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## Arkansas Nuclear 1 – Quarterly Performance Indicators

### 3Q/2017 Performance Indicators

The solid trend line represents the current reporting period.

Licensee's General Comments: none

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- Unplanned Power Changes per 7000 Critical Hours (IE03)
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- Alert and Notification System Reliability (EP03)
- Occupational Exposure Control Effectiveness (OR01)
- RETS/OCDM Radiological Effluent Occurrence (PR01)
- Protected Area Equipment (PP01)



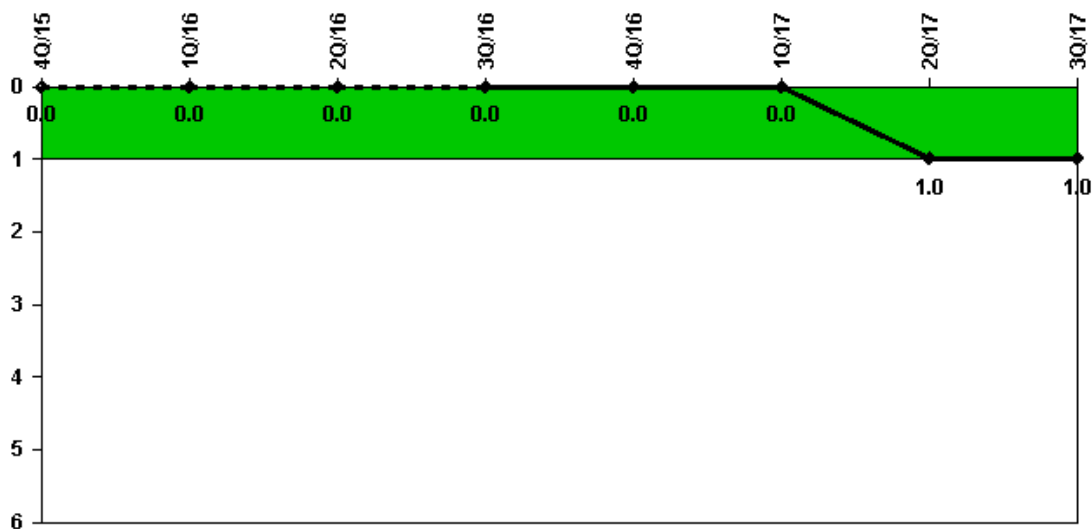
**Notes**

Unplanned Power Changes per 7000 Critical Hrs	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Unplanned power changes	0	0	0	0	0	1.0	0	0
Critical hours	2141.3	2183.0	2184.0	2040.1	464.1	2159.0	1677.8	2208.0
<b>Indicator value</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1.0</b>	<b>1.1</b>	<b>1.1</b>

