

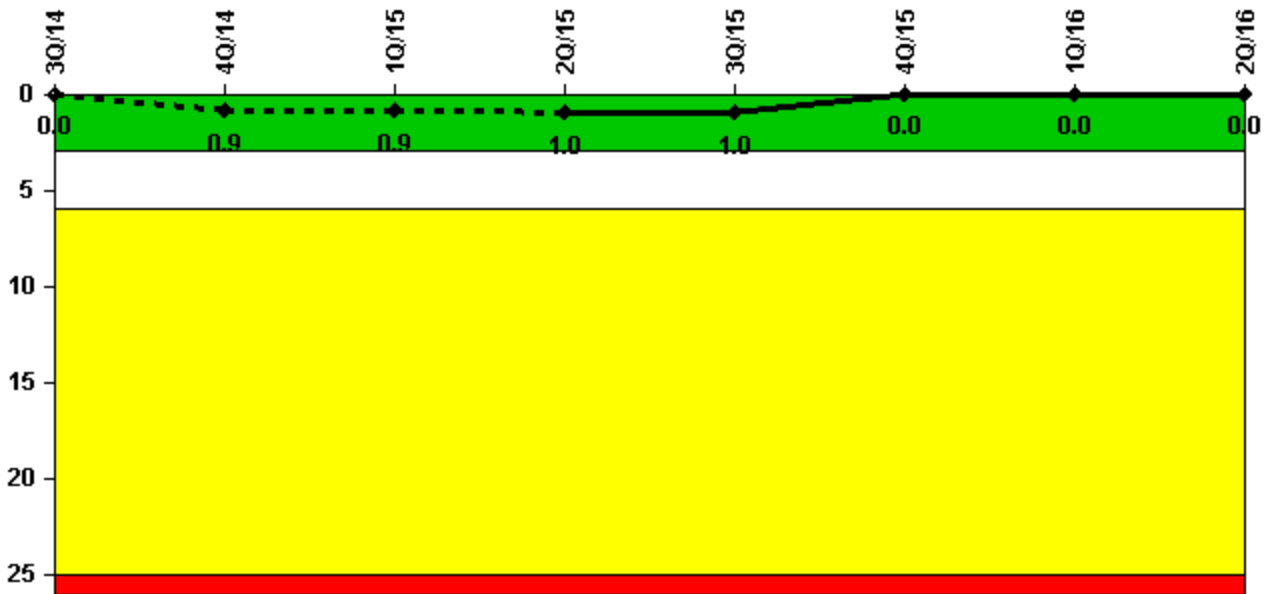
D.C. Cook 1

2Q/2016 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: none

Unplanned Scrams per 7000 Critical Hrs



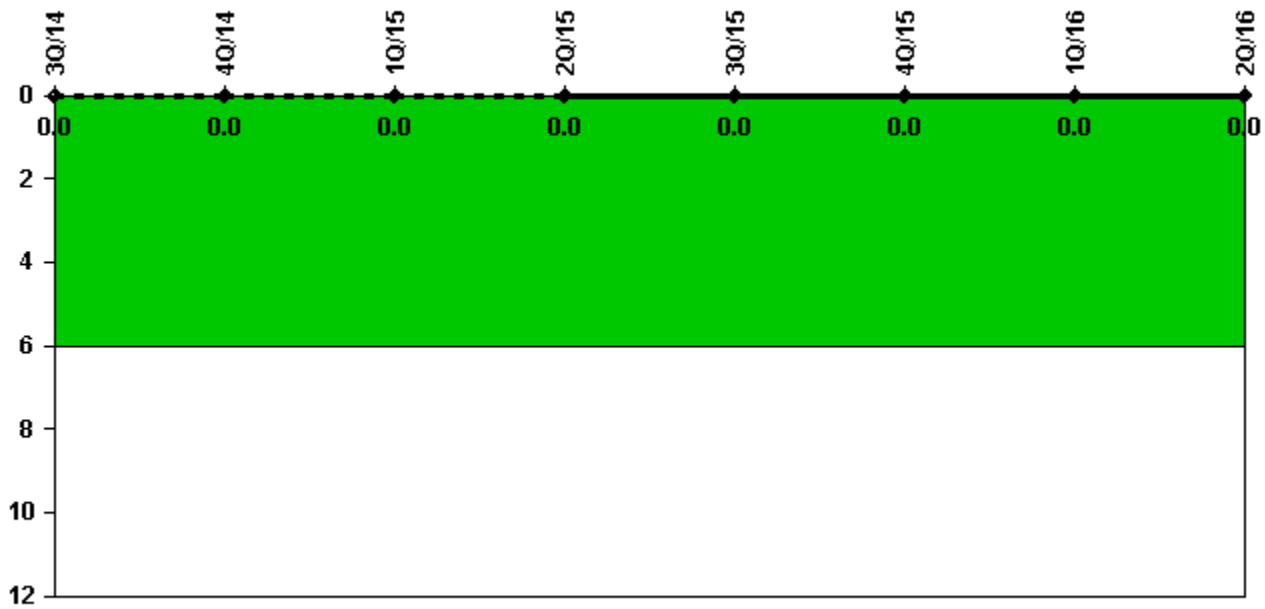
Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

Unplanned Scrams per 7000 Critical Hrs	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
Unplanned scrams	0	1.0	0	0	0	0	0	0
Critical hours	2040.0	1612.5	2159.0	1466.5	1525.0	2209.0	1967.0	1552.1
Indicator value	0	0.9	0.9	1.0	1.0	0	0	0

Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs



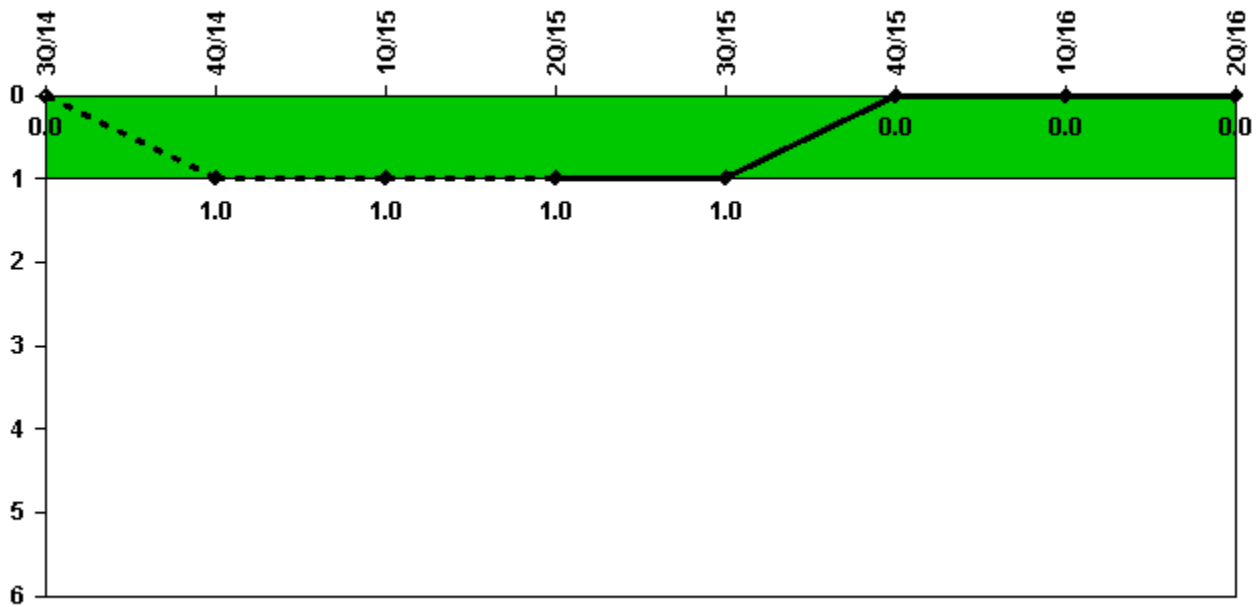
Thresholds: White > 6.0

Notes

Unplanned Power Changes per 7000 Critical Hrs	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
Unplanned power changes	0	0	0	0	0	0	0	0
Critical hours	2040.0	1612.5	2159.0	1466.5	1525.0	2209.0	1967.0	1552.1
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

Unplanned Scrams with Complications



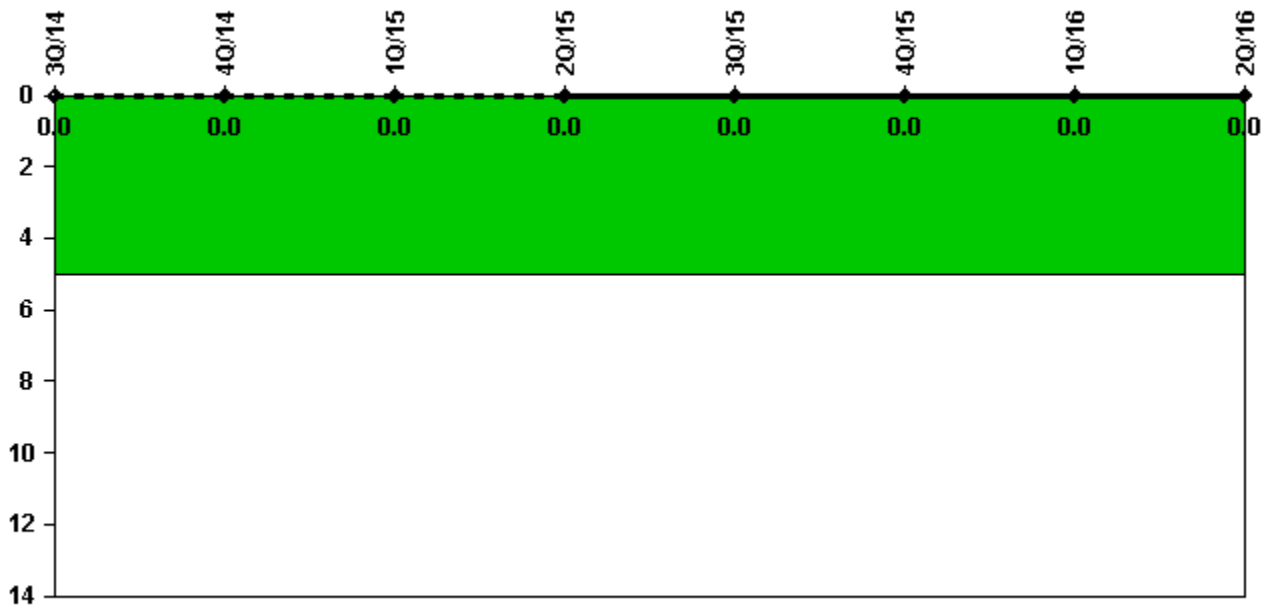
Thresholds: White > 1.0

Notes

Unplanned Scrams with Complications	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
Scrams with complications	0	1.0	0	0	0	0	0	0
Indicator value	0.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0

Licensee Comments: none

Safety System Functional Failures (PWR)



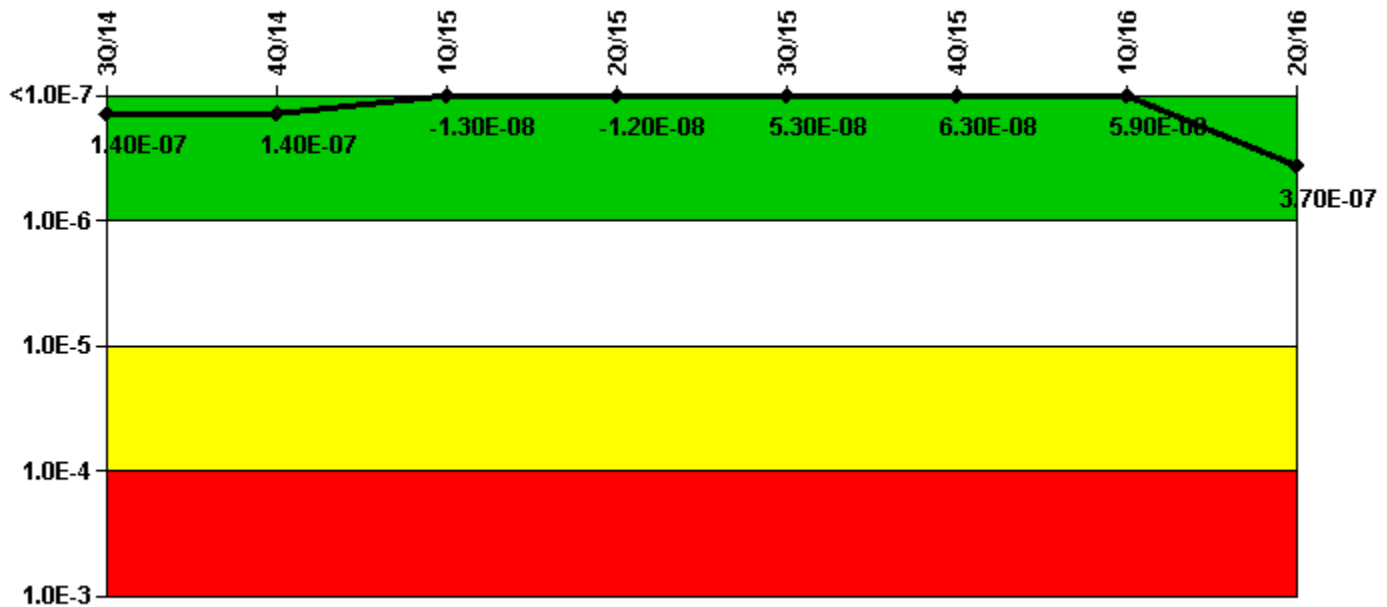
Thresholds: White > 5.0

Notes

Safety System Functional Failures (PWR)	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
Safety System Functional Failures	0	0	0	0	0	0	0	0
Indicator value	0	0	0	0	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	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
UAI (ΔCDF)	2.53E-10	2.50E-10	1.80E-10	1.57E-09	8.60E-08	9.65E-08	9.28E-08	1.62E-07
URI (ΔCDF)	1.39E-07	1.41E-07	-1.32E-08	-1.34E-08	-3.31E-08	-3.34E-08	-3.37E-08	2.03E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	1.40E-07	1.40E-07	-1.30E-08	-1.20E-08	5.30E-08	6.30E-08	5.90E-08	3.70E-07

