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Comanche Peak 2 – Quarterly Performance Indicators

4Q/2017 Performance Indicators

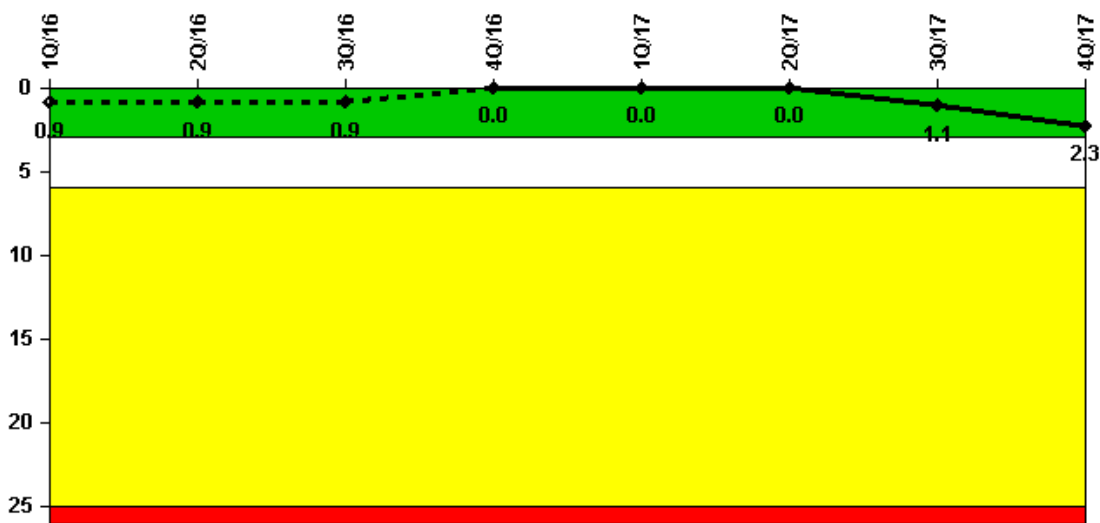
The solid trend line represents the current reporting period.

Licensee's General Comments: none

On this page:

- Unplanned Scrams (IE01)
- Unplanned Power Changes per 7000 Critical Hours (IE03)
- Unplanned Scrams with Complications (IE04)
- Safety System Functional Failures (MS05)
- Emergency AC Power Systems (MS06)
- High Pressure Injection Systems (MS07)
- Heat Removal Systems (MS08)
- Residual Heat Removal Systems (MS09)
- Cooling Water Systems (MS10)
- Reactor Coolant System Activity (BI01)
- Reactor Coolant System Leakage (BI02)
- Drill/Exercise Performance (EP01)
- Emergency Response Organization Drill Participation (EP02)
- Alert and Notification System Reliability (EP03)
- Occupational Exposure Control Effectiveness (OR01)
- RETS/OCDM Radiological Effluent Occurrence (PR01)
- Protected Area Equipment (PP01)

Unplanned Scrams per 7000 Critical Hrs



Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

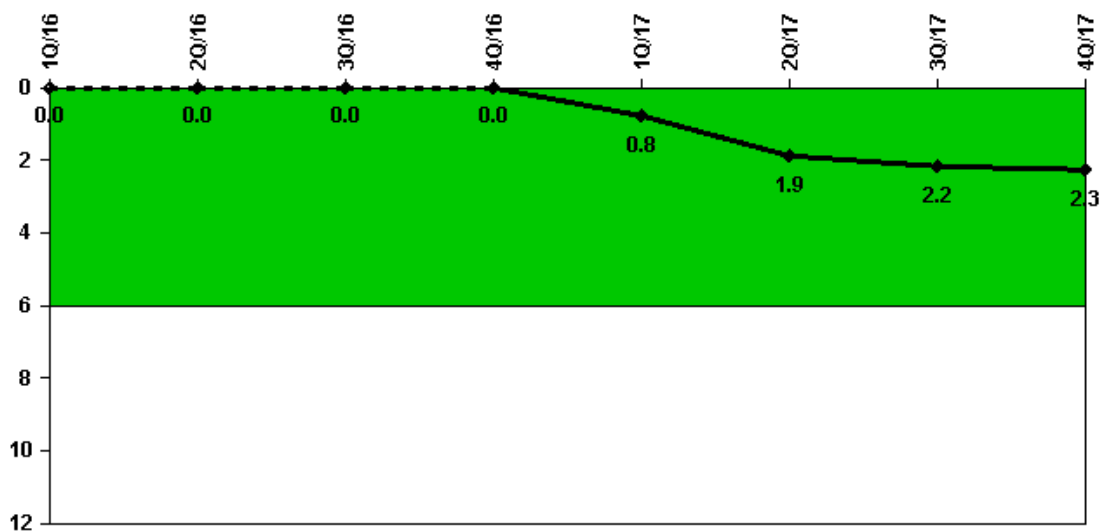
Unplanned Scrams per 7000 Critical Hrs	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Unplanned scrams	0	0	0	0	0	0	1.0	1.0
Critical hours	2183.0	2184.0	2208.0	2209.0	2159.0	786.9	1159.2	2109.1

Indicator value: 0.9 0.9 0.9 0 0 0 1.1 2.3

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Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