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Licensee Comments: none

**Unplanned Scrams with Complications**



Thresholds: White > 1.0

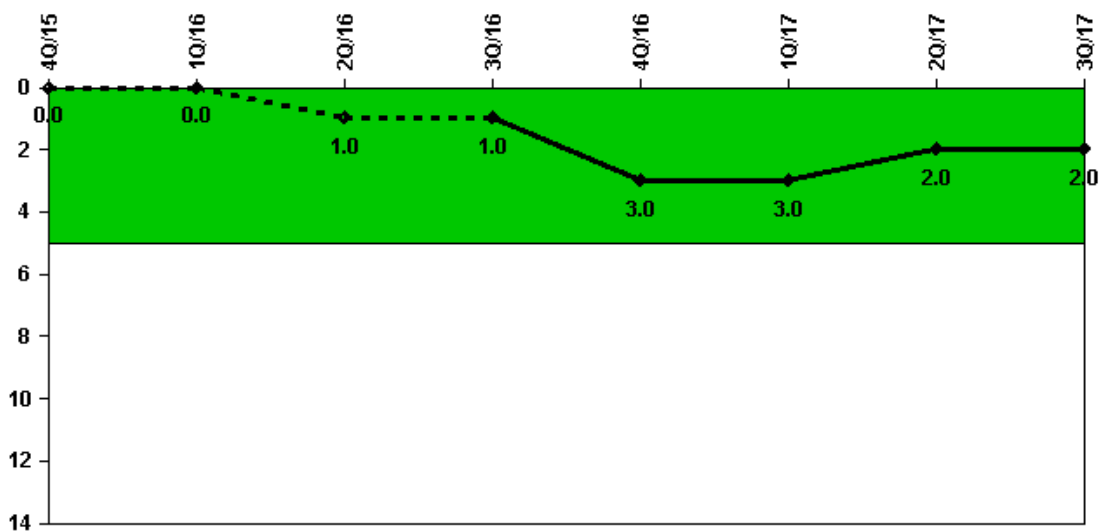
**Notes**

Unplanned Scrams with Complications	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Scrams with complications	0	0	0	0	0	0	1.0	0
<b>Indicator value</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>1.0</b>	<b>1.0</b>

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Licensee Comments: none

### Safety System Functional Failures (PWR)



Thresholds: White > 5.0

#### Notes

Safety System Functional Failures (PWR) 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17

Safety System Functional Failures 0 0 1 0 2 0 0 0

Indicator value 0 0 1 1 3 3 2 2

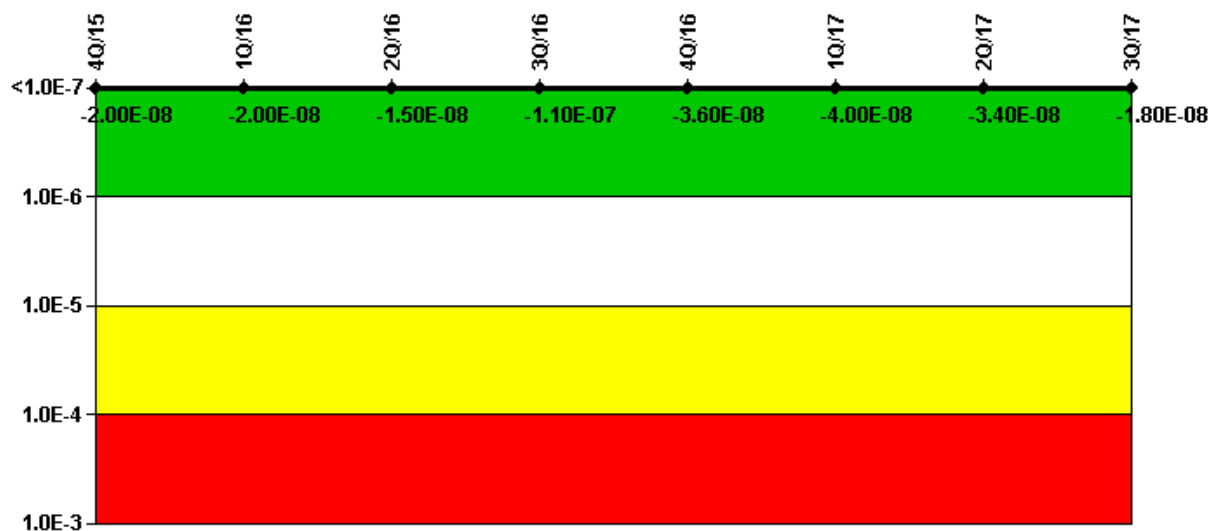
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Licensee Comments:

4Q/16: October: Licensing Event Report 50-313 2016-003-00, November: Licensing Event Report 50-313 2016-004-00

