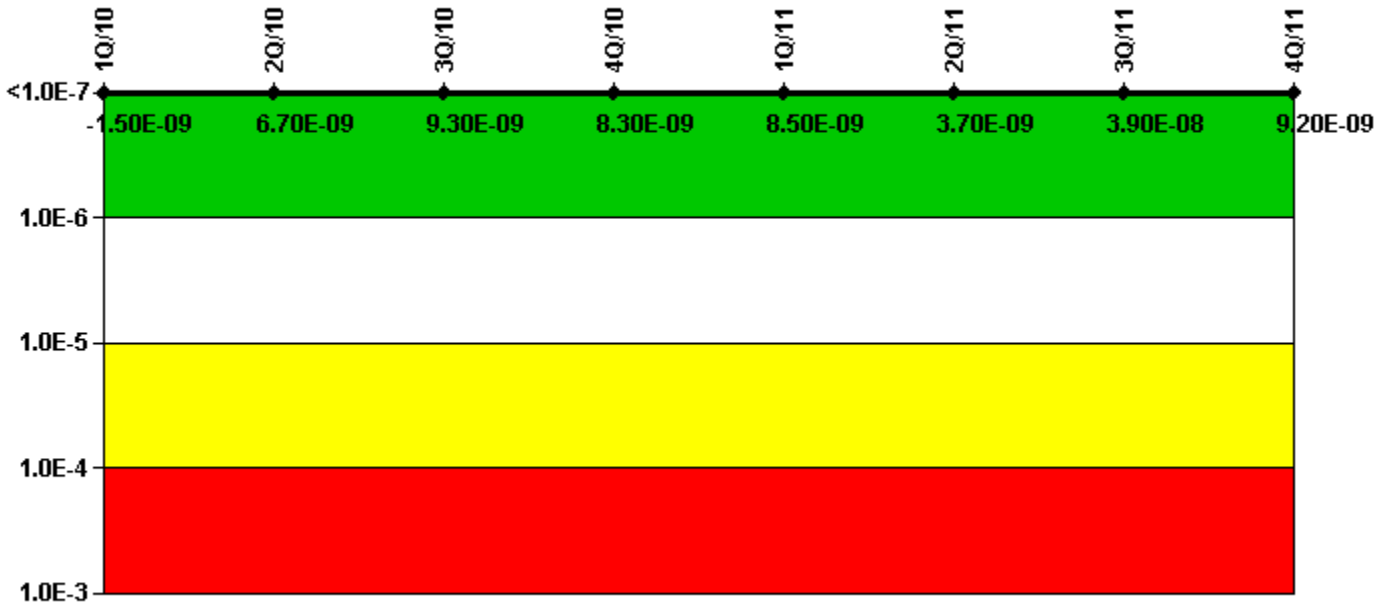
Thresholds: White > 5.0

### Notes

Safety System Functional Failures (PWR)	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
Safety System Functional Failures	1	0	0	0	0	0	0	0
Indicator value	3	2	1	1	0	0	0	0