Notes

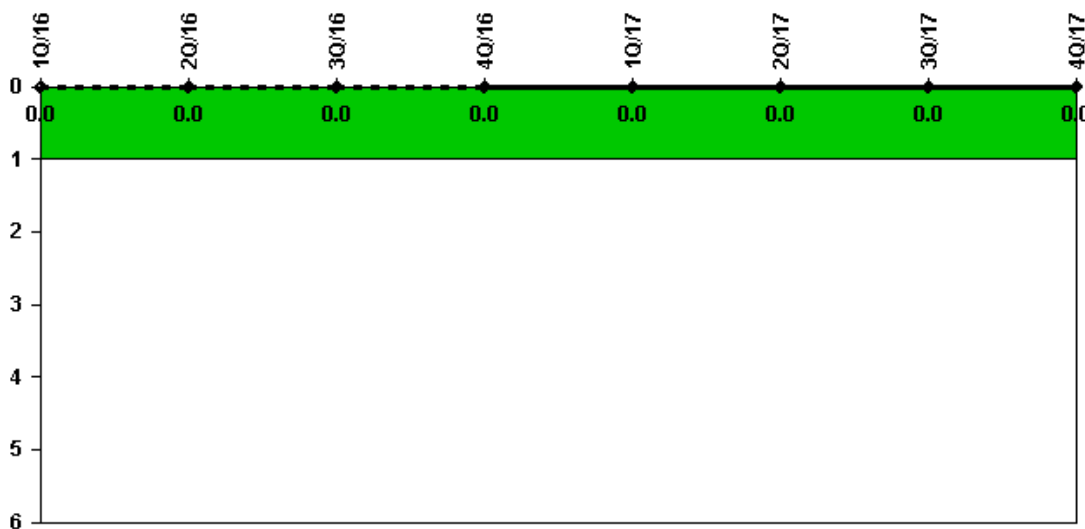
Unplanned Power Changes per 7000 Critical Hrs	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Unplanned power changes	0	0	0	0	1.0	1.0	0	0
Critical hours	2183.0	2184.0	2208.0	2209.0	2159.0	786.9	1159.2	2109.1

Indicator value	0	0	0	0	0.8	1.9	2.2	2.3
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Licensee Comments: none

Unplanned Scrams with Complications



Thresholds: White > 1.0

Notes

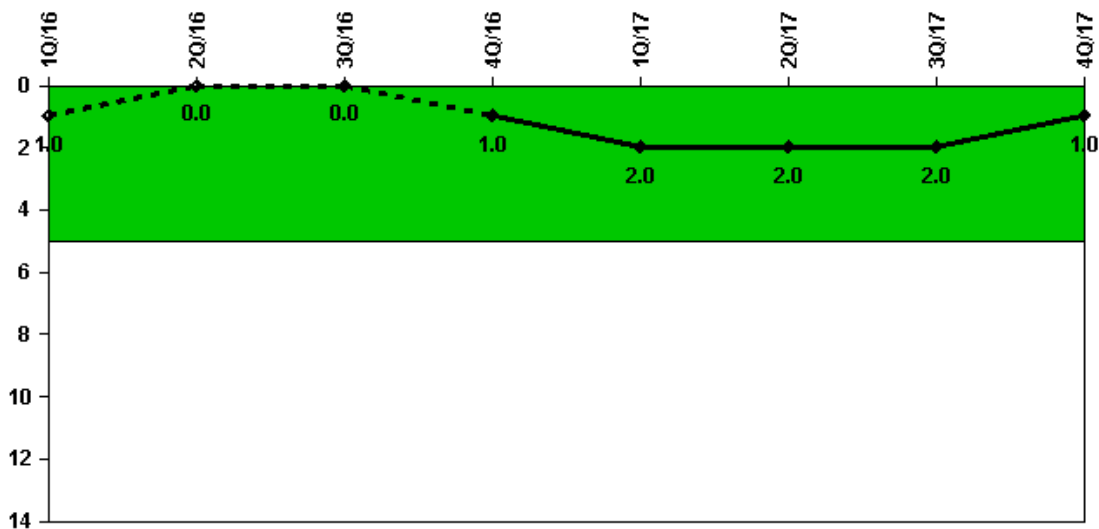
Unplanned Scrams with Complications	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Scrams with complications	0	0	0	0	0	0	0	0

Indicator value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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Licensee Comments: none

Safety System Functional Failures (PWR)



Thresholds: White > 5.0

Notes

Safety System Functional Failures (PWR) 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17 4Q/17