2Q/16: LER 50-313/2016-001-00

### 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

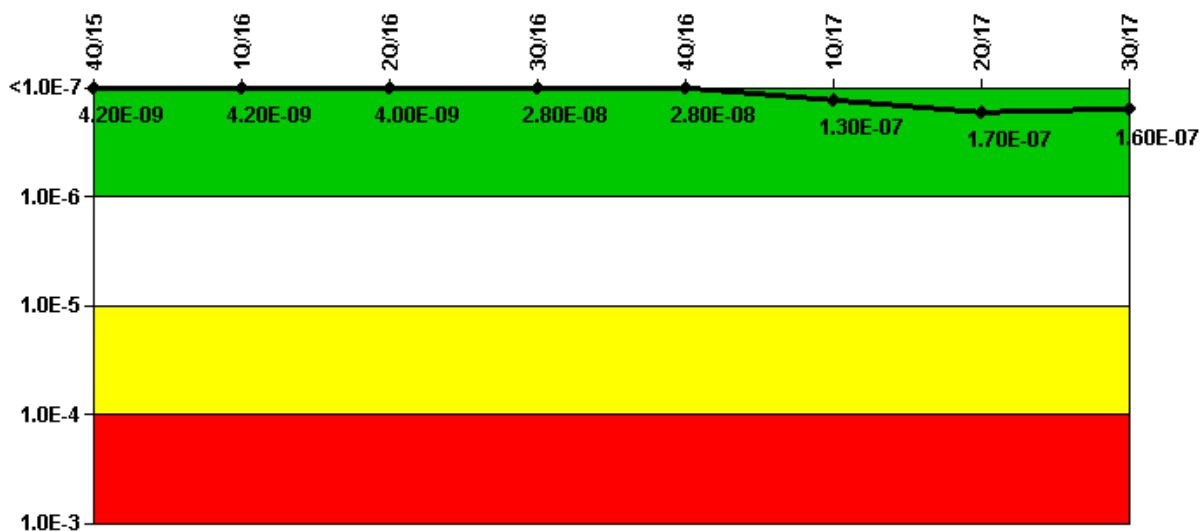
	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI ( $\Delta$ CDF)	5.40E-10	5.36E-10	-4.95E-10	-6.70E-09	5.62E-09	-4.77E-09	-4.51E-09	1.48E-08
URI ( $\Delta$ CDF)	-2.05E-08	-2.02E-08	-1.46E-08	-1.01E-07	-4.20E-08	-3.50E-08	-2.91E-08	-3.23E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-2.00E-08</b>	<b>-2.00E-08</b>	<b>-1.50E-08</b>	<b>-1.10E-07</b>	<b>-3.60E-08</b>	<b>-4.00E-08</b>	<b>-3.40E-08</b>	<b>-1.80E-08</b>

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#### Licensee Comments:

3Q/16: Changed PRA Parameter(s). Revision to Unit CDF, Unavailability FV/UA values and Unreliability FV/UA values.

### 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**

	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	-8.23E-12	-8.26E-12	-8.49E-12	-3.43E-12	-3.34E-12	1.53E-12	1.76E-12	1.56E-12
URI (ΔCDF)	4.19E-09	4.16E-09	4.05E-09	2.80E-08	2.77E-08	1.30E-07	1.65E-07	1.61E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>4.20E-09</b>	<b>4.20E-09</b>	<b>4.00E-09</b>	<b>2.80E-08</b>	<b>2.80E-08</b>	<b>1.30E-07</b>	<b>1.70E-07</b>	<b>1.60E-07</b>

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Licensee Comments:

1Q/17: ANO-1 high pressure injection (HPI) system reliability for the A HPI pump in December 2014, and January 2016, was revised. ANO-1 HPI system reliability for the B HPI pump in July 2014, November 2014, March 2015, and August 2016, was revised. ANO-1 HPI system reliability for the C HPI pump in August 2014, and March 2016, was revised. Test demands and run hours were revised to remove demands related to post-maintenance testing. This change does not affect the color of this indicator.

4Q/16: ANO-1 high pressure injection (HPI) system reliability for the A HPI pump in December 2014, and January 2016, was revised. ANO-1 HPI system reliability for the B HPI pump in July 2014, November 2014, March 2015, and August 2016, was revised. ANO-1 HPI system reliability for the C HPI pump in August 2014, and March 2016, was revised. Test demands and run hours were revised to remove demands related to post-maintenance testing. This change does not affect the color of this indicator.

