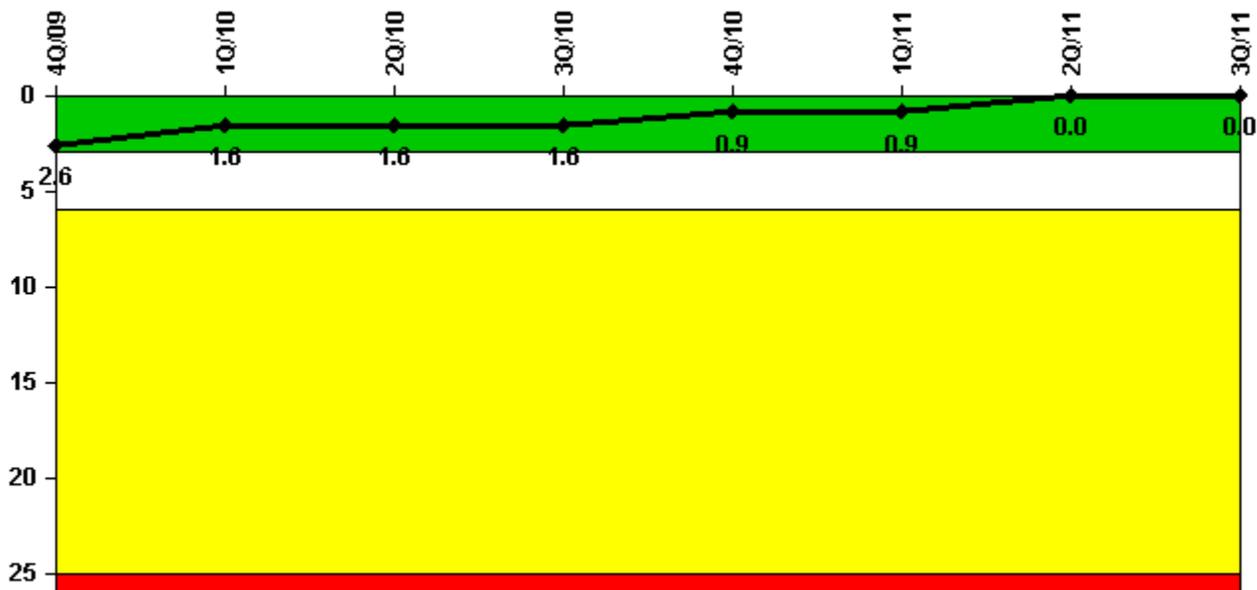# Duane Arnold

3Q/2011 Performance Indicators

Licensee's General Comments: none

Unplanned Scrams per 7000 Critical Hrs
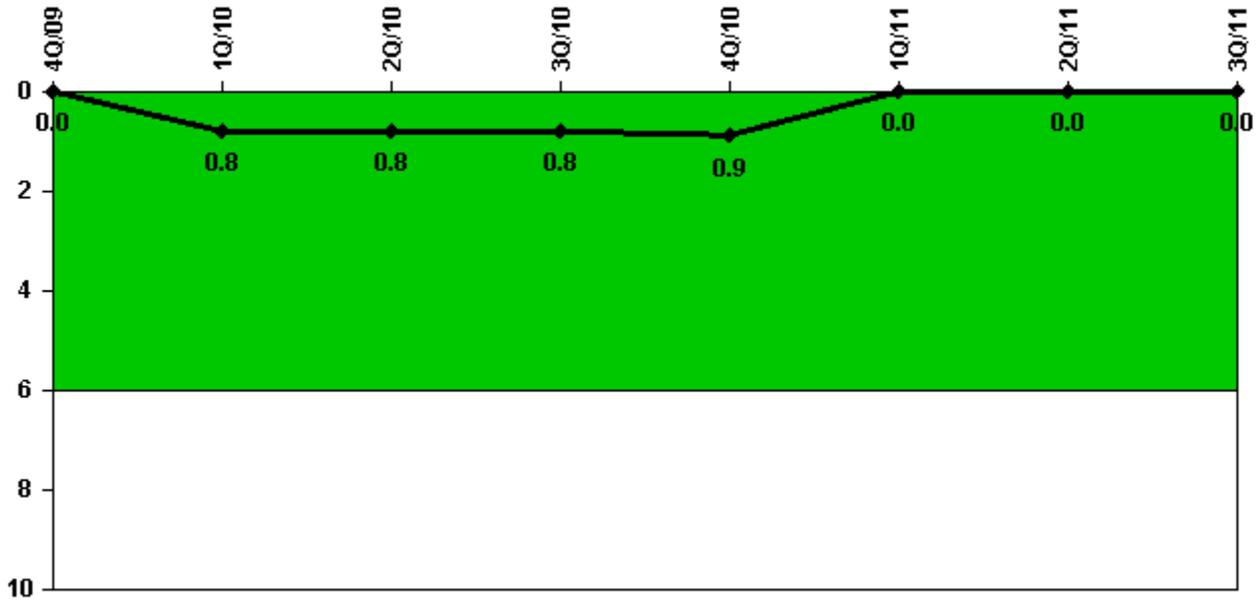

Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

Unplanned Scrams per 7000 Critical Hrs	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
Unplanned scrams	1.0	0	1.0	0	0	0	0	0
Critical hours	2154.5	2159.0	2034.1	2208.0	1207.2	2159.0	2184.0	2085.4
Indicator value	2.6	1.6	1.6	1.6	0.9	0.9	0	0

Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs

Thresholds: White > 6.0

Notes

Unplanned Power Changes per 7000 Critical Hrs	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
Unplanned power changes	0	1.0	0	0	0	0	0	0
Critical hours	2154.5	2159.0	2034.1	2208.0	1207.2	2159.0	2184.0	2085.4
Indicator value	**0**	**0.8**	**0.8**	**0.8**	**0.9**	**0**	**0**	**0**