Licensee Comments:

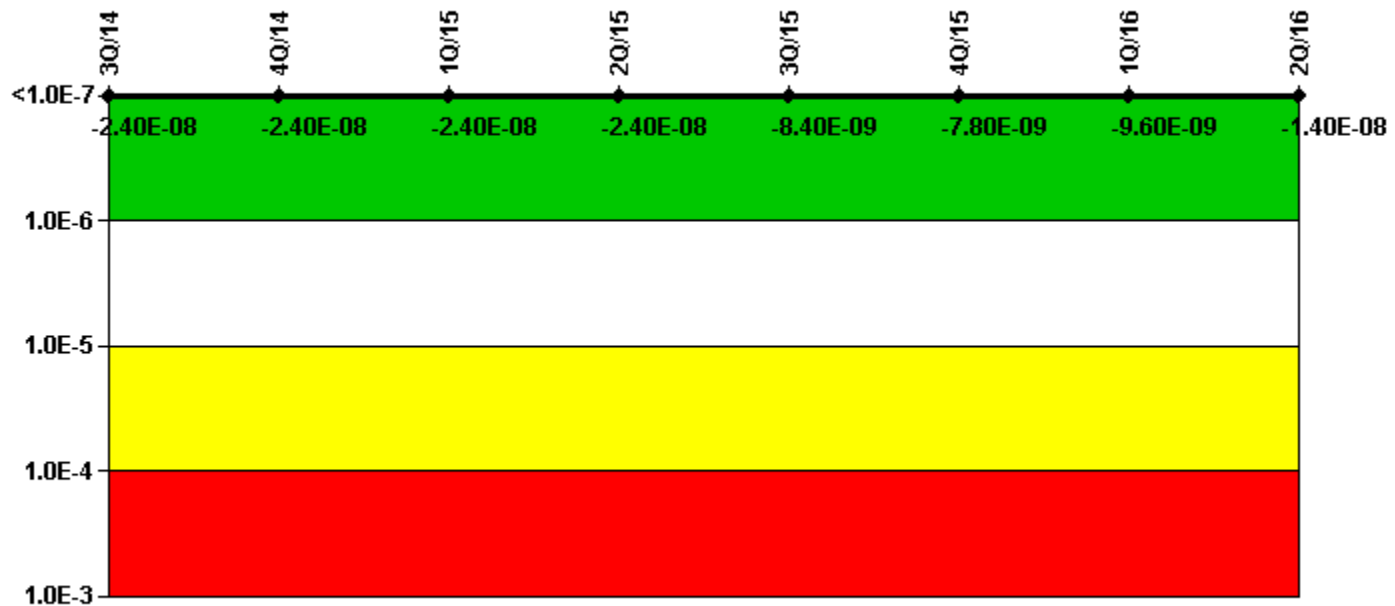
2Q/16: Changed PRA Parameter(s). The D.C. Cook PRA Model Revision 2 was approved on 03/31/16 with a corresponding MSPI Basis Document Revision 10 approved on 06/02/16. New software was used to form the PRA model and to calculate risk importance to provide increased precision on the calculated metrics. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised. Additionally, this revision includes changes to the model of record made to resolve facts and observations from the 2015 Peer Review of the D.C Cook PRA model of record. The MSPI Basis Document was also updated to show compliance with the changes to NEI 99-02 Appendix G from the approval of FAQ 14-01. No new components were scoped into MSPI or excluded from monitoring due to the changes incorporated in this revision. MSPI Basis Document Revision 11 was approved on 06/29/16. This revision was for correction of typographical errors and had no numerical or programmatic impact.

4Q/15: An FAQ has been submitted due to an unresolved issue from the NRC 3rd Quarter Baseline Inspection. The unresolved issue is related to a PRA Modeling error discovered and entered into the Station Corrective Action Program and corrected in the 3rd Quarter 2015 submittal following approval of the PRA Model revision in the 2nd Quarter 2015. The NRC Resident Inspectors questioned why previously submitted MSPI data was not corrected

when the error was discovered. The Station's understanding of NEI 99-02 guidance for correcting previously submitted data is that changes based on PRA Model revisions, including error correction, are implemented in the quarter following approval of the revised PRA Model and previously submitted data is not updated.

3Q/15: Changed PRA Parameter(s). The 2015 DC Cook Internal Events PRA Model of Record was approved on 6/30/15 with a corresponding MSPI Basis Document Revision 9 approved on 10/01/15. The PRA model revision was a full-scope periodic update to the model which included a data update and correction of modeling issues identified in the 2009 model. 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, 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	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
UAI (ΔCDF)	1.94E-12	1.95E-12	7.93E-12	1.04E-11	8.77E-10	1.45E-09	-3.43E-10	1.10E-09
URI (ΔCDF)	-2.40E-08	-2.40E-08	-2.40E-08	-2.40E-08	-9.24E-09	-9.24E-09	-9.24E-09	-1.56E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-2.40E-08	-2.40E-08	-2.40E-08	-2.40E-08	-8.40E-09	-7.80E-09	-9.60E-09	-1.40E-08

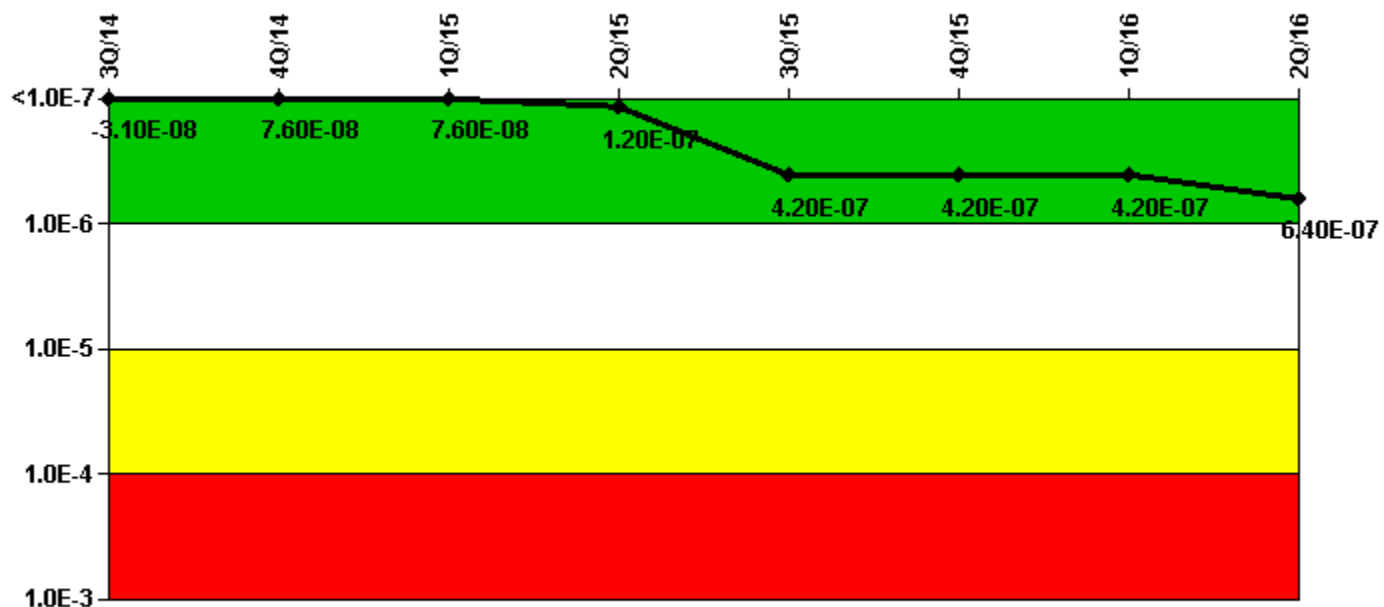
Licensee Comments:

2Q/16: Changed PRA Parameter(s). The D.C. Cook PRA Model Revision 2 was approved on 03/31/16 with a corresponding MSPI Basis Document Revision 10 approved on 06/02/16. New software was used to form the PRA model and to calculate risk importance to provide increased precision on the calculated metrics. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised. Additionally, this revision includes changes to the model of record made to resolve facts and observations from the 2015 Peer Review of the D.C Cook PRA model of record. The MSPI Basis Document was also updated to show compliance with the changes to NEI 99-02 Appendix G from the approval of FAQ 14-01. No new components were scoped into MSPI or excluded from monitoring due to the changes incorporated in this revision. MSPI Basis Document Revision 11 was approved on 06/29/16. This revision was for correction of typographical errors and had no numerical or programmatic impact.

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3Q/15: Changed PRA Parameter(s). The 2015 DC Cook Internal Events PRA Model of Record was approved on 6/30/15 with a corresponding MSPI Basis Document Revision 9 approved on 10/01/15. The PRA model revision was a full-scope periodic update to the model which included a data update and correction of modeling issues identified in the 2009 model. 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	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
UAI (Δ CDF)	-2.84E-11	-2.84E-11	-2.84E-11	-2.03E-11	-7.23E-09	-7.23E-09	-7.20E-09	-1.89E-08
URI (Δ CDF)	-3.06E-08	7.62E-08	7.62E-08	1.23E-07	4.31E-07	4.31E-07	4.31E-07	6.61E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.10E-08	7.60E-08	7.60E-08	1.20E-07	4.20E-07	4.20E-07	4.20E-07	6.40E-07

Licensee Comments:

2Q/16: Changed PRA Parameter(s). The D.C. Cook PRA Model Revision 2 was approved on 03/31/16 with a corresponding MSPI Basis Document Revision 10 approved on 06/02/16. New software was used to form the PRA model and to calculate risk importance to provide increased precision on the calculated metrics. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised. Additionally, this revision includes changes to the model of record made to resolve facts and observations from the 2015 Peer Review of the D.C Cook PRA model of record. The MSPI Basis Document was also updated to show compliance with the changes to NEI 99-02 Appendix G from the approval of FAQ 14-01. No new components were scoped into MSPI or excluded from monitoring due to the changes incorporated in this revision. MSPI Basis Document Revision 11 was approved on 06/29/16. This revision was for correction of typographical errors and had no numerical or programmatic impact.

4Q/15: An FAQ has been submitted due to an unresolved issue from the NRC 3rd Quarter Baseline Inspection. The unresolved issue is related to a PRA Modeling error discovered and entered into the Station Corrective Action Program and corrected in the 3rd Quarter 2015 submittal following approval of the PRA Model revision in the 2nd Quarter 2015. The NRC Resident Inspectors questioned why previously submitted MSPI data was not corrected when the error was discovered. The Station's understanding of NEI 99-02 guidance for correcting previously submitted data is that changes based on PRA Model revisions, including error correction, are implemented in the quarter following approval of the revised PRA Model and previously submitted data is not updated.

3Q/15: Changed PRA Parameter(s). The 2015 DC Cook Internal Events PRA Model of Record was approved on 6/30/15 with a corresponding MSPI Basis Document Revision 9 approved on 10/01/15. The PRA model revision was a full-scope periodic update to the model which included a data update and correction of modeling issues identified in the 2009 model. 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	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
UAI (Δ CDF)	-3.23E-13	-3.23E-13	-3.23E-13	-3.23E-13	-1.91E-09	1.74E-09	2.13E-09	4.82E-09
URI (Δ CDF)	-8.05E-08	-8.05E-08	-8.05E-08	-8.05E-08	-3.15E-08	-3.19E-08	-3.23E-08	-7.99E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-8.00E-08	-8.00E-08	-8.00E-08	-8.00E-08	-3.30E-08	-3.00E-08	-3.00E-08	-7.50E-08

Licensee Comments:

2Q/16: Changed PRA Parameter(s). The D.C. Cook PRA Model Revision 2 was approved on 03/31/16 with a corresponding MSPI Basis Document Revision 10 approved on 06/02/16. New software was used to form the PRA model and to calculate risk importance to provide increased precision on the calculated metrics. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised. Additionally, this revision includes changes to the model of record made to resolve facts and observations from the 2015 Peer Review of the D.C Cook PRA model of record. The MSPI Basis Document was also updated to show compliance with the changes to NEI 99-02 Appendix G from the approval of FAQ 14-01. No new components were scoped into MSPI or excluded from monitoring due to the changes incorporated in this revision. MSPI Basis Document Revision 11 was approved on 06/29/16. This revision was for correction of typographical errors and had no numerical or programmatic impact.

4Q/15: Changed PRA Parameter(s). An FAQ has been submitted due to an unresolved issue from the NRC 3rd Quarter Baseline Inspection. The unresolved issue is related to a PRA Modeling error discovered and entered into the Station Corrective Action Program and corrected in the 3rd Quarter 2015 submittal following approval of the