3Q/16: Changed PRA Parameter(s). Revision to Unit CDF, Unavailability FV/UA values, Unreliability FV/UA values and Estimated Reliability values.

3Q/16: Revision to Unit Core Damage Frequency, Unavailability FV/UA values, Unreliability FV/UA values and Estimated Reliability values. ANO-1 high pressure injection (HPI) system reliability for the A HPI pump in December 2014, and January 2016, was revised. ANO-1 HPI system reliability for the B HPI pump in July 2014, November 2014, March 2015, and August 2016, was revised. ANO-1 HPI system reliability for the C HPI pump in August 2014, and March 2016, was revised. Test demands and run hours were revised to remove demands related to post-maintenance testing. This change does not affect the color of this indicator.

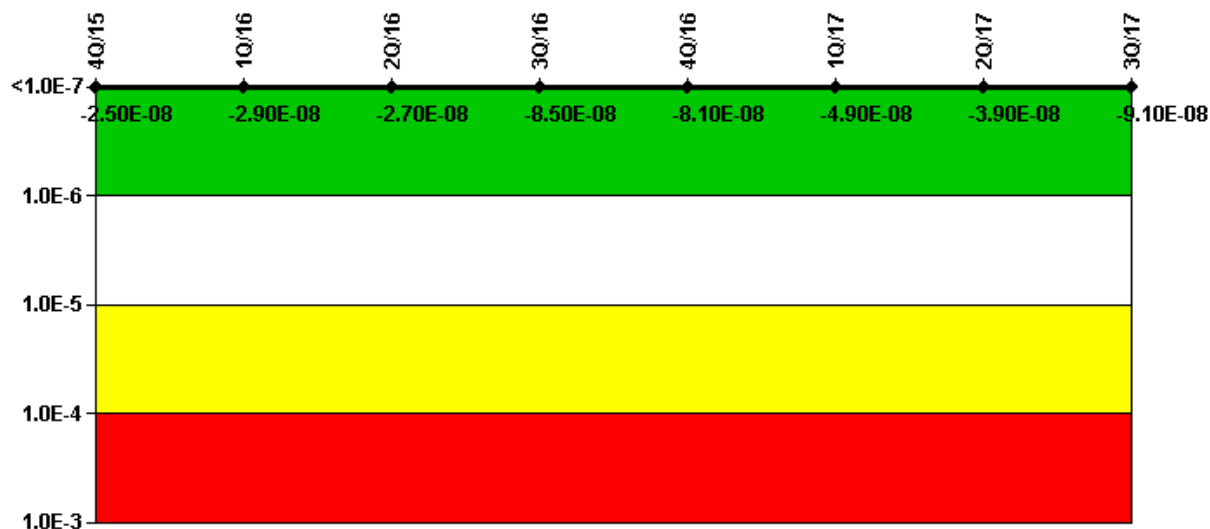
2Q/16: ANO-1 high pressure injection (HPI) system reliability for the A HPI pump in December 2014, and January 2016, was revised. ANO-1 HPI system reliability for the B HPI pump in July 2014, November 2014, and March 2015, was revised. ANO-1 HPI system reliability for the C HPI pump in August 2014, and March 2016, was revised. Test demands and run hours were revised to remove

demands related to post-maintenance testing. This change does not affect the color of this indicator.

1Q/16: ANO-1 high pressure injection (HPI) system reliability for the A HPI pump in December 2014, and January 2016, was revised. ANO-1 HPI system reliability for the B HPI pump in July 2014, November 2014, and March 2015, was revised. ANO-1 HPI system reliability for the C HPI pump in August 2014, and March 2016, was revised. Test demands and run hours were revised to remove demands related to post-maintenance testing. This change does not affect the color of this indicator.