Licensee Comments: none

Unplanned Scrams with Complications

	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
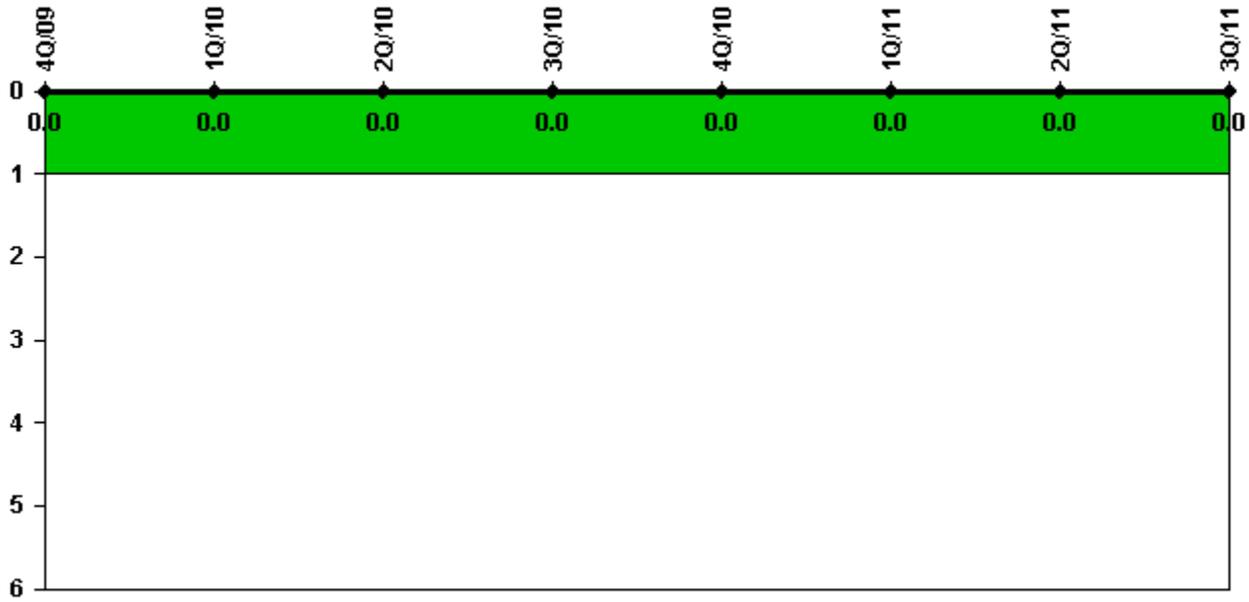
Thresholds: White > 1.0

Notes

Unplanned Scrams with Complications	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/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 (BWR)

	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
	0.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0
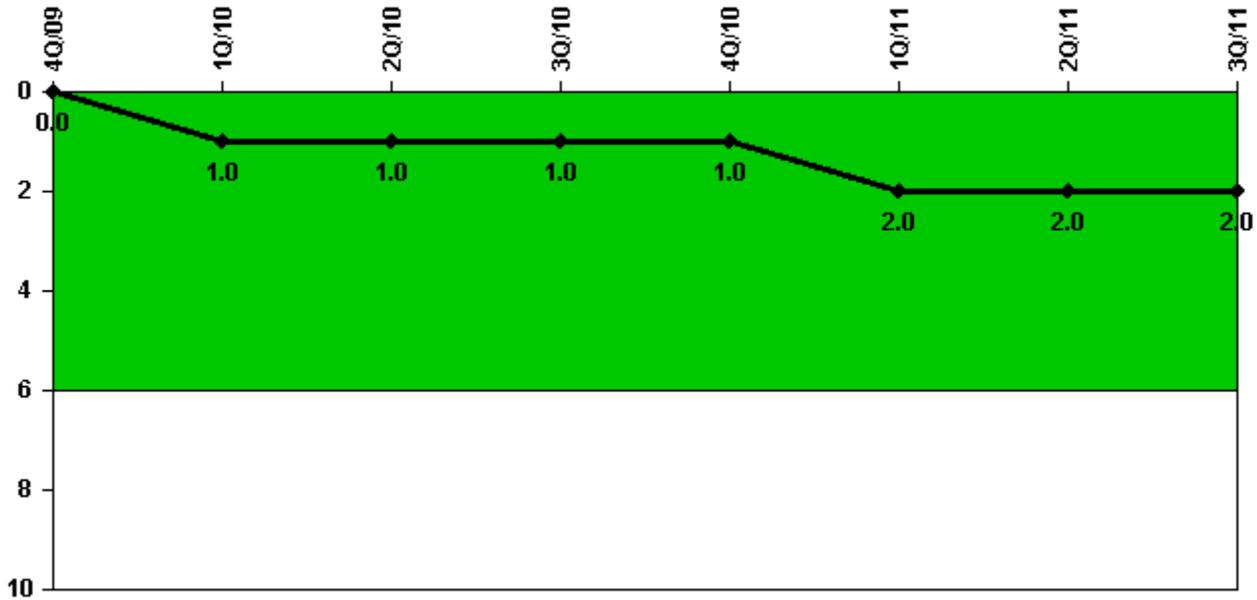
Thresholds: White > 6.0

Notes

Safety System Functional Failures (BWR)	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
Safety System Functional Failures	0	1	0	0	0	2	0	0
Indicator value	0	1	1	1	1	2	2	2

Licensee Comments:

3Q/11: The DAEC PRA Model Revision 6 was approved on June 30, 2011 with a corresponding MSPI Basis Document Revision 13 approved on September 30, 2011. The PRA model revision was a periodic update which addressed gaps identified in a BWROG sponsored Peer Review held in December 2007. Model improvements include use of a new methodology for calculating AC power recovery terms and use of improved tools for calculating human error probability values. As a result of the PRA model change, the CDF, Fussell-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