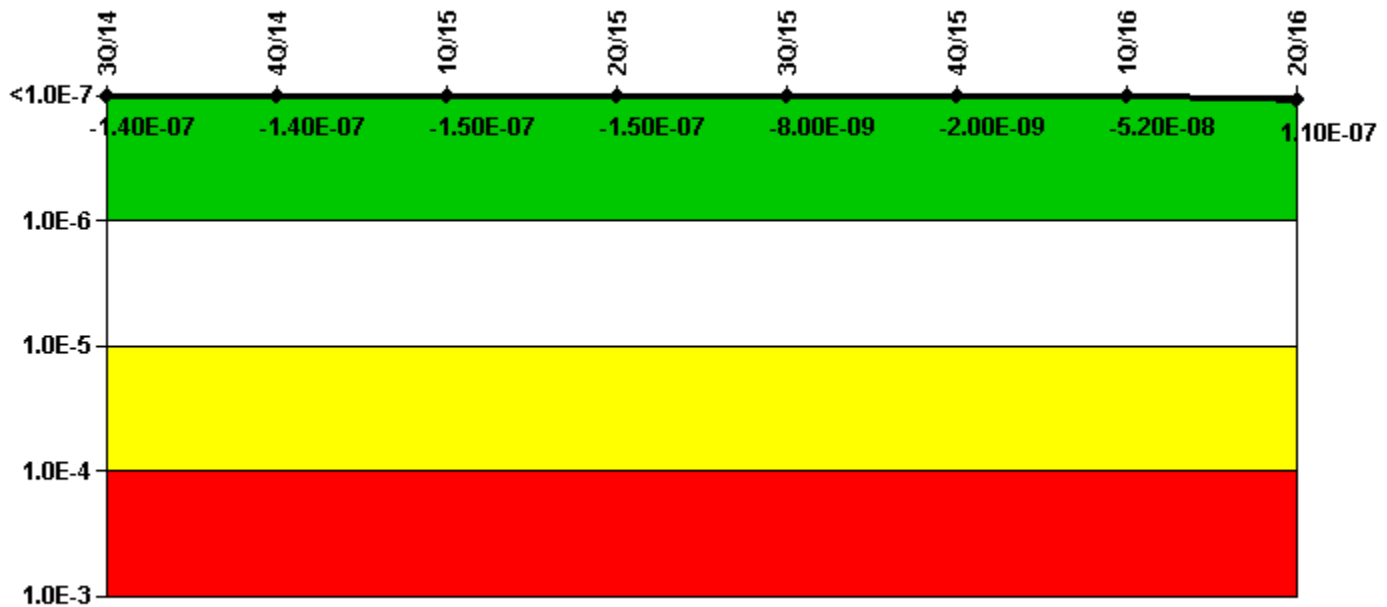
PRA Model revision in the 2nd Quarter 2015. The NRC Resident Inspectors questioned why previously submitted MSPI data was not corrected when the error was discovered. The Station's understanding of NEI 99-02 guidance for correcting previously submitted data is that changes based on PRA Model revisions, including error correction, are implemented in the quarter following approval of the revised PRA Model and previously submitted data is not updated.

3Q/15: Changed PRA Parameter(s). Data entry errors were identified in the third quarter 2015 MSPI Parameter update for Unit 1 Residual Heat Removal following submittal. As a result, the FVURC value for 1-ICM-305 (Unit 1 Recirculation Sump to East RHR/CTS Pumps Suction Containment Isolation Valve) and the FVURC and URPC values for 1-IMO-390 (Unit 1 Refueling Water Storage Tank TK-33 to Residual Heat Removal Pumps Suction Shutoff Valve) were revised for the third quarter 2015. The Unit 1 RHR MSPI color remained green following these changes.

3Q/15: Changed PRA Parameter(s). The 2015 DC Cook Internal Events PRA Model of Record was approved on 6/30/15 with a corresponding MSPI Basis Document Revision 9 approved on 10/01/15. The PRA model revision was a full-scope periodic update to the model which included a data update and correction of modeling issues identified in the 2009 model. As a result of the PRA model change, the CDF, Fussel-Vesely, and Basic Event Probabilities for all monitored trains and components were revised. The RHR scope of monitored components was revised. 1-CMO-419 and 1-CMO-429, RHR Heat Exchanger CCW Outlet Valves, are now included in the scope of monitored components based on their Birnbaum importance. 1-ICM-311 and 1-ICM-321, RHR Pump Discharge MOVs, are removed from the scope of monitored components since they do not have an active safety function modeled in the PRA..

2Q/15: On 6/14/15, Operations identified an oil leak on the Unit 1 East RHR Motor Lower Bearing. An engineering evaluation of the ability of the RHR pump to perform its MSPI function with the identified oil leak has not been completed. Preliminary evaluation of this condition determined that the RHR pump was capable of operating successfully for the 24 hour PRA mission time used for MSPI reporting with the identified oil leak. Based on the preliminary evaluation, a Failure to Run is not being counted for the Unit 1 East RHR Pump.

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	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
UAI (ΔCDF)	5.03E-12	1.60E-11	5.38E-11	6.17E-11	8.67E-08	9.31E-08	4.36E-08	2.66E-08
URI (ΔCDF)	-1.42E-07	-1.42E-07	-1.51E-07	-1.52E-07	-9.47E-08	-9.51E-08	-9.54E-08	8.23E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.40E-07	-1.40E-07	-1.50E-07	-1.50E-07	-8.00E-09	-2.00E-09	-5.20E-08	1.10E-07

Licensee Comments:

2Q/16: Changed PRA Parameter(s). The D.C. Cook PRA Model Revision 2 was approved on 03/31/16 with a corresponding MSPI Basis Document Revision 10 approved on 06/02/16. New software was used to form the PRA model and to calculate risk importance to provide increased precision on the calculated metrics. As a result of the PRA model change, the CDF, Fussel-Vesely and Basic Event Probabilities for all monitored trains and components were revised. Additionally, this revision includes changes to the model of record made to resolve facts and observations from the 2015 Peer Review of the D.C Cook PRA model of record. The MSPI Basis Document was also updated to show compliance with the changes to NEI 99-02 Appendix G from the approval of FAQ 14-01. No new components were scoped into MSPI or excluded from monitoring due to the changes incorporated in this revision. MSPI Basis Document Revision 11 was approved on 06/29/16. This revision was for correction of typographical errors and had no numerical or programmatic impact.