Licensee Comments: none

# Mitigating Systems Performance Index, Emergency AC Power System



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

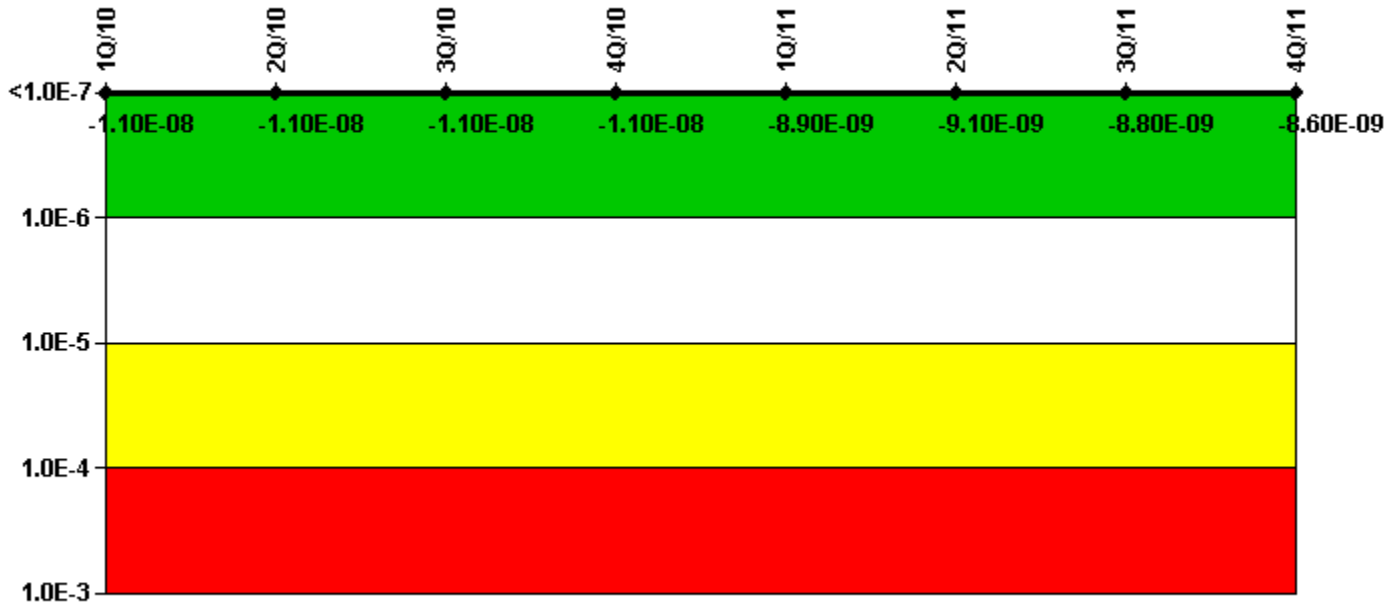
## Notes

Mitigating Systems Performance Index, Emergency AC Power System	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
UAI ( $\Delta$ CDF)	1.82E-08	1.60E-08	2.03E-08	2.09E-08	2.25E-08	2.08E-08	3.13E-08	2.50E-08
URI ( $\Delta$ CDF)	-1.97E-08	-9.34E-09	-1.10E-08	-1.25E-08	-1.40E-08	-1.72E-08	7.28E-09	-1.57E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.50E-09	6.70E-09	9.30E-09	8.30E-09	8.50E-09	3.70E-09	3.90E-08	9.20E-09

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.

# Mitigating Systems Performance Index, High Pressure Injection System



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

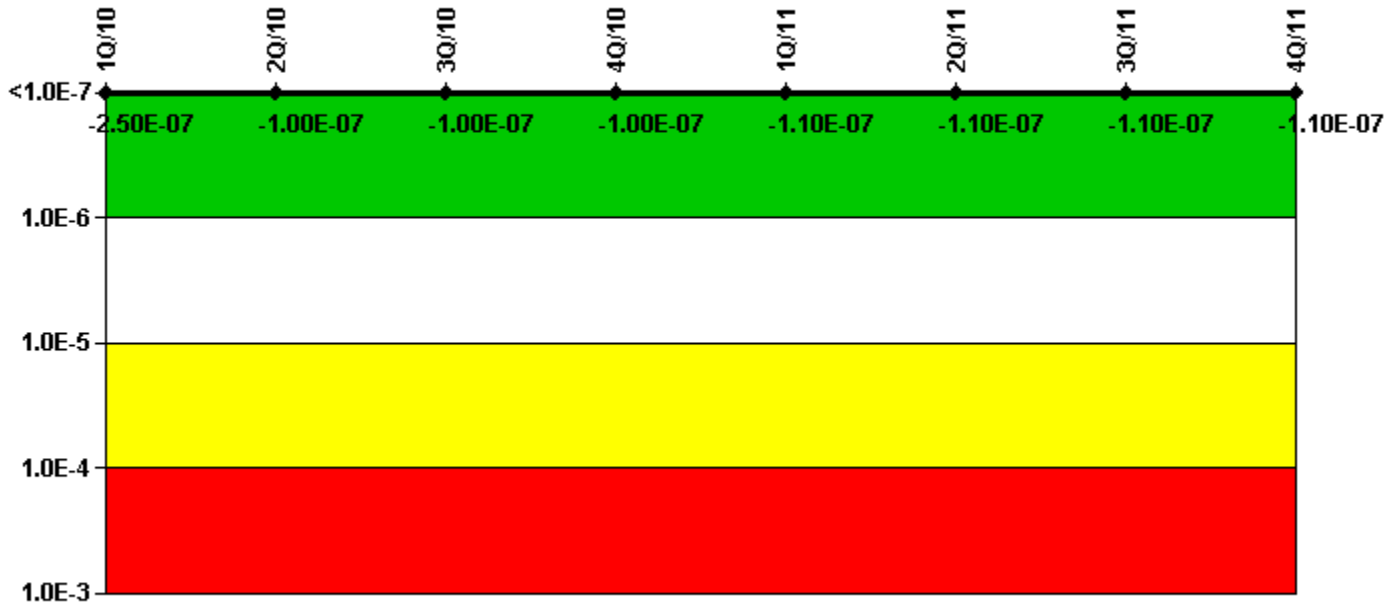
## Notes

Mitigating Systems Performance Index, High Pressure Injection System	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
UAI (ΔCDF)	2.80E-09	2.19E-09	1.72E-09	1.54E-09	3.72E-09	2.65E-09	2.59E-09	2.52E-09
URI (ΔCDF)	-1.40E-08	-1.34E-08	-1.32E-08	-1.29E-08	-1.26E-08	-1.17E-08	-1.14E-08	-1.12E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.10E-08	-1.10E-08	-1.10E-08	-1.10E-08	-8.90E-09	-9.10E-09	-8.80E-09	-8.60E-09

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.