1Q/11: LER 2010-05 and 2010-06

Mitigating Systems Performance Index, Emergency AC Power System
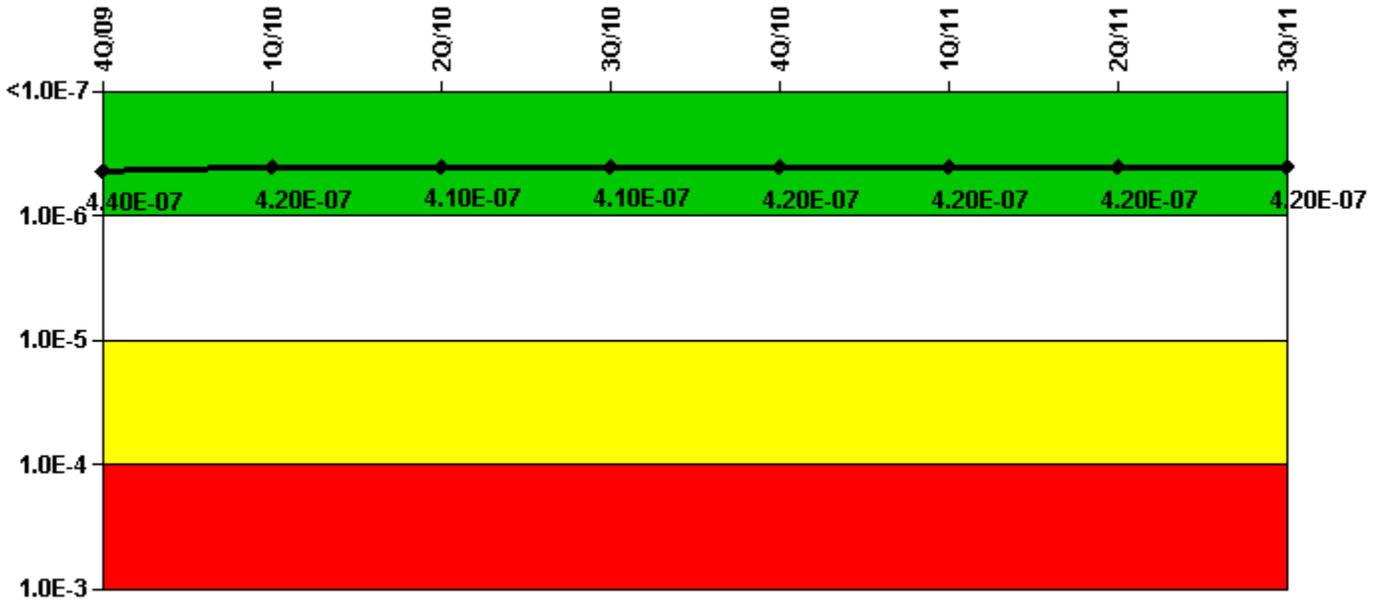
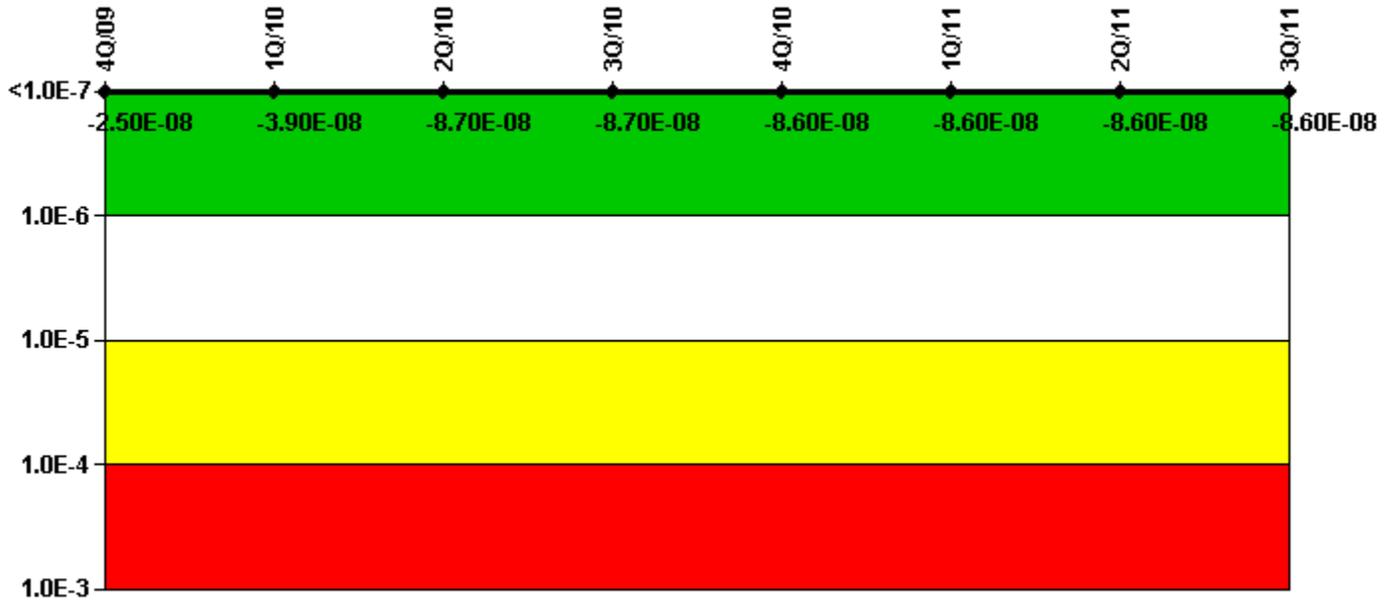Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Emergency AC Power System	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
UAI (ΔCDF)	1.20E-07	6.70E-08	5.77E-08	5.77E-08	6.37E-08	6.38E-08	6.52E-08	6.60E-08
URI (ΔCDF)	3.20E-07	3.53E-07	3.53E-07	3.53E-07	3.56E-07	3.56E-07	3.56E-07	3.56E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	4.40E-07	4.20E-07	4.10E-07	4.10E-07	4.20E-07	4.20E-07	4.20E-07	4.20E-07

Licensee Comments:

3Q/11: The DAEC PRA Model Revision 6 was approved on June 30, 2011 with a corresponding MSPI Basis Document Revision 13 approved on September 30, 2011. The PRA model revision was a periodic update which addressed gaps identified in a BWROG sponsored Peer Review held in December 2007. Model improvements include use of a new methodology for calculating AC power recovery terms and use of improved tools for calculating human error probability values. As a result of the PRA model change, the CDF, Fussell-Vesely and Basic Event Probabilities for all monitored trains and components were revised. In addition, mission time for the emergency diesel generators was changed from 6 hours to 24 hours.

Mitigating Systems Performance Index, High Pressure Injection System

	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
<1.0E-7	-2.50E-08	-3.90E-08	-8.70E-08	-8.70E-08	-8.60E-08	-8.60E-08	-8.60E-08	-8.60E-08