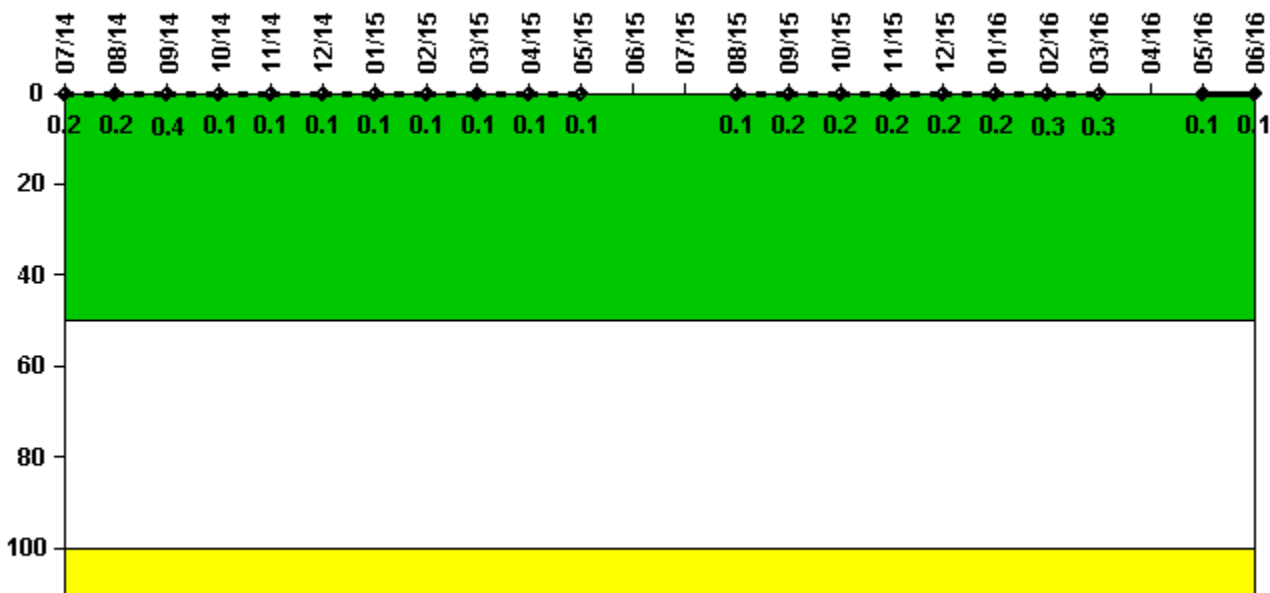
4Q/15: An FAQ has been submitted due to an unresolved issue from the NRC 3rd Quarter Baseline Inspection. The unresolved issue is related to a PRA Modeling error discovered and entered into the Station Corrective Action Program and corrected in the 3rd Quarter 2015 submittal following approval of the PRA Model revision in the 2nd Quarter 2015. The NRC Resident Inspectors questioned why previously submitted MSPI data was not corrected when the error was discovered. The Station's understanding of NEI 99-02 guidance for correcting previously

submitted data is that changes based on PRA Model revisions, including error correction, are implemented in the quarter following approval of the revised PRA Model and previously submitted data is not updated.

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1Q/15: The MSPI Basis Document was updated in the 4th Quarter 2014 to reflect 2009 PRA model of record error that the PRA model incorrectly removed cutsets associated with failure of the CCW heat exchanger CCW outlet valves (1-CMO-410 & 420) opening from model results. As a result, these valves have been incorporated in the Unit 1 Cooling Water System scope of monitored components.

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

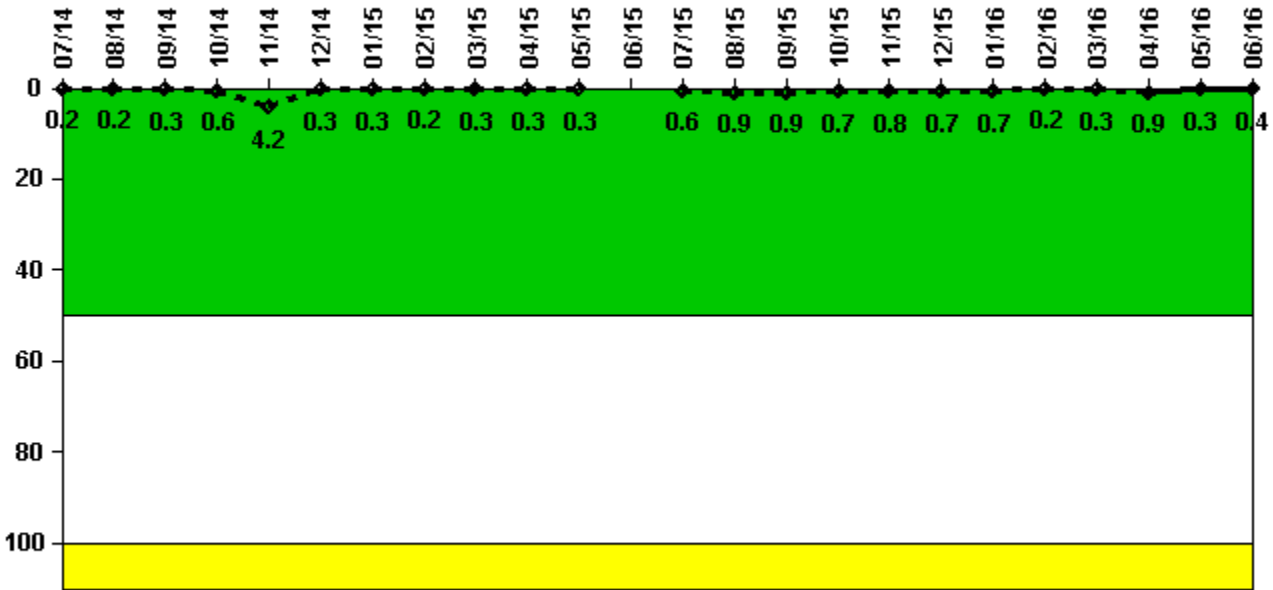
Notes

Reactor Coolant System Activity	7/14	8/14	9/14	10/14	11/14	12/14	1/15	2/15	3/15	4/15	5/15	6/15
Maximum activity	0.000834	0.000837	0.001350	0.000282	0.000490	0.000371	0.000370	0.000389	0.000417	0.000446	0.000474	N/A
Technical specification limit	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Indicator value	0.2	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	N/A

Reactor Coolant System Activity	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16	4/16	5/16	6/16
Maximum activity	N/A	0.000508	0.000542	0.000577	0.000609	0.000629	0.000648	0.000892	0.000940	N/A	0.000299	0.000333
Technical specification limit	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Indicator value	N/A	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	N/A	0.1	0.1