4Q/15: ANO-1 high pressure injection (HPI) system reliability for the A HPI pump in December 2014, was revised. ANO-1 HPI system reliability for the B HPI pump in July 2014, November 2014, and March 2015, was revised. ANO-1 HPI system reliability for the C HPI pump in August 2014, was revised. Test demands and run hours were revised to remove demands related to post-maintenance testing. This change does not affect the color of this indicator.

### 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

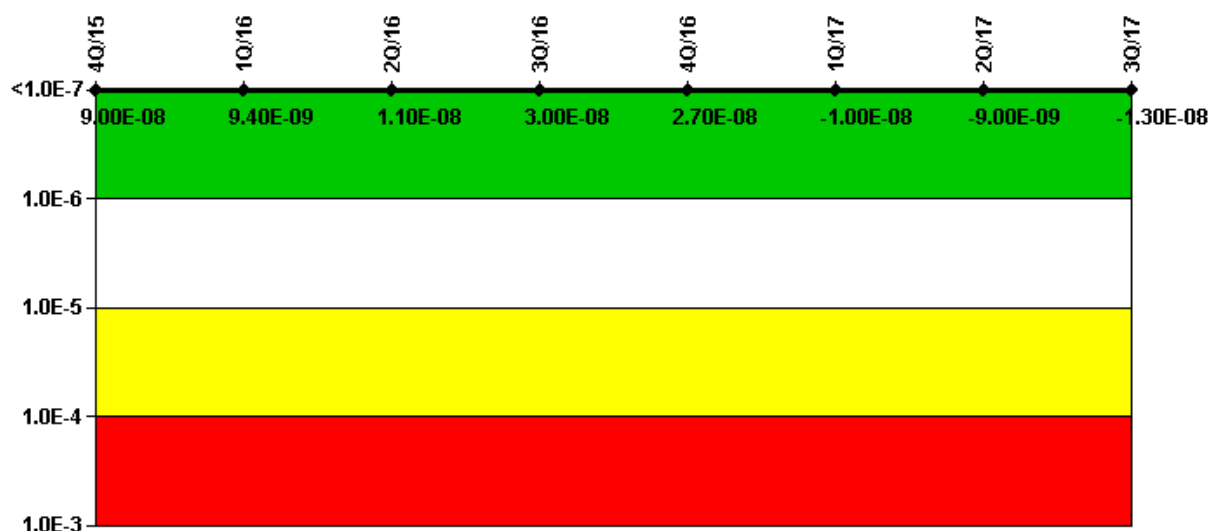
	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	-3.57E-09	-6.33E-09	-3.95E-09	-3.64E-08	-2.69E-08	5.27E-09	1.72E-08	-3.47E-08
URI (ΔCDF)	-2.19E-08	-2.22E-08	-2.29E-08	-4.88E-08	-5.41E-08	-5.45E-08	-5.58E-08	-5.62E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>-2.50E-08</b>	<b>-2.90E-08</b>	<b>-2.70E-08</b>	<b>-8.50E-08</b>	<b>-8.10E-08</b>	<b>-4.90E-08</b>	<b>-3.90E-08</b>	<b>-9.10E-08</b>

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#### Licensee Comments:

3Q/16: Changed PRA Parameter(s). Revision to Unit CDF, Unavailability FV/UA values, Unreliability FV/UA values, and Devices in-scope.

### 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/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI ( $\Delta$ CDF)	4.80E-08	5.48E-08	4.88E-08	6.14E-08	6.73E-08	3.06E-08	3.56E-08	3.11E-08
URI ( $\Delta$ CDF)	4.25E-08	-4.54E-08	-3.77E-08	-3.16E-08	-4.08E-08	-4.09E-08	-4.47E-08	-4.45E-08
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>9.00E-08</b>	<b>9.40E-09</b>	<b>1.10E-08</b>	<b>3.00E-08</b>	<b>2.70E-08</b>	<b>-1.00E-08</b>	<b>-9.00E-09</b>	<b>-1.30E-08</b>