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

Notes

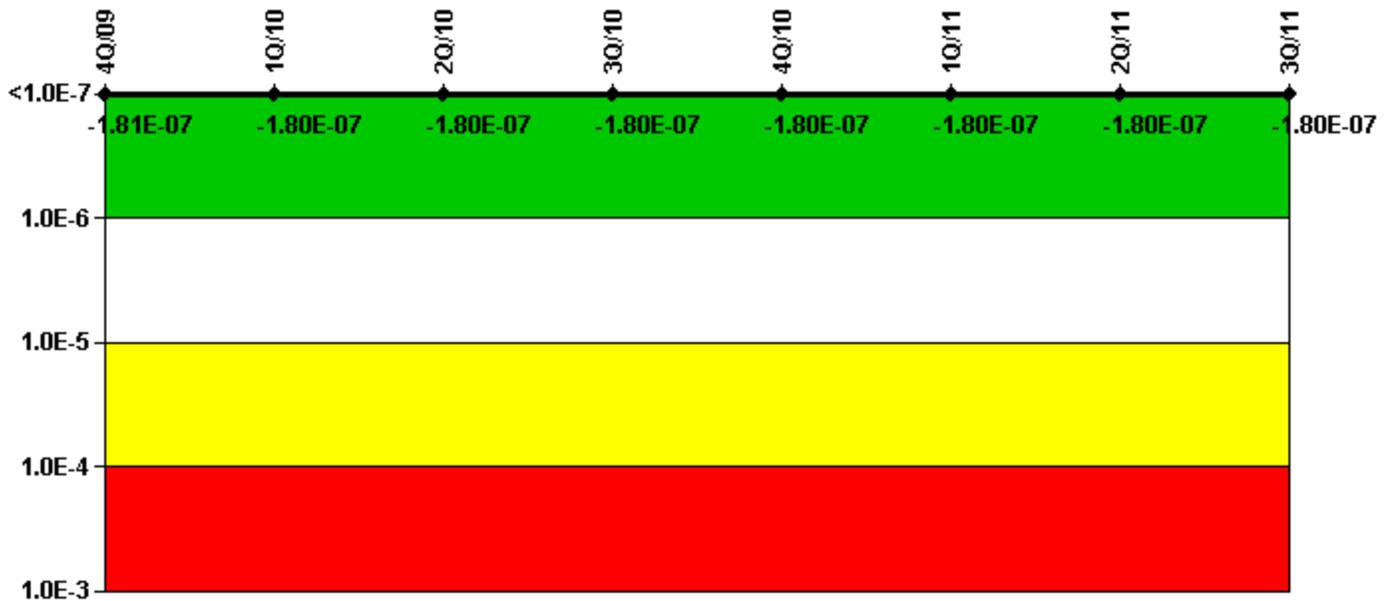| Mitigating Systems Performance Index, High Pressure Injection System	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
UAI (ΔCDF)	4.60E-08	3.18E-08	-1.62E-08	-1.62E-08	-1.54E-08	-1.54E-08	-1.54E-08	-1.53E-08
URI (ΔCDF)	-7.10E-08	-7.07E-08	-7.07E-08	-7.07E-08	-7.07E-08	-7.07E-08	-7.07E-08	-7.07E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-2.50E-08	-3.90E-08	-8.70E-08	-8.70E-08	-8.60E-08	-8.60E-08	-8.60E-08	-8.60E-08

Licensee Comments:

3Q/11: The DAEC PRA Model Revision 6 was approved on June 30, 2011 with a corresponding MSPI Basis Document Revision 13 approved on September 30, 2011. The PRA model revision was a periodic update which addressed gaps identified in a BWROG sponsored Peer Review held in December 2007. Model improvements include use of a new methodology for calculating AC power recovery terms and use of improved tools for calculating human error probability values. As a result of the PRA model change, the CDF, Fussell-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

3Q/06: Corrections were made to PRA related parameters during the reporting period for 3rd Quarter 2006. Originally entered values for component unreliability in accordance with Fussell-Vesely (FVURC) variables in the Device record tables of the Consolidated Data Entry (CDE) systems and Equipment Performance section system baseline unavailability variables (UABLP and UABLU) in the CDE systems Function record tables were discovered to be incorrect. Discovery of the incorrect values and completion of related corrective actions are documented within the DAEC Corrective Action Program (CAP043403 and CAP043543). The changes did not have any effect on MSPI colors or substantially affect margin to any green-to-white action level.

2Q/06: See comment entered under the quarterly MSPI Emergency AC Power System.

Mitigating Systems Performance Index, Heat Removal System

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

Notes

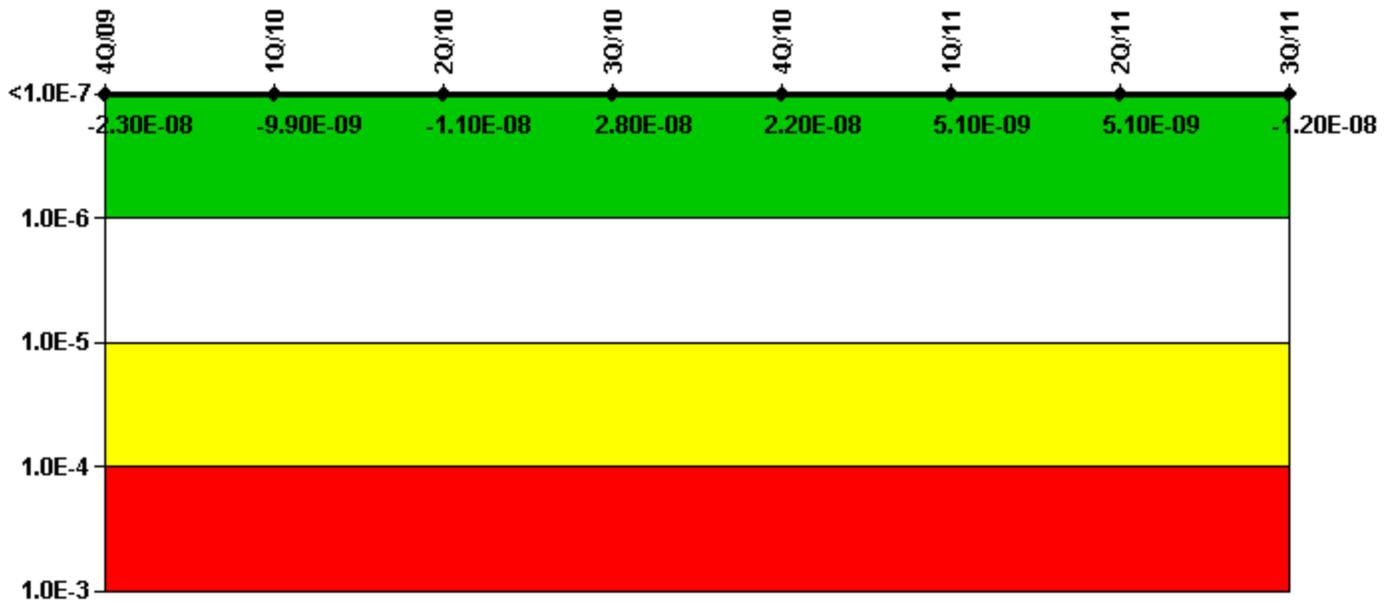| Mitigating Systems Performance Index, Heat Removal System	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
UAI (ΔCDF)	-4.10E-08	-4.14E-08	-4.14E-08	-4.14E-08	-4.23E-08	-4.01E-08	-4.01E-08	-4.01E-08
URI (ΔCDF)	-1.40E-07	-1.42E-07	-1.42E-07	-1.42E-07	-1.42E-07	-1.42E-07	-1.42E-07	-1.42E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.81E-07	-1.80E-07	-1.80E-07	-1.80E-07	-1.80E-07	-1.80E-07	-1.80E-07	-1.80E-07

Licensee Comments:

3Q/11: The DAEC PRA Model Revision 6 was approved on June 30, 2011 with a corresponding MSPI Basis Document Revision 13 approved on September 30, 2011. The PRA model revision was a periodic update which addressed gaps identified in a BWROG sponsored Peer Review held in December 2007. Model improvements include use of a new methodology for calculating AC power recovery terms and use of improved tools for calculating human error probability values. As a result of the PRA model change, the CDF, Fussell-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

3Q/06: Corrections were made to PRA related parameters during the reporting period for 3rd Quarter 2006. Originally entered values for component unreliability in accordance with Fussell-Vesely (FVURC) variables in the Device record tables of the Consolidated Data Entry (CDE) systems and Equipment Performance section system baseline unavailability variables (UABLP and UABLU) in the CDE systems Function record tables were discovered to be incorrect. Discovery of the incorrect values and completion of related corrective actions are documented within the DAEC Corrective Action Program (CAP043403 and CAP043543). The changes did not have any effect on MSPI colors or substantially affect margin to any green-to-white action level.