# Mitigating Systems Performance Index, Heat Removal System



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

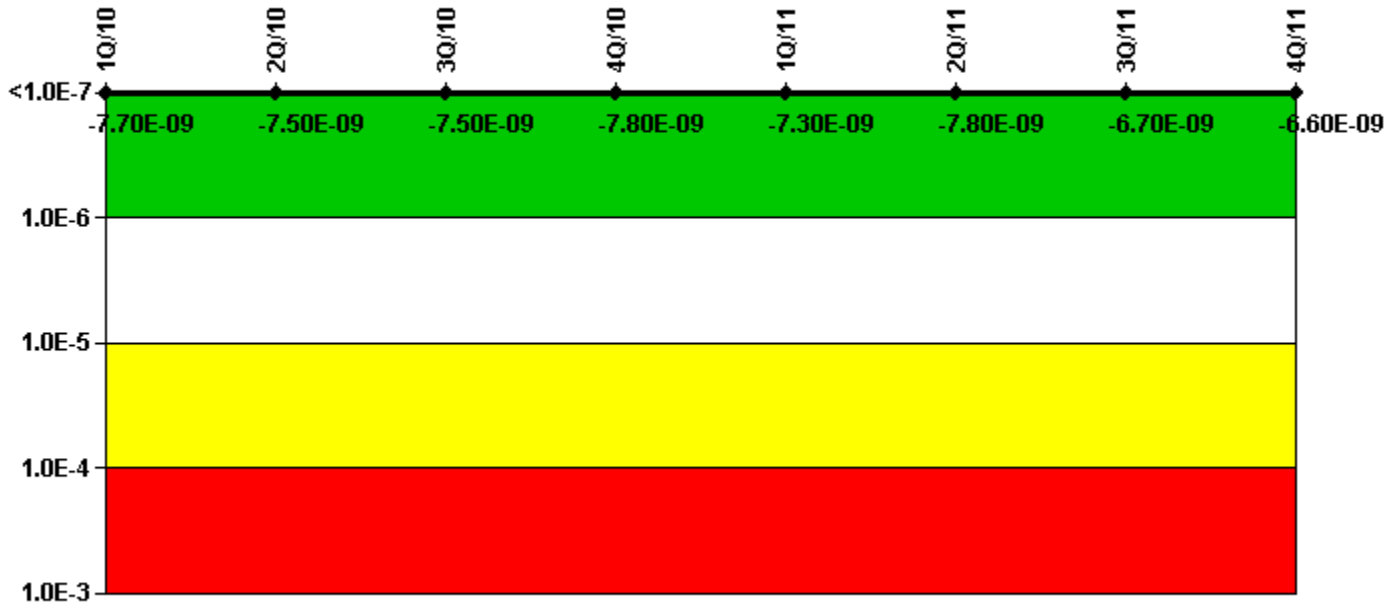
## Notes

Mitigating Systems Performance Index, Heat Removal System	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
UAI ( $\Delta$ CDF)	-1.08E-07	-4.30E-08	-4.30E-08	-4.33E-08	-4.33E-08	-4.36E-08	-4.36E-08	-4.37E-08
URI ( $\Delta$ CDF)	-1.42E-07	-5.81E-08	-5.98E-08	-6.15E-08	-6.31E-08	-6.26E-08	-6.40E-08	-6.54E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-2.50E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.10E-07	-1.10E-07	-1.10E-07	-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.