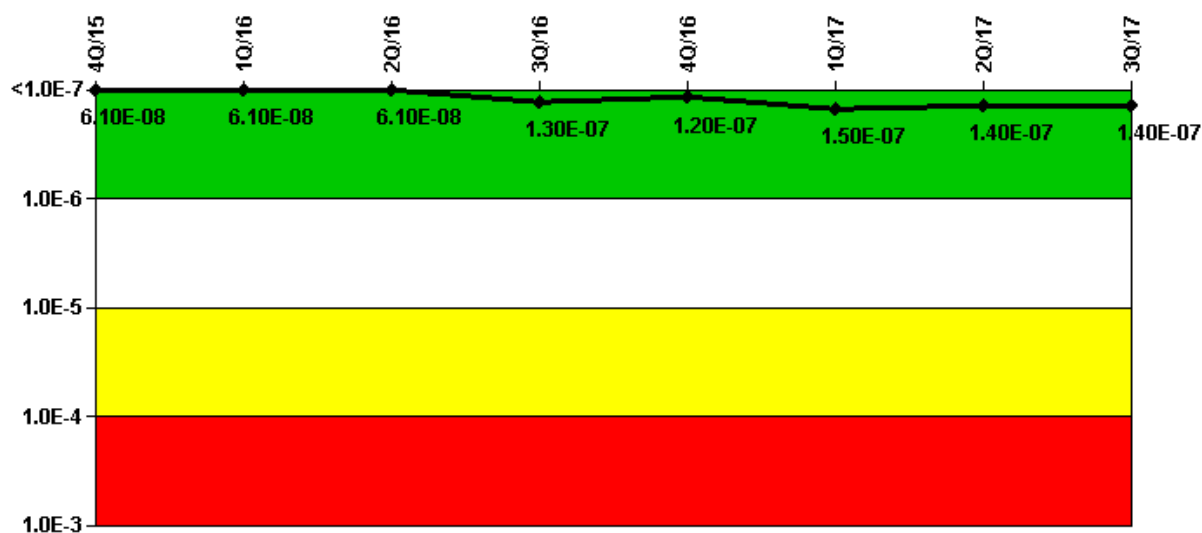
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#### Licensee Comments:

3Q/16: Changed PRA Parameter(s). Revision to Unit CDF, Unavailability FV/UA values, Unreliability FV/UA values, Common Cause Failure values and Devices in-scope.



### 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

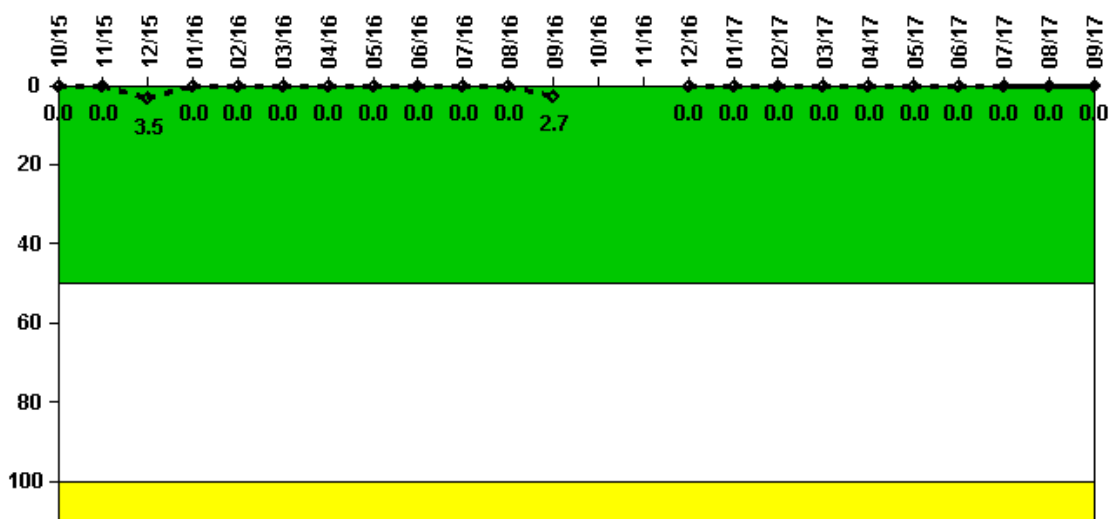
	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
UAI (ΔCDF)	-3.39E-09	-3.39E-09	-3.40E-09	-1.11E-07	-1.11E-07	-8.13E-08	-8.06E-08	-8.06E-08
URI (ΔCDF)	6.47E-08	6.47E-08	6.48E-08	2.38E-07	2.34E-07	2.30E-07	2.24E-07	2.21E-07
PLE	NO	NO	NO	NO	NO	NO	NO	NO
<b>Indicator value</b>	<b>6.10E-08</b>	<b>6.10E-08</b>	<b>6.10E-08</b>	<b>1.30E-07</b>	<b>1.20E-07</b>	<b>1.50E-07</b>	<b>1.40E-07</b>	<b>1.40E-07</b>