Licensee Comments: none

Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

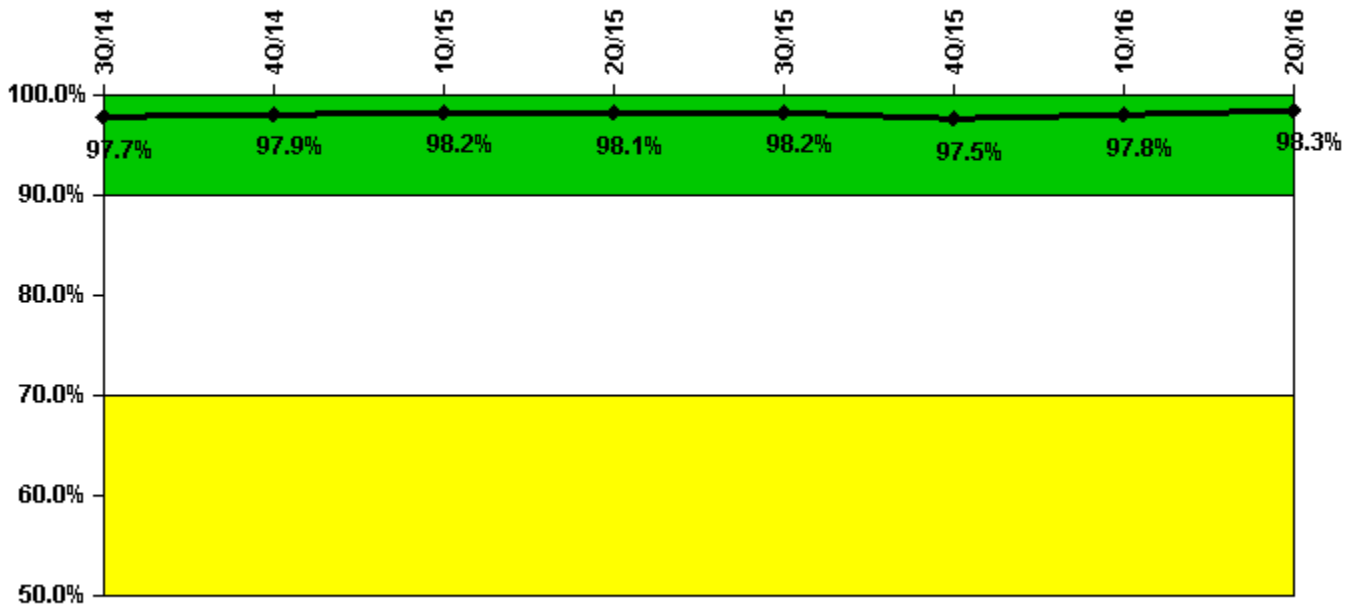
Notes

Reactor Coolant System Leakage	7/14	8/14	9/14	10/14	11/14	12/14	1/15	2/15	3/15	4/15	5/15	6/15
Maximum leakage	0.022	0.025	0.027	0.070	0.452	0.032	0.028	0.026	0.029	0.030	0.032	N/A
Technical specification limit	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Indicator value	0.2	0.2	0.3	0.6	4.2	0.3	0.3	0.2	0.3	0.3	0.3	N/A
Reactor Coolant System Leakage	7/15	8/15	9/15	10/15	11/15	12/15	1/16	2/16	3/16	4/16	5/16	6/16
Maximum leakage	0.066	0.092	0.092	0.075	0.087	0.072	0.071	0.018	0.028	0.092	0.037	0.038
Technical specification limit	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8

Indicator value	0.6	0.9	0.9	0.7	0.8	0.7	0.7	0.2	0.3	0.9	0.3	0.4
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Licensee Comments: none

Drill/Exercise Performance



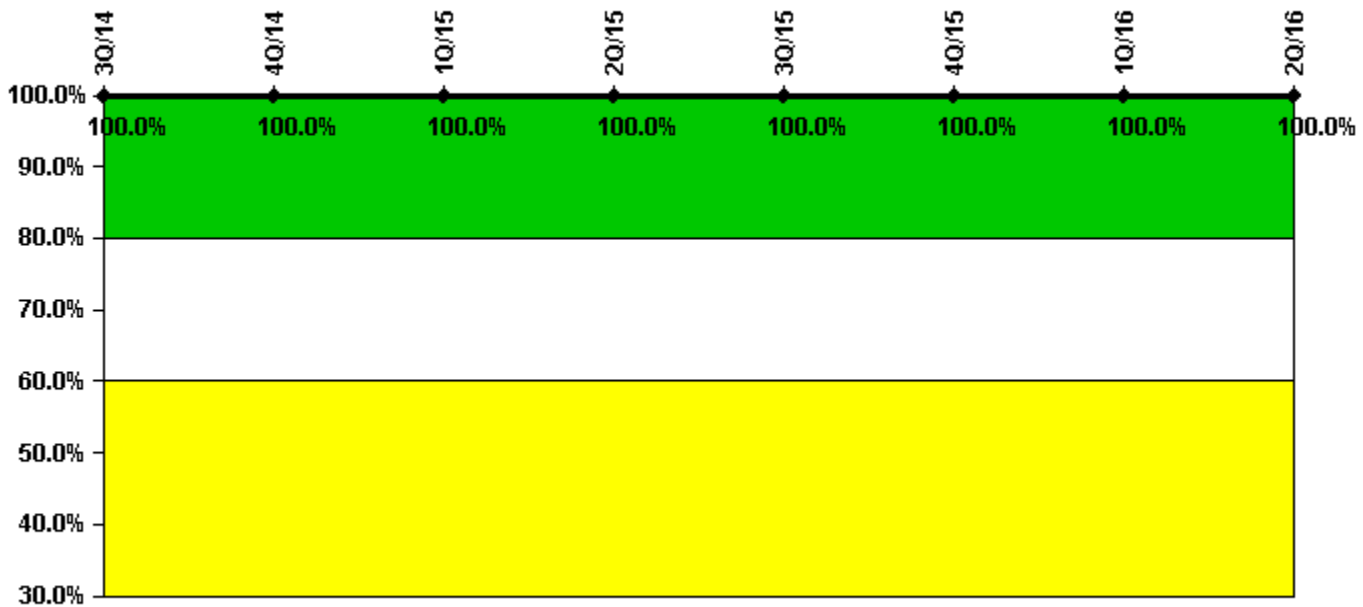
Thresholds: White < 90.0% Yellow < 70.0%

Notes

Drill/Exercise Performance	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
Successful opportunities	59.0	56.0	68.0	12.0	62.0	56.0	62.0	34.0
Total opportunities	61.0	56.0	69.0	12.0	62.0	60.0	62.0	34.0
Indicator value	97.7%	97.9%	98.2%	98.1%	98.2%	97.5%	97.8%	98.3%

Licensee Comments: none

ERO Drill Participation



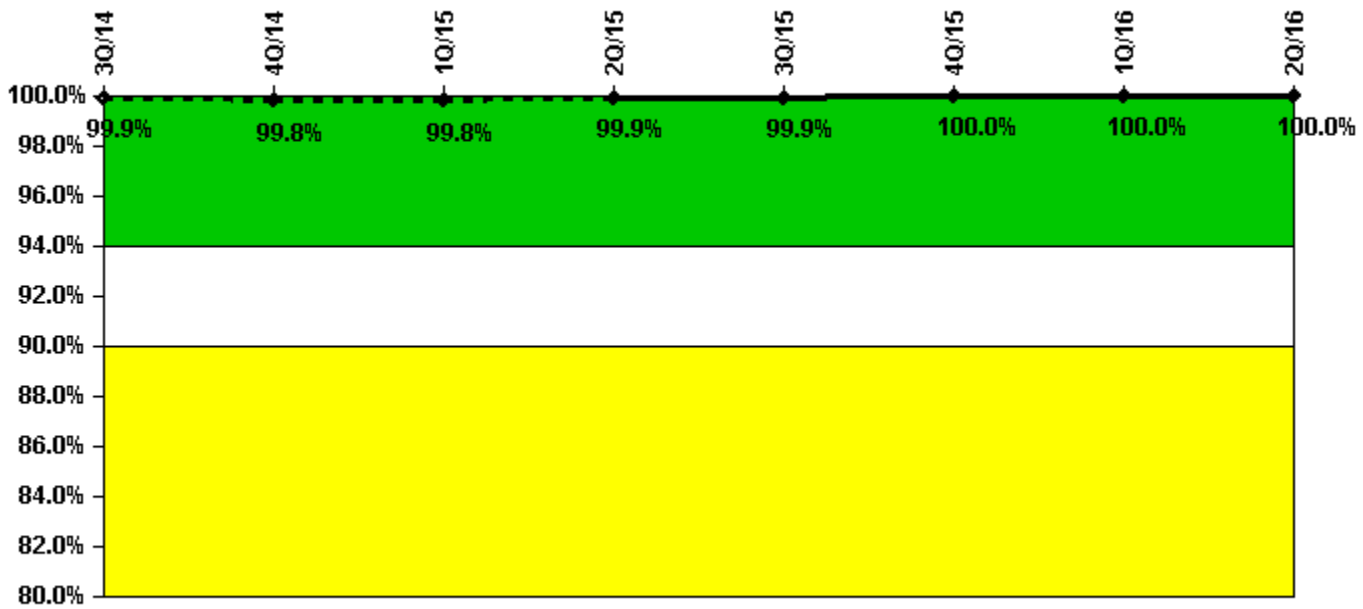
Thresholds: White < 80.0% Yellow < 60.0%