# Mitigating Systems Performance Index, Residual Heat Removal System



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

## Notes

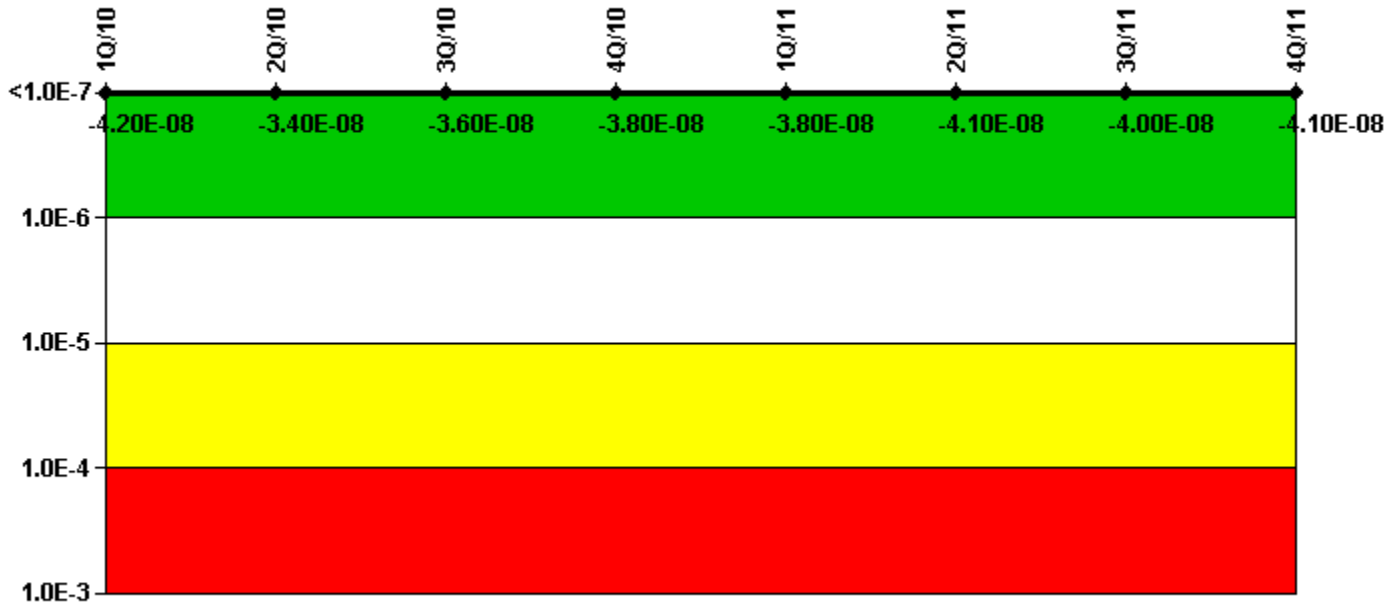
Mitigating Systems Performance Index, Residual Heat Removal System	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
UAI ( $\Delta$ CDF)	-5.35E-10	-5.76E-10	-6.87E-10	-1.10E-09	-7.28E-10	-1.37E-09	-3.72E-10	-4.72E-10
URI ( $\Delta$ CDF)	-7.14E-09	-6.90E-09	-6.78E-09	-6.67E-09	-6.55E-09	-6.41E-09	-6.29E-09	-6.16E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-7.70E-09	-7.50E-09	-7.50E-09	-7.80E-09	-7.30E-09	-7.80E-09	-6.70E-09	-6.60E-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.



# Mitigating Systems Performance Index, Cooling Water Systems



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

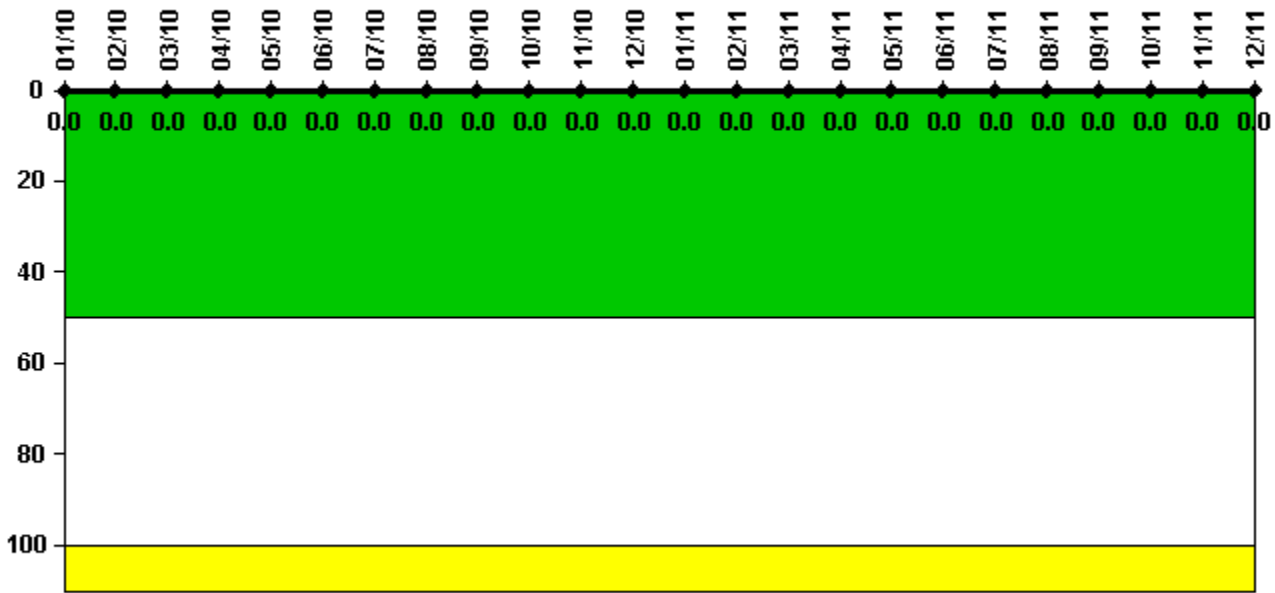
## Notes

Mitigating Systems Performance Index, Cooling Water Systems	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
UAI ( $\Delta$ CDF)	7.54E-09	6.91E-09	4.90E-09	2.93E-09	3.52E-09	2.87E-09	3.98E-09	3.61E-09
URI ( $\Delta$ CDF)	-4.99E-08	-4.05E-08	-4.09E-08	-4.13E-08	-4.17E-08	-4.40E-08	-4.43E-08	-4.47E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-4.20E-08	-3.40E-08	-3.60E-08	-3.80E-08	-3.80E-08	-4.10E-08	-4.00E-08	-4.10E-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.