2Q/06: See comment entered under the quarterly MSPI Emergency AC Power System.

Mitigating Systems Performance Index, Residual Heat Removal System

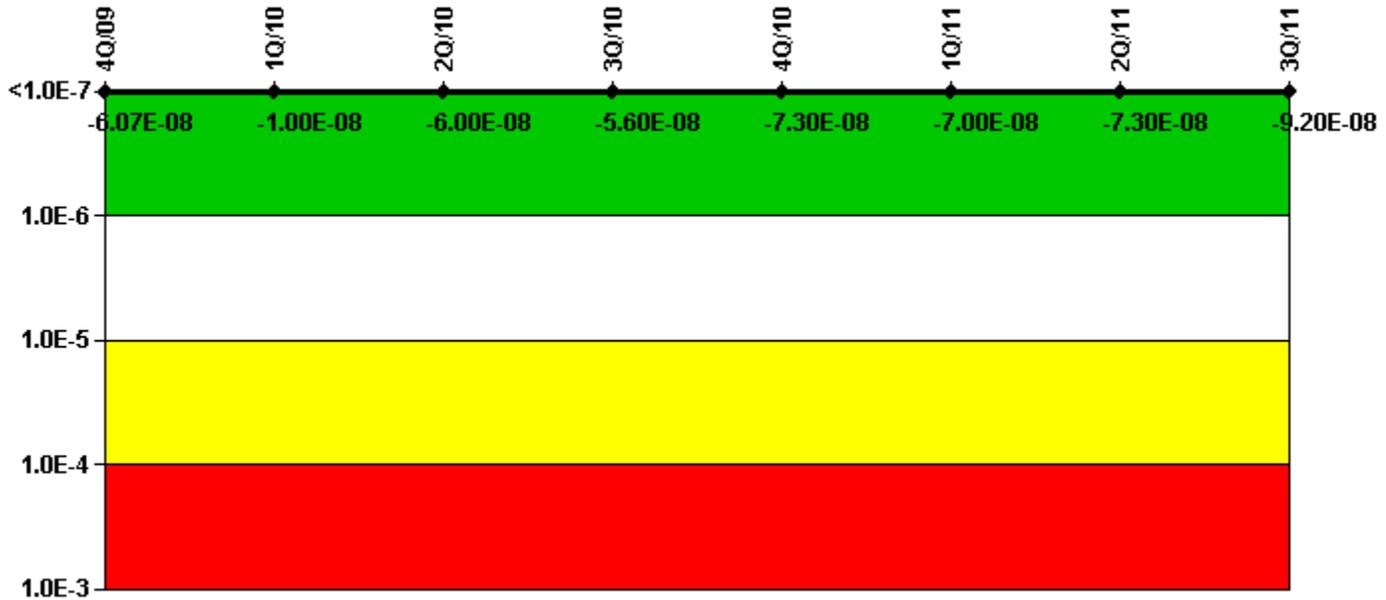Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

Notes

Mitigating Systems Performance Index, Residual Heat Removal System	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
UAI (ΔCDF)	1.20E-08	2.52E-08	2.41E-08	6.32E-08	5.75E-08	4.01E-08	4.01E-08	2.28E-08
URI (ΔCDF)	-3.50E-08	-3.50E-08	-3.50E-08	-3.50E-08	-3.50E-08	-3.50E-08	-3.50E-08	-3.50E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-2.30E-08	-9.90E-09	-1.10E-08	2.80E-08	2.20E-08	5.10E-09	5.10E-09	-1.20E-08

Licensee Comments:

3Q/11: The DAEC PRA Model Revision 6 was approved on June 30, 2011 with a corresponding MSPI Basis Document Revision 13 approved on September 30, 2011. The PRA model revision was a periodic update which addressed gaps identified in a BWROG sponsored Peer Review held in December 2007. Model improvements include use of a new methodology for calculating AC power recovery terms and use of improved tools for calculating human error probability values. As a result of the PRA model change, the CDF, Fussell-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

Mitigating Systems Performance Index, Cooling Water Systems	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
UAI (ΔCDF)	3.40E-10	5.09E-08	1.10E-09	5.43E-09	-1.22E-08	-9.23E-09	-1.17E-08	-3.06E-08
URI (ΔCDF)	-6.10E-08	-6.14E-08	-6.14E-08	-6.14E-08	-6.12E-08	-6.12E-08	-6.12E-08	-6.12E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-6.07E-08	-1.00E-08	-6.00E-08	-5.60E-08	-7.30E-08	-7.00E-08	-7.30E-08	-9.20E-08

Licensee Comments:

3Q/11: The DAEC PRA Model Revision 6 was approved on June 30, 2011 with a corresponding MSPI Basis Document Revision 13 approved on September 30, 2011. The PRA model revision was a periodic update which addressed gaps identified in a BWROG sponsored Peer Review held in December 2007. Model improvements include use of a new methodology for calculating AC power recovery terms and use of improved tools for calculating human error probability values. As a result of the PRA model change, the CDF, Fussell-Vesely and Basic Event Probabilities for all monitored trains and components were revised.