Safety System Functional Failures 0 0 0 1 1 0 0 0

Indicator value 1 0 0 1 2 2 2 1

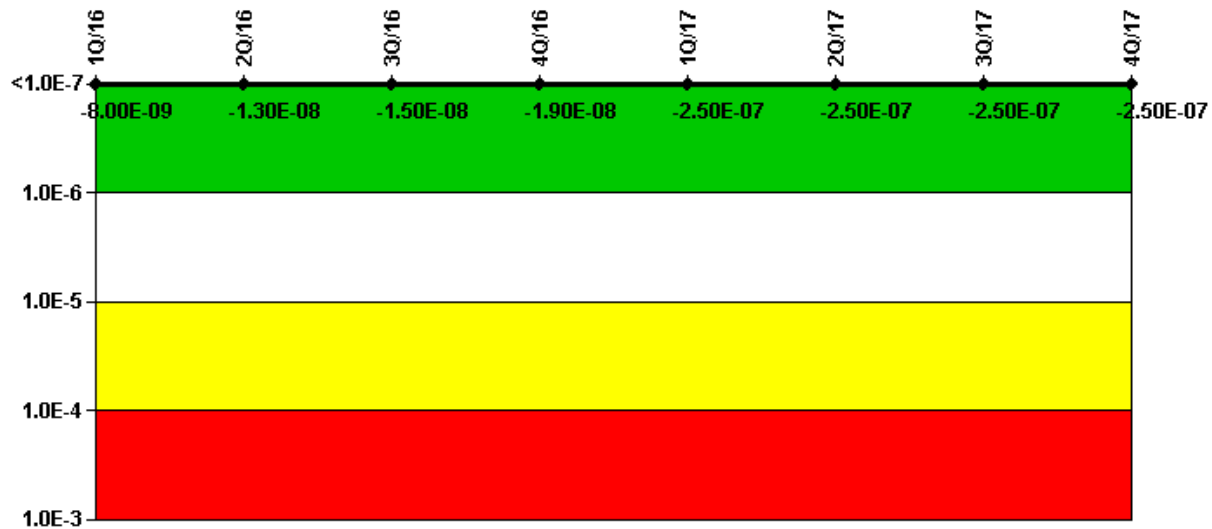
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Licensee Comments:

1Q/17: LER 445/17-001-00

4Q/16: The Nov. 2016 SSFF value is revised to include a SSFF from LER 16-002-00 that was not included in the 4Q16 PI submittal. This change did not affect the color of the indicator.

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

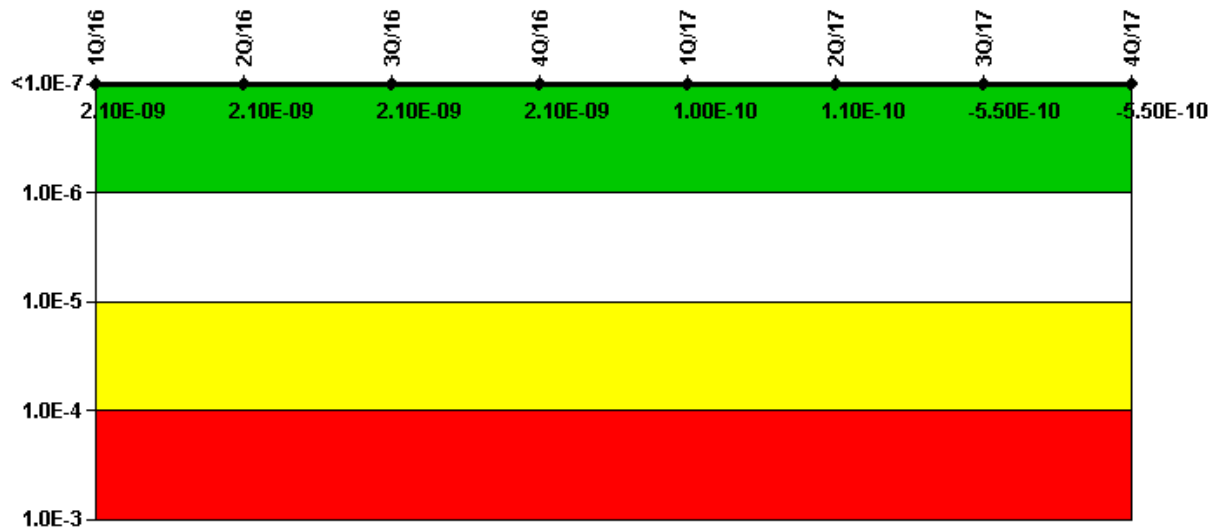
	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI (ΔCDF)	1.13E-08	6.60E-09	4.65E-09	-6.06E-09	-2.37E-08	-2.66E-08	-2.52E-08	-2.54E-08
URI (ΔCDF)	-1.93E-08	-1.93E-08	-1.93E-08	-1.30E-08	-2.26E-07	-2.26E-07	-2.26E-07	-2.26E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-8.00E-09	-1.30E-08	-1.50E-08	-1.90E-08	-2.50E-07	-2.50E-07	-2.50E-07	-2.50E-07

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Licensee Comments:

1Q/17: Changed PRA Parameter(s). The CPNPP PRA Model Revision 5 was approved on 11/3/16 with a corresponding MSPI Basis Document Revision 8 approved on 3/30/17. The PRA model revision was a periodic update which included a data update, incorporation of plant design changes (specifically RCP shield/shutdown seals), and Human Error Probabilities were updated using the EPRI HRA calculator. 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