# Reactor Coolant System Activity



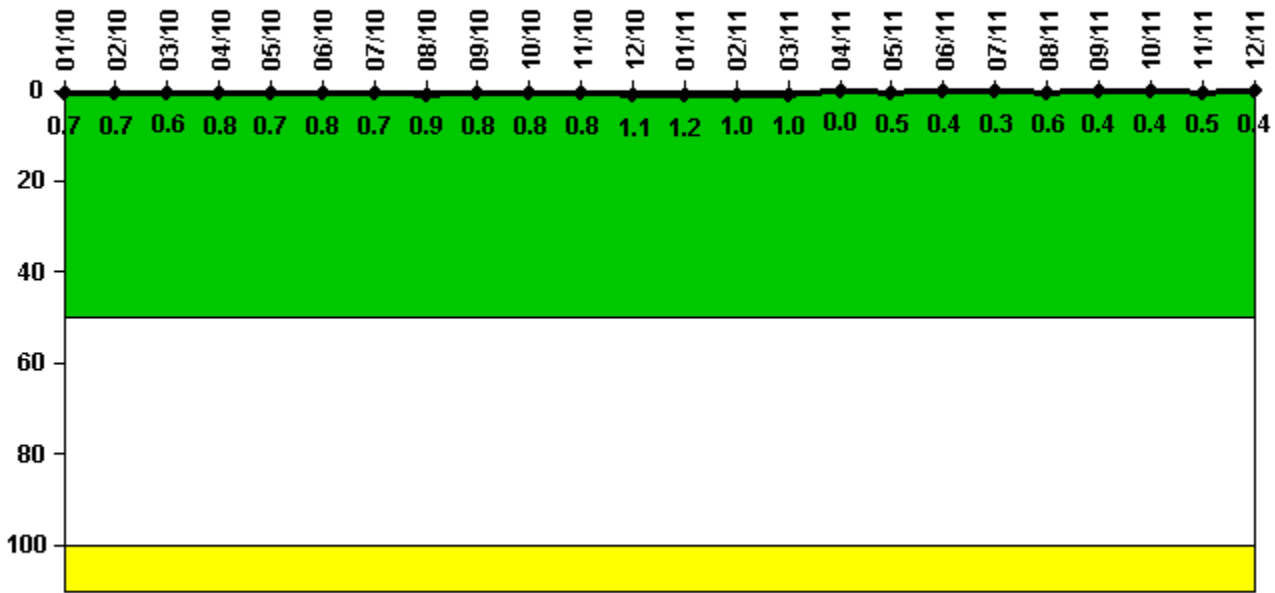
Thresholds: White > 50.0 Yellow > 100.0

## Notes

Reactor Coolant System Activity	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10	11/10	12/10
Maximum activity	0.000226	0.000229	0.000237	0.000242	0.000250	0.000260	0.000253	0.000258	0.000269	0.000270	0.000273	0.000278
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
Reactor Coolant System Activity	1/11	2/11	3/11	4/11	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11
Maximum activity	0.000286	0.000293	0.000295	0.000250	0.000187	0.000195	0.000199	0.000211	0.000210	0.000203	0.000215	0.000213
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