Notes

ERO Drill Participation	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
Participating Key personnel	123.0	128.0	133.0	134.0	132.0	132.0	132.0	109.0
Total Key personnel	123.0	128.0	133.0	134.0	132.0	132.0	132.0	109.0
Indicator value	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Licensee Comments: none

Alert & Notification System



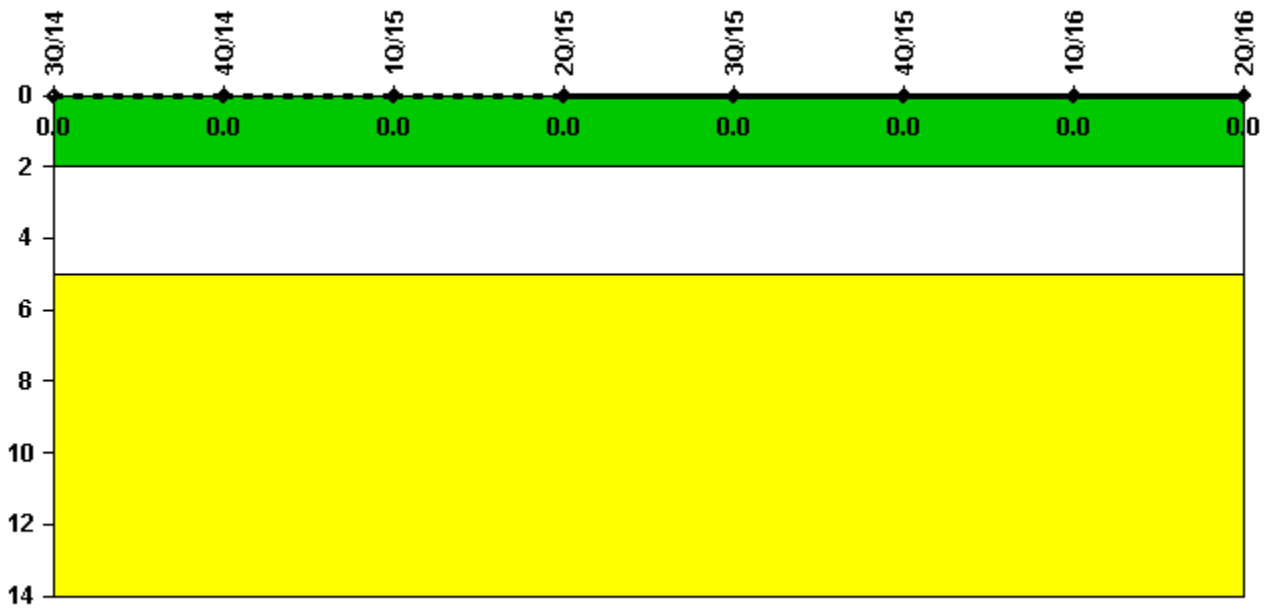
Thresholds: White < 94.0% Yellow < 90.0%

Notes

Alert & Notification System	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
Successful siren-tests	1119	1187	1050	1119	1190	1120	1119	1119
Total sirens-tests	1120	1190	1050	1119	1190	1120	1120	1119
Indicator value	99.9%	99.8%	99.8%	99.9%	99.9%	100.0%	100.0%	100.0%

Licensee Comments: none

Occupational Exposure Control Effectiveness



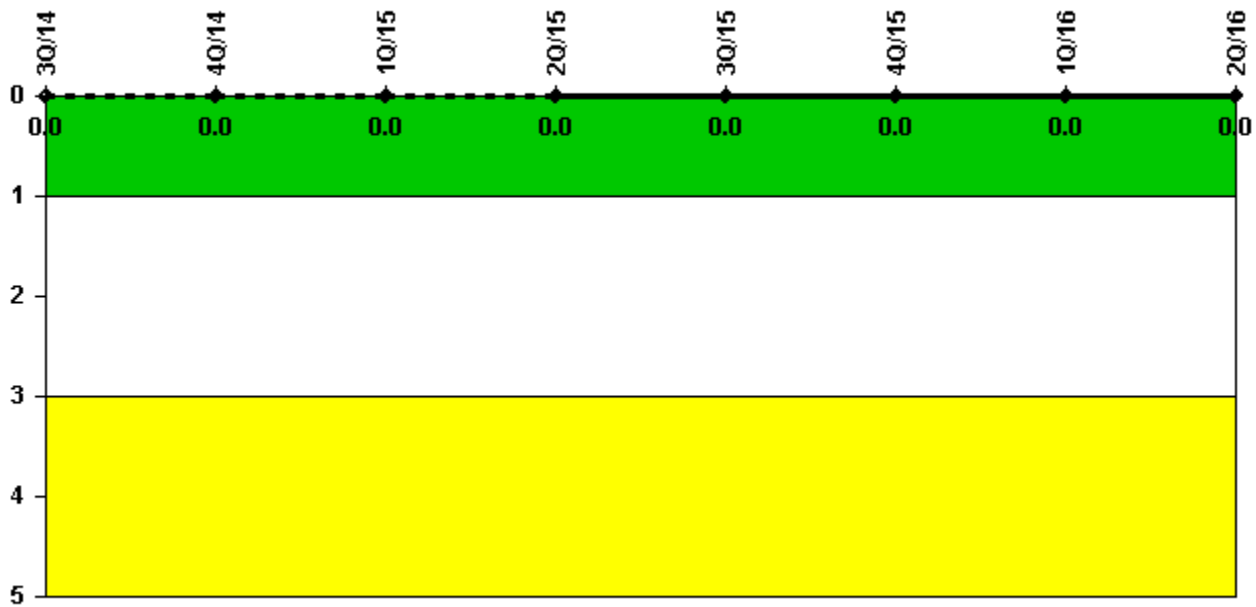
Thresholds: White > 2.0 Yellow > 5.0

Notes

Occupational Exposure Control Effectiveness	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/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
Indicator value	0	0	0	0	0	0	0	0

Licensee Comments: none

RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent	3Q/14	4Q/14	1Q/15	2Q/15	3Q/15	4Q/15	1Q/16	2Q/16
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: July 25, 2016