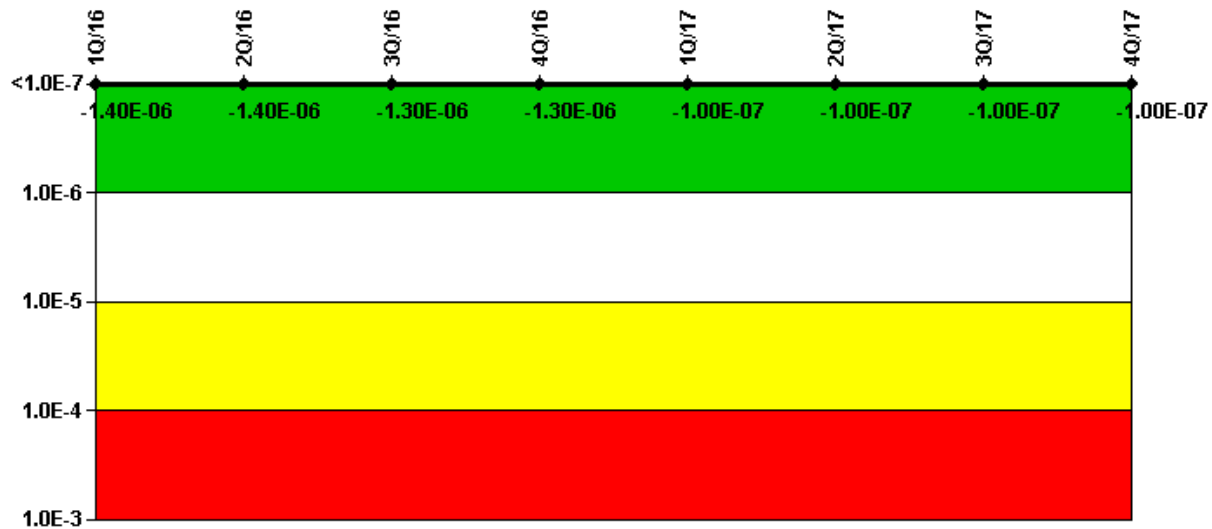
	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI (ΔCDF)	-2.98E-10	-2.98E-10	-2.98E-10	-3.01E-10	-1.68E-10	-1.63E-10	-3.02E-10	-3.02E-10
URI (ΔCDF)	2.39E-09	2.39E-09	2.39E-09	2.41E-09	2.72E-10	2.71E-10	-2.51E-10	-2.52E-10
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	2.10E-09	2.10E-09	2.10E-09	2.10E-09	1.00E-10	1.10E-10	-5.50E-10	-5.50E-10

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Licensee Comments:

1Q/17: Changed PRA Parameter(s). The CPNPP PRA Model Revision 5 was approved on 11/3/16 with a corresponding MSPI Basis Document Revision 8 approved on 3/30/17. The PRA model revision was a periodic update which included a data update, incorporation of plant design changes (specifically RCP shield/shutdown seals), and Human Error Probabilities were updated using the EPRI HRA calculator. 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

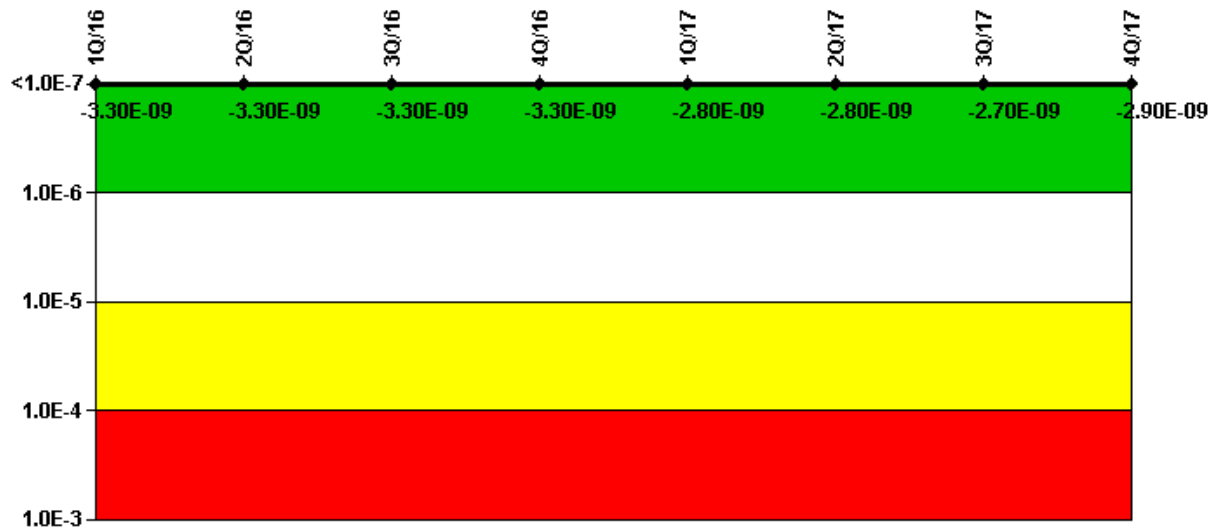
	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI (Δ CDF)	-1.09E-06	-1.09E-06	-1.05E-06	-1.05E-06	-2.49E-08	-2.47E-08	-2.43E-08	-2.43E-08
URI (Δ CDF)	-2.87E-07	-2.87E-07	-2.87E-07	-2.79E-07	-7.50E-08	-7.50E-08	-7.52E-08	-7.79E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-1.40E-06	-1.40E-06	-1.30E-06	-1.30E-06	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07

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Licensee Comments:

1Q/17: Changed PRA Parameter(s). The CPNPP PRA Model Revision 5 was approved on 11/3/16 with a corresponding MSPI Basis Document Revision 8 approved on 3/30/17. The PRA model revision was a periodic update which included a data update, incorporation of plant design changes (specifically RCP shield/shutdown seals), and Human Error Probabilities were updated using the EPRI HRA calculator. 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