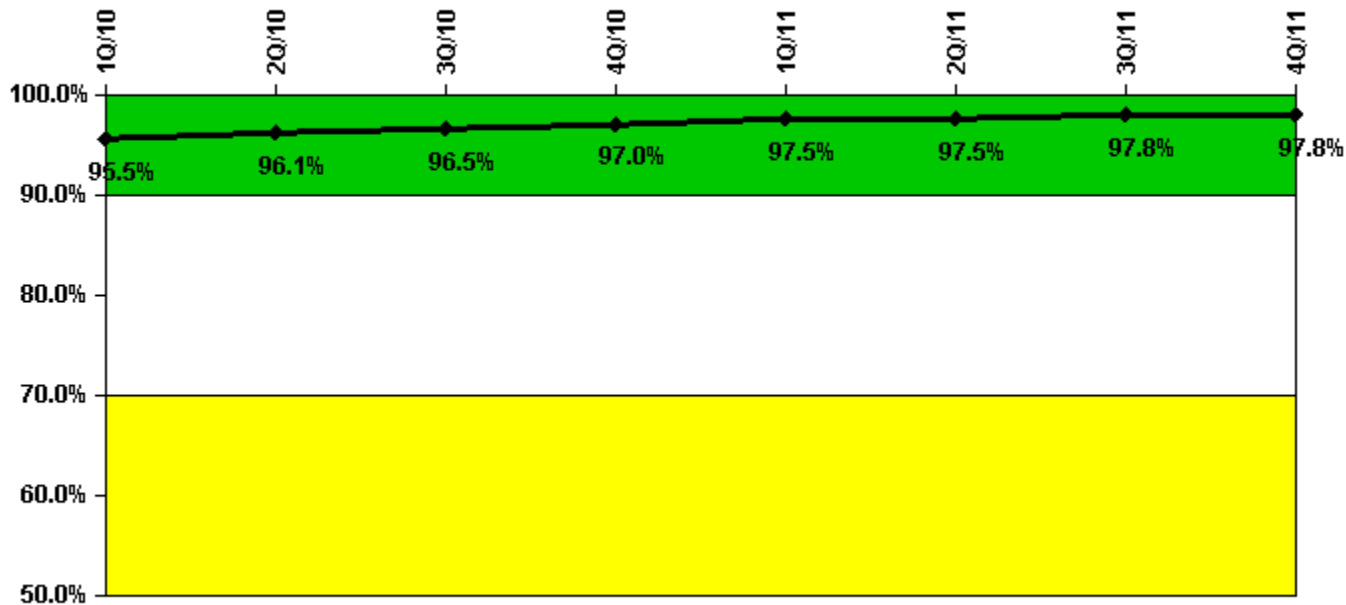
Thresholds: White > 50.0 Yellow > 100.0

### Notes

Reactor Coolant System Leakage	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10	11/10	12/10
Maximum leakage	0.068	0.067	0.058	0.076	0.067	0.077	0.074	0.091	0.079	0.081	0.082	0.112
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	0.7	0.7	0.6	0.8	0.7	0.8	0.7	0.9	0.8	0.8	0.8	1.1
Reactor Coolant System Leakage	1/11	2/11	3/11	4/11	5/11	6/11	7/11	8/11	9/11	10/11	11/11	12/11
Maximum leakage	0.115	0.101	0.098	0	0.050	0.036	0.033	0.061	0.039	0.037	0.047	0.038
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	1.2	1.0	1.0	0	0.5	0.4	0.3	0.6	0.4	0.4	0.5	0.4

Licensee Comments: none

## Drill/Exercise Performance



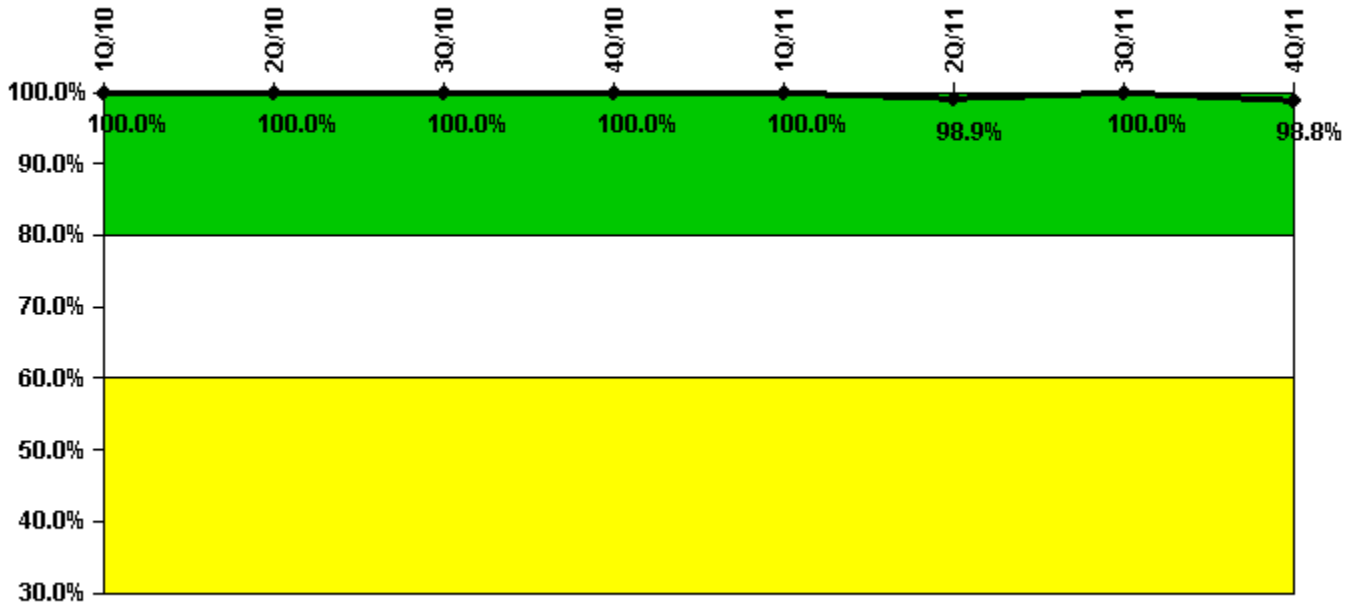
Thresholds: White < 90.0% Yellow < 70.0%