Reactor Coolant System Activity
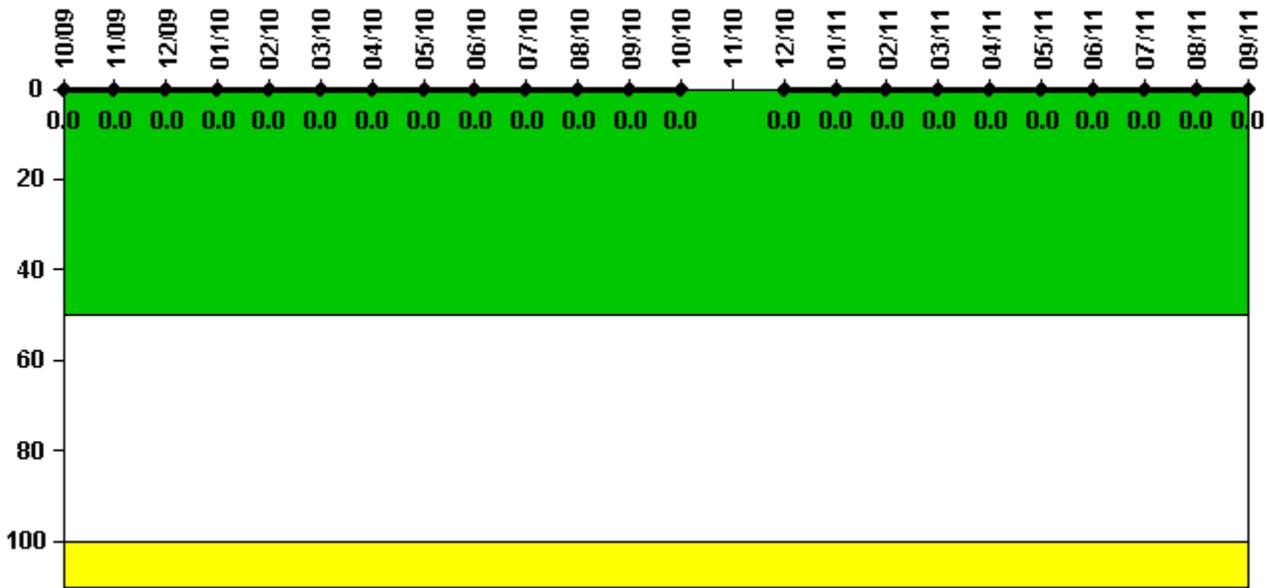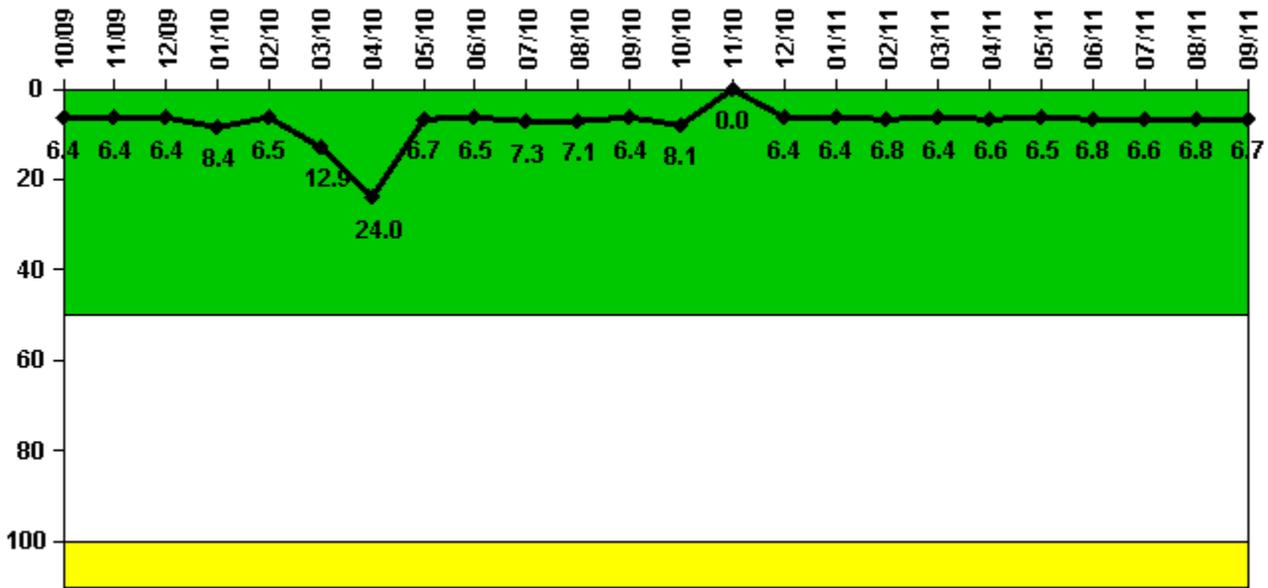

Thresholds: White > 50.0 Yellow > 100.0

Notes

Reactor Coolant System Activity	10/09	11/09	12/09	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10
Maximum activity	0.000002	0.000002	0.000001	0	0	0	0	0.000001	0.000001	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0

Reactor Coolant System Activity	10/10	11/10	12/10	1/11	2/11	3/11	4/11	5/11	6/11	7/11	8/11	9/11
Maximum activity	0	N/A	0	0	0	0	0	0.000002	0	0.000003	0	0.000001
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	N/A	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	10/09	11/09	12/09	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10
Maximum leakage	1.600	1.600	1.590	2.110	1.620	3.230	6.010	1.670	1.620	1.830	1.770	1.610
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	**6.4**	**6.4**	**6.4**	**8.4**	**6.5**	**12.9**	**24.0**	**6.7**	**6.5**	**7.3**	**7.1**	**6.4**
Reactor Coolant System Leakage	**10/10**	**11/10**	**12/10**	**1/11**	**2/11**	**3/11**	**4/11**	**5/11**	**6/11**	**7/11**	**8/11**	**9/11**
Maximum leakage	2.020	0	1.590	1.590	1.690	1.590	1.660	1.630	1.710	1.660	1.700	1.680
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	**8.1**	**0**	**6.4**	**6.4**	**6.8**	**6.4**	**6.6**	**6.5**	**6.8**	**6.6**	**6.8**	**6.7**