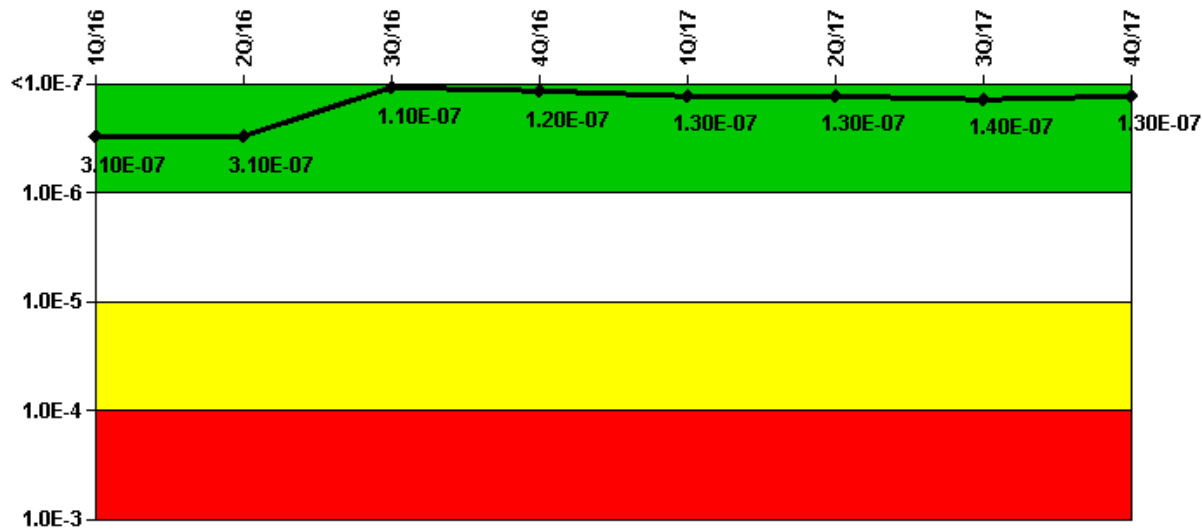
	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI (ΔCDF)	-8.41E-10	-8.41E-10	-8.41E-10	-8.03E-10	-6.60E-10	-6.46E-10	-5.75E-10	-7.15E-10
URI (ΔCDF)	-2.46E-09	-2.46E-09	-2.46E-09	-2.46E-09	-2.16E-09	-2.15E-09	-2.15E-09	-2.14E-09
PLE	NO	NO	NO	NO	NO	NO	NO	NO
Indicator value	-3.30E-09	-3.30E-09	-3.30E-09	-3.30E-09	-2.80E-09	-2.80E-09	-2.70E-09	-2.90E-09

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Licensee Comments:

1Q/17: Changed PRA Parameter(s). The CPNPP PRA Model Revision 5 was approved on 11/3/16 with a corresponding MSPI Basis Document Revision 8 approved on 3/30/17. The PRA model revision was a periodic update which included a data update, incorporation of plant design changes (specifically RCP shield/shutdown seals), and Human Error Probabilities were updated using the EPRI HRA calculator. 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, 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/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
UAI (ΔCDF)	-4.63E-08	-4.63E-08	-2.47E-08	-1.54E-08	-2.07E-08	-1.94E-08	-1.51E-08	-2.52E-08
URI (ΔCDF)	3.59E-07	3.59E-07	1.38E-07	1.40E-07	1.51E-07	1.51E-07	1.51E-07	1.51E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO

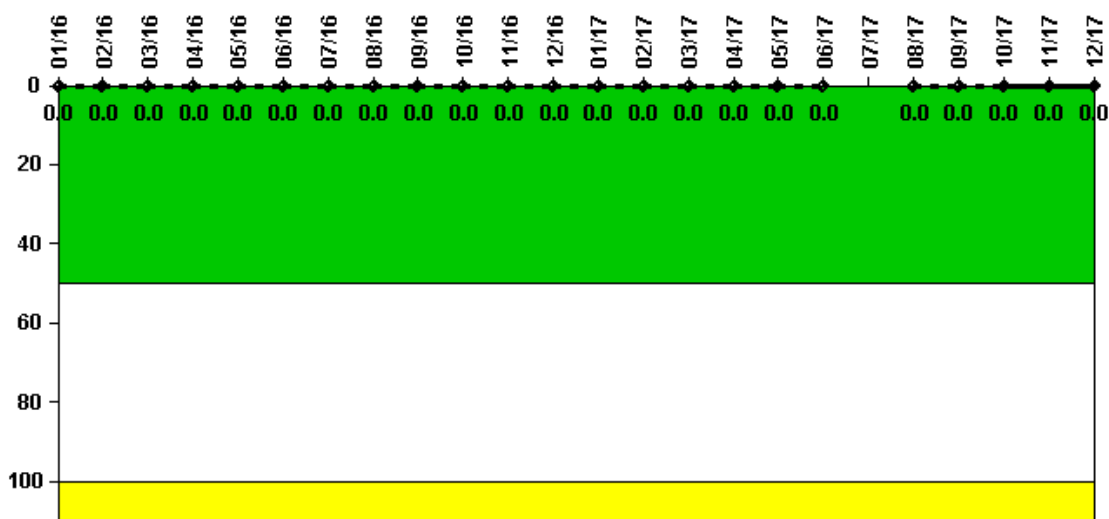
Indicator value 3.10E-07 3.10E-07 1.10E-07 1.20E-07 1.30E-07 1.30E-07 1.40E-07 1.30E-07

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Licensee Comments:

1Q/17: Changed PRA Parameter(s). The CPNPP PRA Model Revision 5 was approved on 11/3/16 with a corresponding MSPI Basis Document Revision 8 approved on 3/30/17. The PRA model revision was a periodic update which included a data update, incorporation of plant design changes (specifically RCP shield/shutdown seals), and Human Error Probabilities were updated using the EPRI HRA calculator. As a result of the PRA model change, the CDF, Fussel-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

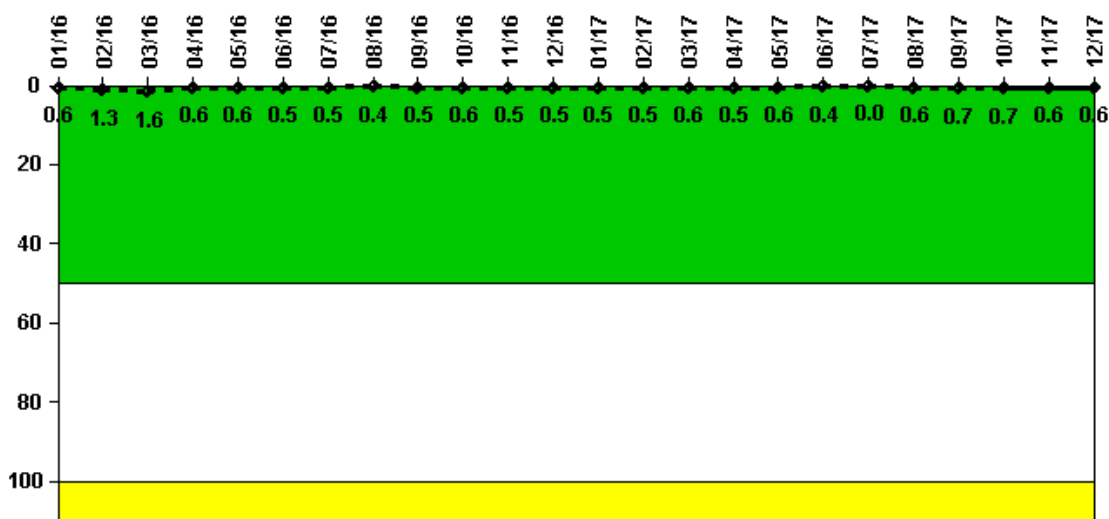
Reactor Coolant System Activity	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16
Maximum activity	0.000112	0.000140	0.000144	0.000098	0.000110	0.000112	0.000110	0.000128	0.000104	0.000150	0.000119	0.000150
Technical specification limit	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Indicator value	0	0	0	0	0	0	0	0	0	0	0	0
Reactor Coolant System Activity	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17	10/17	11/17	12/17
Maximum activity	0.000117	0.000121	0.000217	0.000121	0.000101	0.000079	N/A	0.000080	0.000096	0.000108	0.000092	0.000142
Technical specification limit	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Indicator value	0	0	0	0	0	0	N/A	0	0	0	0	0

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Licensee Comments:

9/17: Unit 2 was shutdown for the entire month of July, therefore reported as NA.

Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

Notes

Reactor Coolant System Leakage	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16	10/16	11/16	12/16
Maximum leakage	0.058	0.127	0.157	0.058	0.058	0.053	0.053	0.044	0.054	0.059	0.051	0.050
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 **0.6 1.3 1.6 0.6 0.6 0.5 0.5 0.4 0.5 0.6 0.5 0.5**

Reactor Coolant System Leakage	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17	10/17	11/17	12/17
Maximum leakage	0.052	0.051	0.059	0.047	0.059	0.043	0	0.057	0.071	0.066	0.061	0.062
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

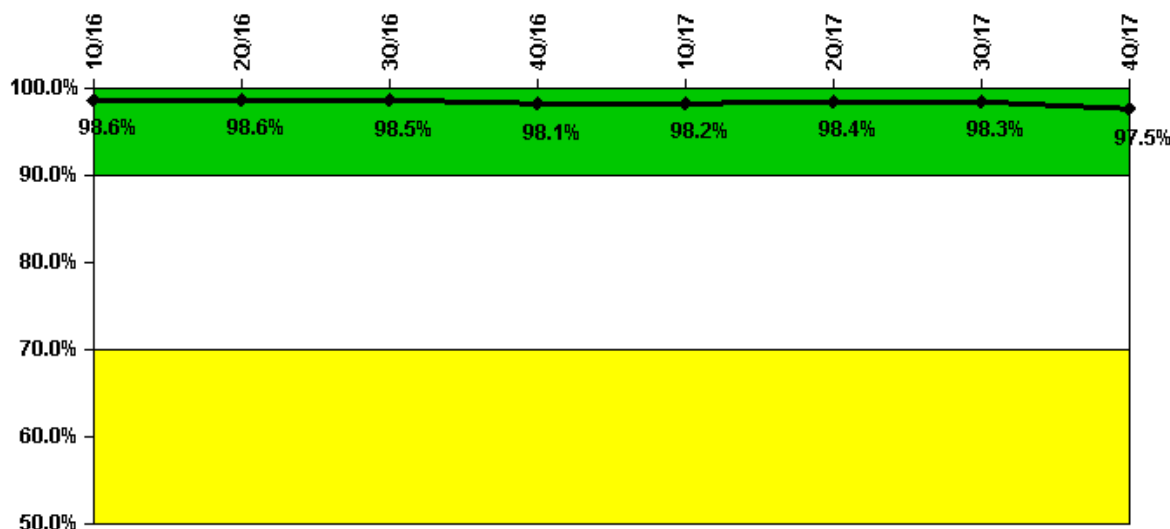
Indicator value **0.5 0.5 0.6 0.5 0.6 0.4 0 0.6 0.7 0.7 0.6 0.6**