### Notes

Drill/Exercise Performance	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
Successful opportunities	86.0	81.0	126.0	20.0	91.0	10.0	184.0	33.0
Total opportunities	90.0	84.0	127.0	20.0	93.0	10.0	187.0	34.0
Indicator value	95.5%	96.1%	96.5%	97.0%	97.5%	97.5%	97.8%	97.8%

Licensee Comments: none

## ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

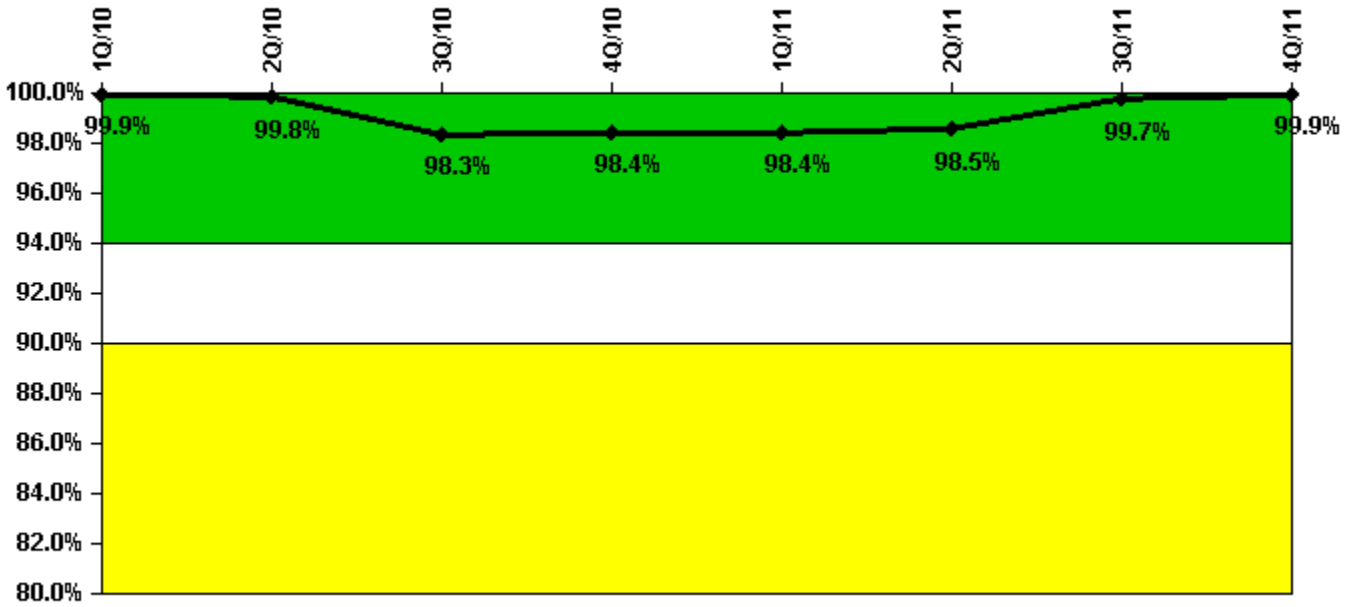
### Notes

ERO Drill Participation	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
Participating Key personnel	97.0	102.0	97.0	101.0	90.0	90.0	88.0	85.0
Total Key personnel	97.0	102.0	97.0	101.0	90.0	91.0	88.0	86.0
Indicator value	100.0%	100.0%	100.0%	100.0%	100.0%	98.9%	100.0%	98.8%

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.