Licensee Comments: none

Drill/Exercise Performance
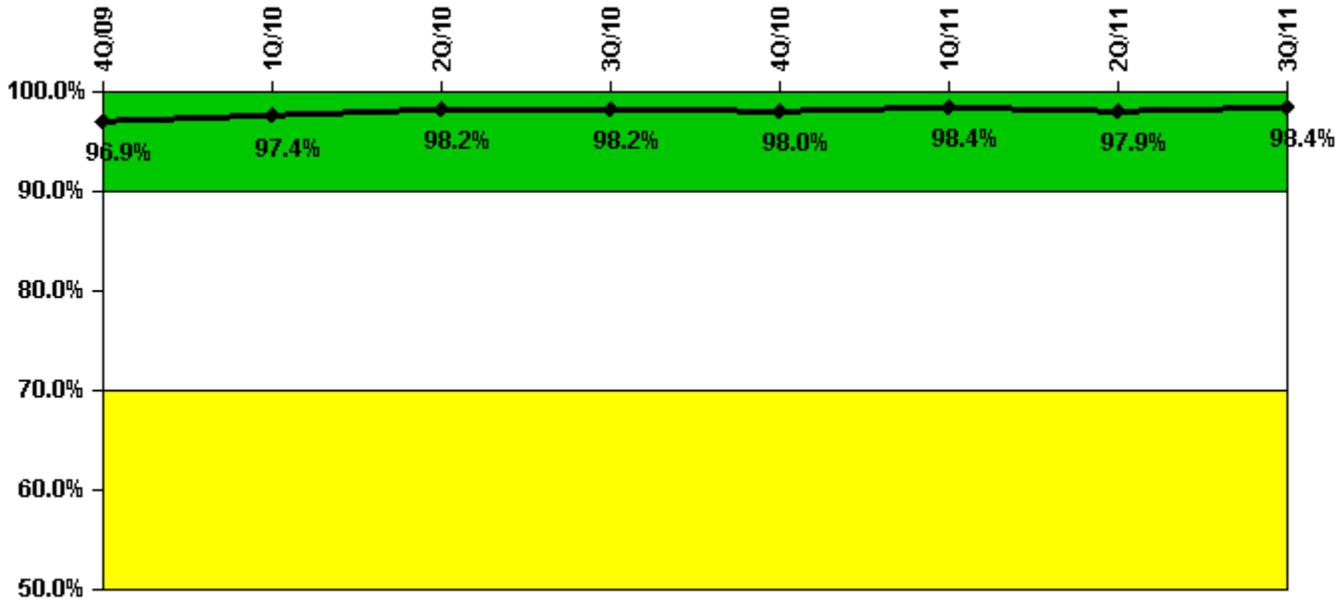
Thresholds: White < 90.0% Yellow < 70.0%

Notes

Drill/Exercise Performance	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
Successful opportunities	28.0	21.0	41.0	39.0	0	55.0	27.0	36.0
Total opportunities	29.0	21.0	41.0	40.0	0	55.0	29.0	36.0
Indicator value	96.9%	97.4%	98.2%	98.2%	98.0%	98.4%	97.9%	98.4%

Licensee Comments: none

ERO Drill Participation
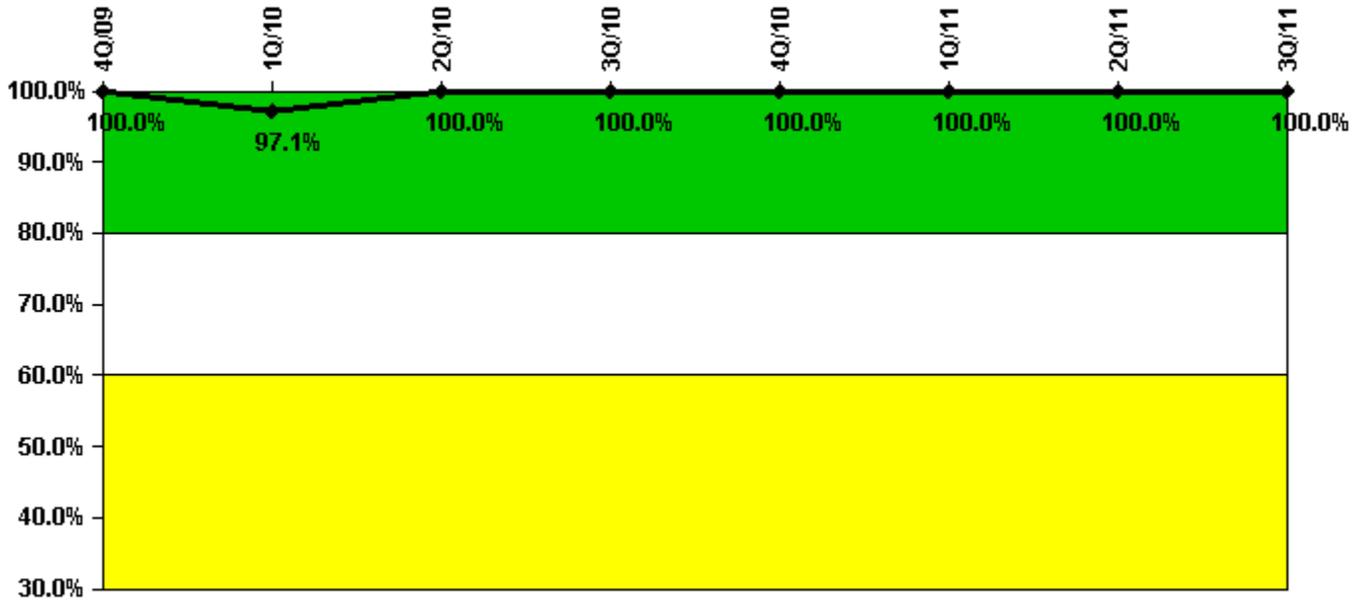
Thresholds: White < 80.0% Yellow < 60.0%

Notes

ERO Drill Participation	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
Participating Key personnel	90.0	100.0	103.0	101.0	100.0	101.0	101.0	113.0
Total Key personnel	90.0	103.0	103.0	101.0	100.0	101.0	101.0	113.0
Indicator value	**100.0%**	**97.1%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Licensee Comments: none

Alert & Notification System
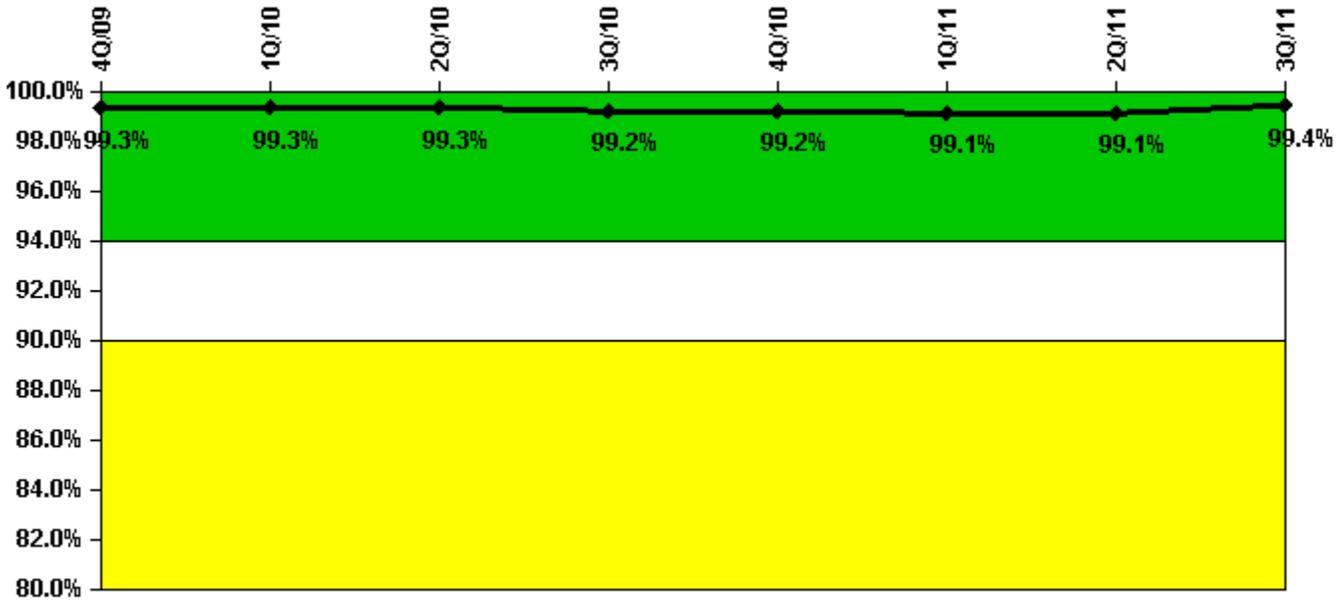
Thresholds: White < 94.0% Yellow < 90.0%