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Licensee Comments:

- 12/17: RCS total leakage is being reported as identified leakage.
- 9/17: RCS total leakage is being reported as identified leakage
- 6/17: RCS total leakage is being reported as identified leakage.
- 3/17: RCS total leakage is being reported as identified leakage.
- 12/16: RCS total leakage is being reported as identified leakage.
- 9/16: RCS total leakage is being reported as identified leakage.
- 6/16: RCS total leakage is being reported as identified leakage.
- 3/16: RCS total leakage is being reported as identified leakage.

Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

Notes

Drill/Exercise Performance	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Successful opportunities	70.0	41.0	82.0	87.0	83.0	19.0	47.0	35.0
Total opportunities	72.0	41.0	83.0	90.0	83.0	20.0	48.0	39.0

Indicator value 98.6% 98.6% 98.5% 98.1% 98.2% 98.4% 98.3% 97.5%

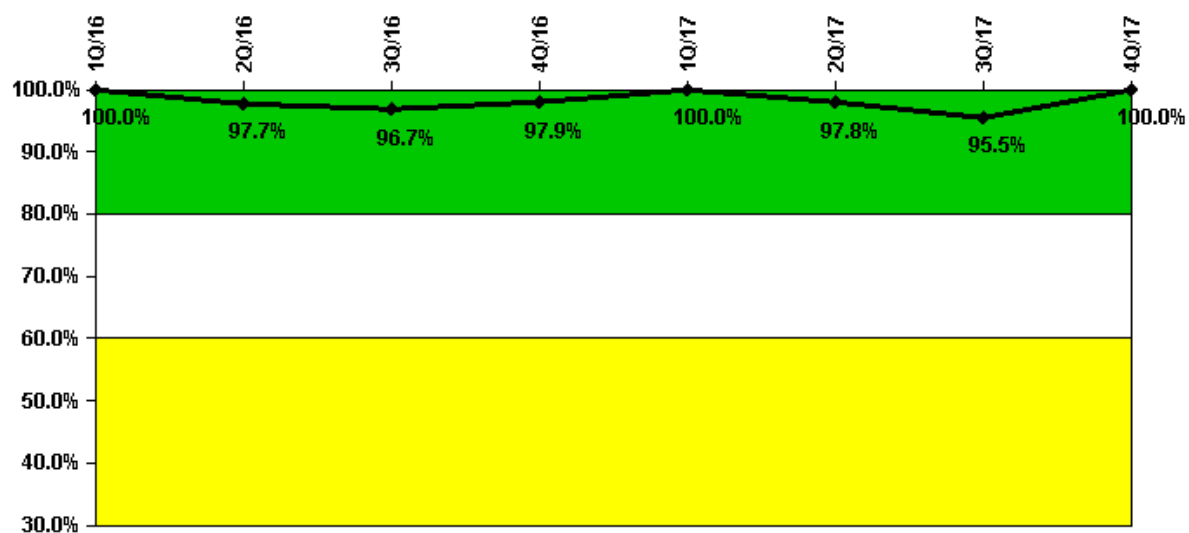
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Licensee Comments:

4Q/16: The Oct 2016 "successful drill, exer, & event opportunities" was revised from 32 to 30 due to incorrect EAL classifications during LORT sessions.

1Q/16: The Feb 2016 "successful drill, exer, & event opportunities" was revised from 37 to 35 due to incorrect EAL classifications during LORT sessions.

ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

Notes

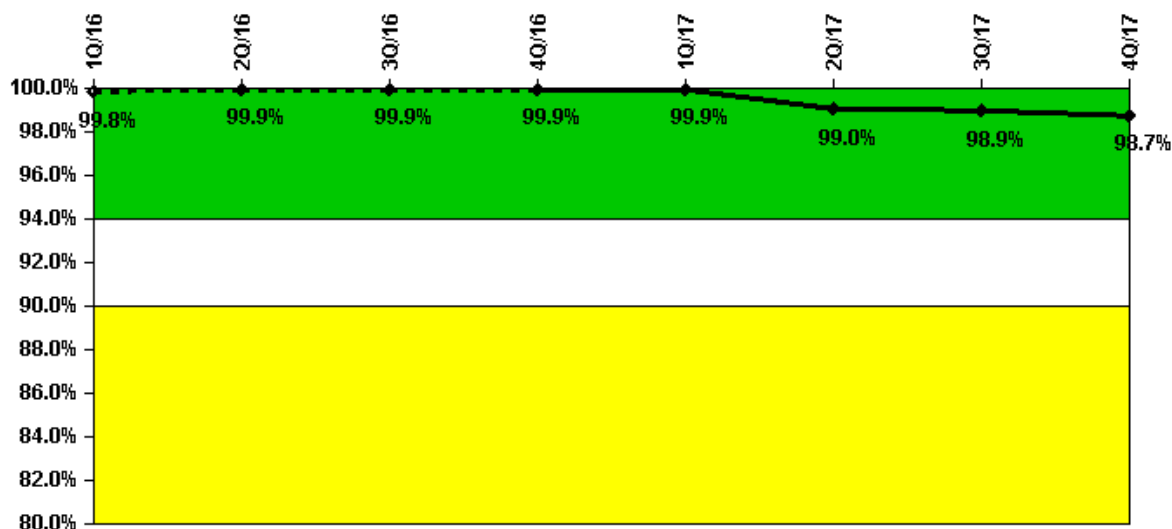
ERO Drill Participation	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Participating Key personnel	92.0	86.0	89.0	92.0	92.0	88.0	85.0	90.0
Total Key personnel	92.0	88.0	92.0	94.0	92.0	90.0	89.0	90.0