# Alert & Notification System



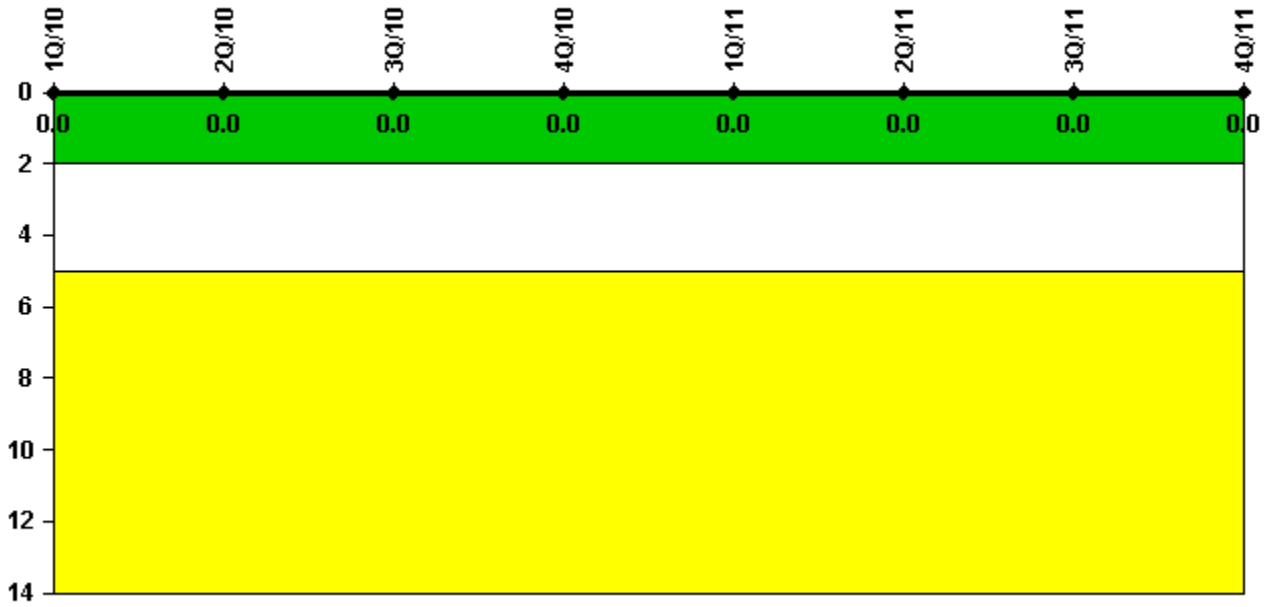
Thresholds: White < 94.0% Yellow < 90.0%

## Notes

Alert & Notification System	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
Successful siren-tests	911	909	864	1000	912	912	910	1008
Total sirens-tests	912	912	912	1008	912	912	912	1008
Indicator value	99.9%	99.8%	98.3%	98.4%	98.4%	98.5%	99.7%	99.9%

Licensee Comments: none

# Occupational Exposure Control Effectiveness



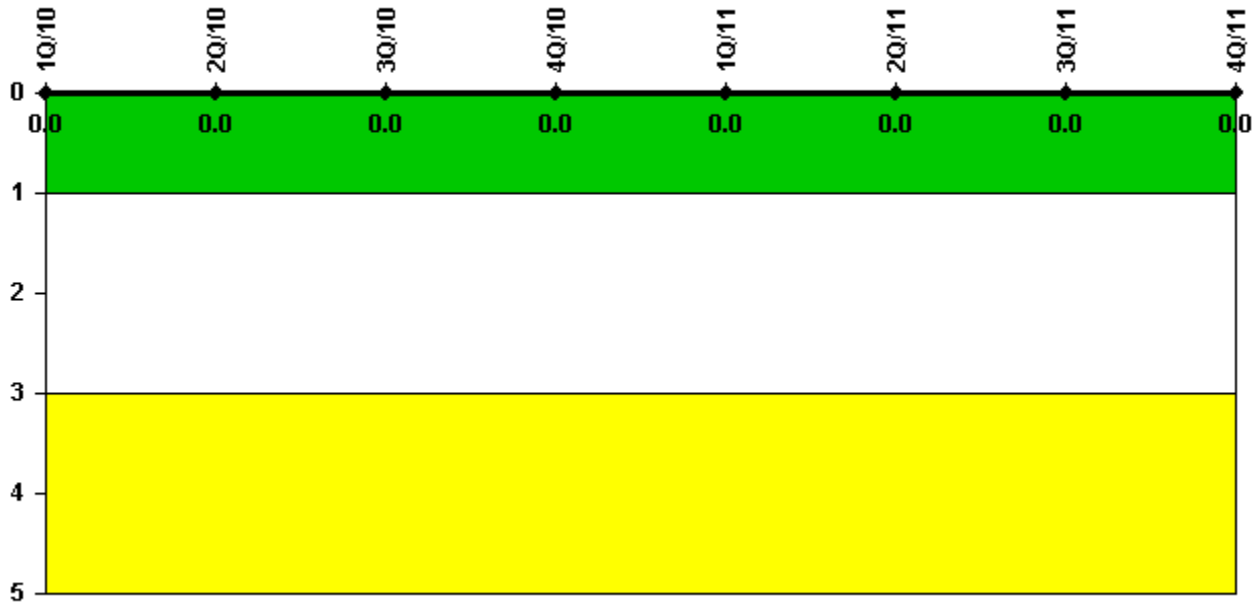
Thresholds: White > 2.0 Yellow > 5.0

## Notes

Occupational Exposure Control Effectiveness	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
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/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11	4Q/11
RETS/ODCM occurrences	0	0	0	0	0	0	0	0
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

[Security](#) information not publicly available.