Notes

Alert & Notification System	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/11
Successful siren-tests	428	431	430	425	429	428	430	431
Total sirens-tests	432	432	432	432	432	432	432	432
Indicator value	99.3%	99.3%	99.3%	99.2%	99.2%	99.1%	99.1%	99.4%

Licensee Comments: none

Occupational Exposure Control Effectiveness
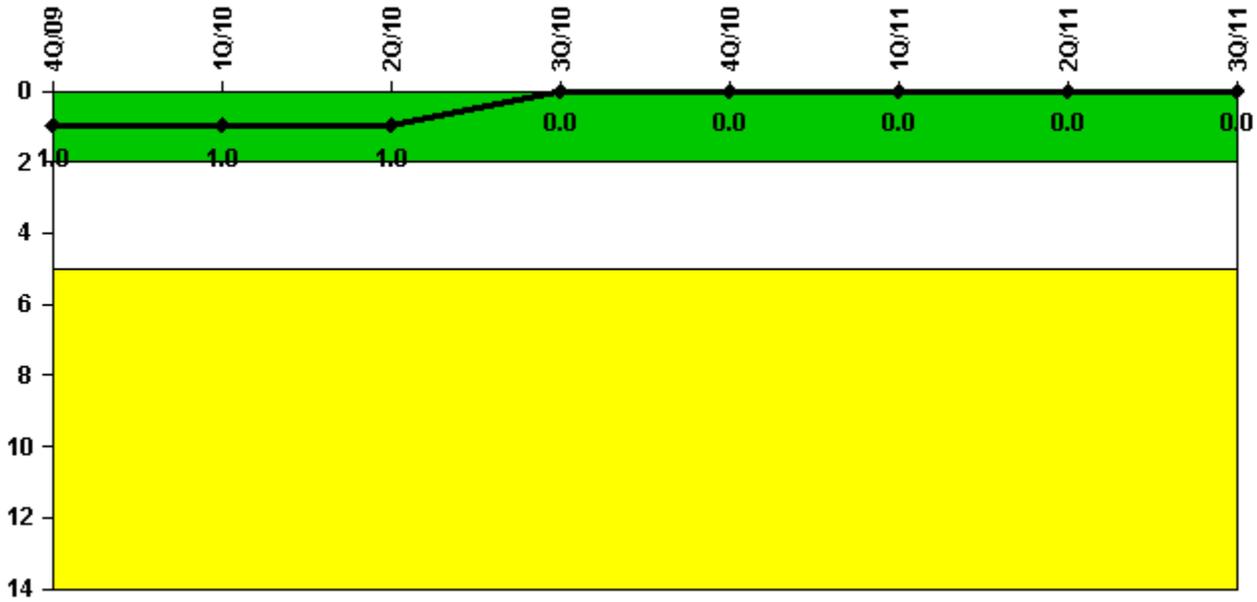
Thresholds: White > 2.0 Yellow > 5.0

Notes

Occupational Exposure Control Effectiveness	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/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
Indicator value	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**

Licensee Comments: none

RETS/ODCM Radiological Effluent
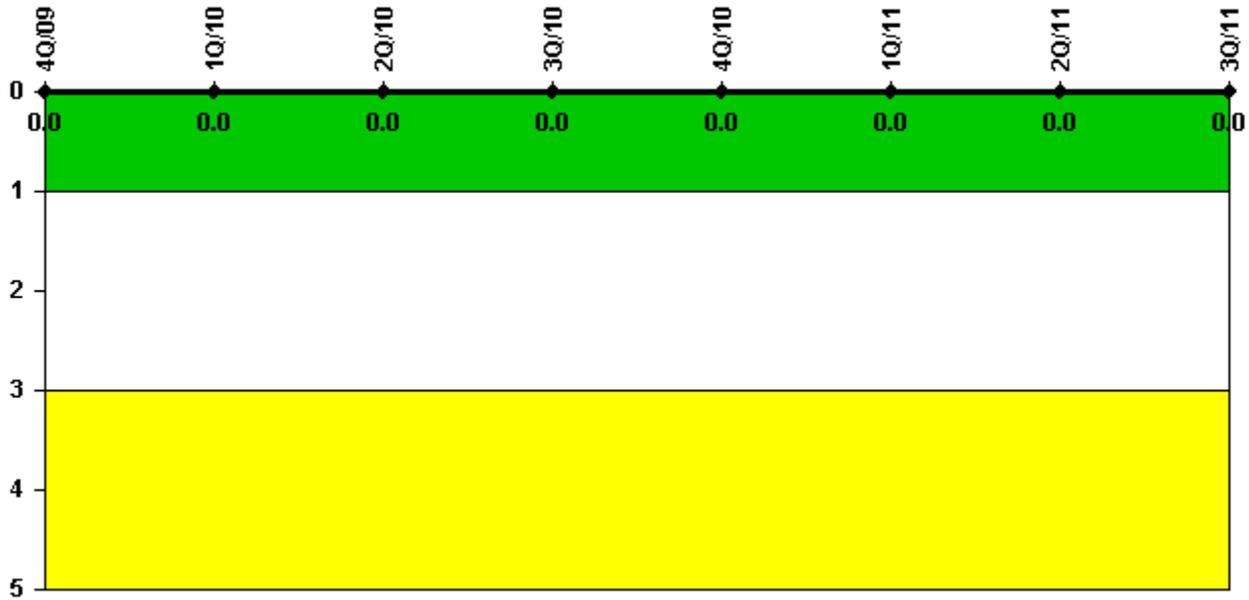
Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent	4Q/09	1Q/10	2Q/10	3Q/10	4Q/10	1Q/11	2Q/11	3Q/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.

Last Modified: November 29, 2011