Indicator value **100.0% 97.7% 96.7% 97.9% 100.0% 97.8% 95.5% 100.0%**

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Licensee Comments: none

Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

Notes

Alert & Notification System	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17	4Q/17
Successful siren-tests	432	430	432	432	432	414	431	429
Total sirens-tests	432	432	432	432	432	432	432	432

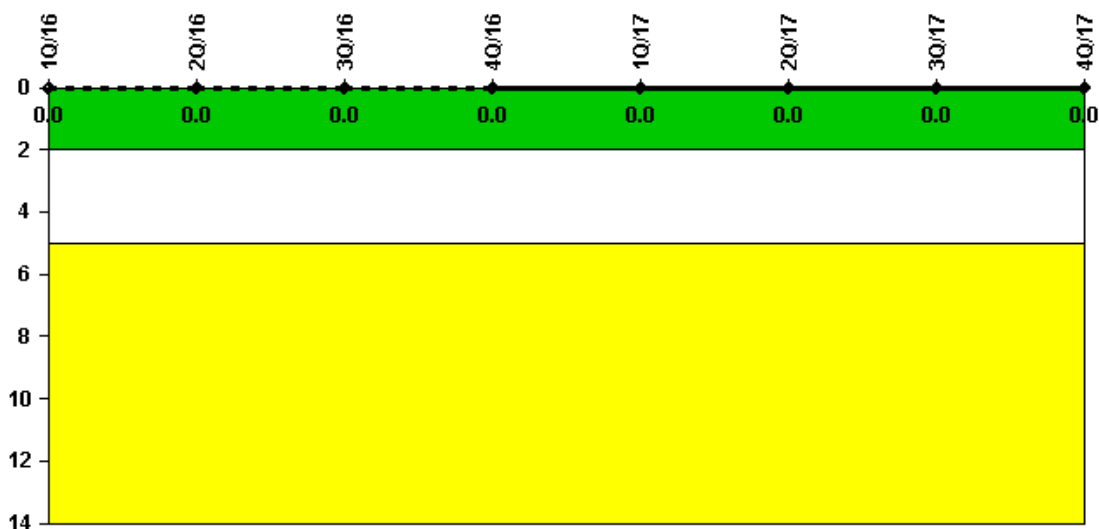
Indicator value **99.8% 99.9% 99.9% 99.9% 99.9% 99.0% 98.9% 98.7%**

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Licensee Comments:

2Q/17: Based on questions from NRC, 14 siren tests for April 2017 were reclassified as failures. This change did not affect the "color" of the indicator.

Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

Notes

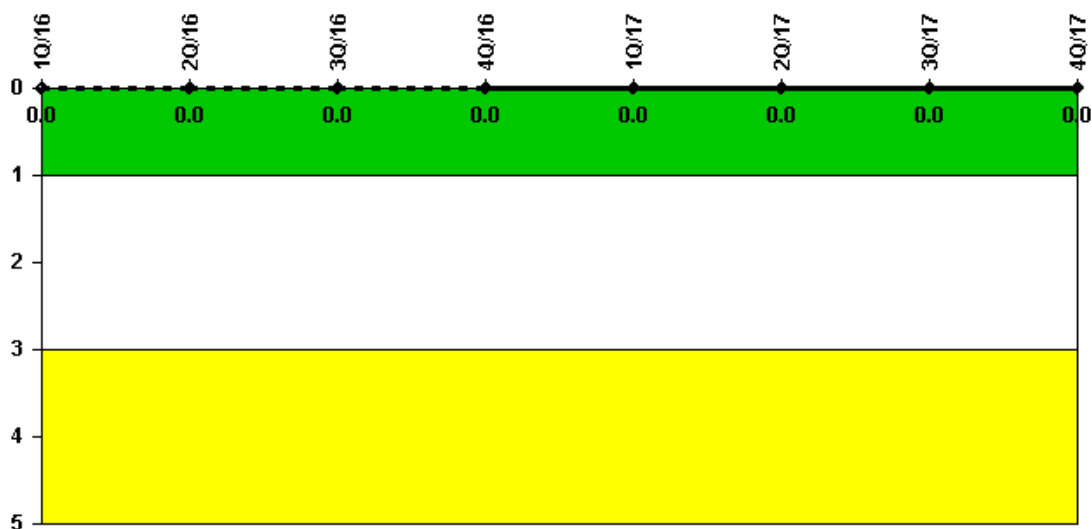
Occupational Exposure Control Effectiveness 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17 4Q/17

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

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Licensee Comments: none

RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

Notes

RETS/ODCM Radiological Effluent 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17 4Q/17

RETS/ODCM occurrences 0 0 0 0 0 0 0 0

Indicator value 0 0 0 0 0 0 0 0

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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.

Current data as of: February 1, 2018

Page Last Reviewed/Updated Monday, November 06, 2017