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#### Licensee Comments:

3Q/16: Changed PRA Parameter(s). Revision to Unit CDF, Unavailability FV/UA values, Unreliability FV/UA values, Common Cause Failure values, Devices in-scope and Function revised for three segments vs. two trains.

### Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

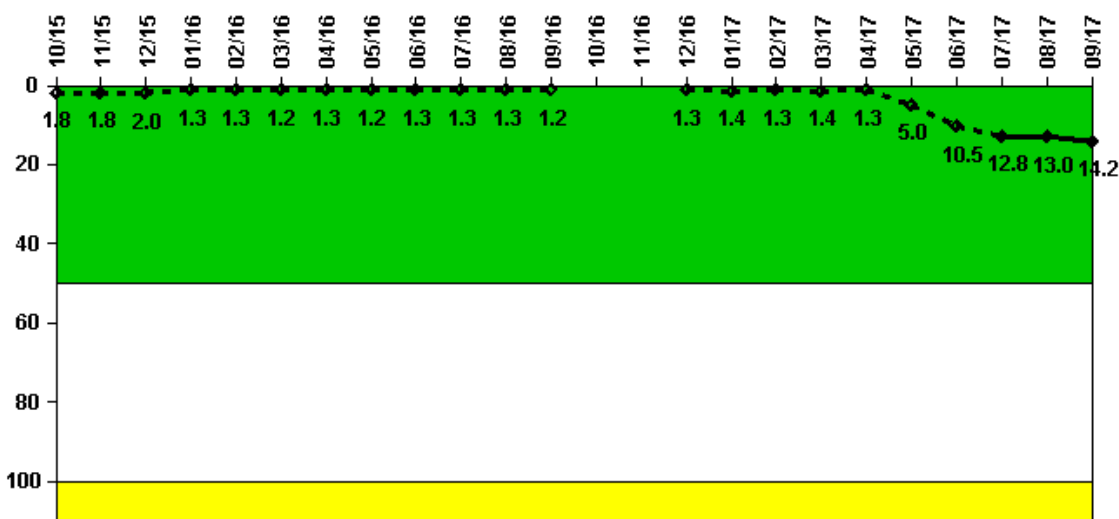
#### Notes

Reactor Coolant System Activity	10/15	11/15	12/15	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16
Maximum activity	0.000140	0.000194	0.034700	0.000122	0.000153	0.000173	0.000166	0.000214	0.000207	0.000222	0.000290	0.026800
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
<b>Indicator value</b>	<b>0</b>	<b>0</b>	<b>3.5</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>	<b>2.7</b>
Reactor Coolant System Activity	10/16	11/16	12/16	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17
Maximum activity	N/A	N/A	0.000049	0.000052	0.000057	0.000059	0.000061	0.000069	0.000066	0.000069	0.000073	0.000282
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
<b>Indicator value</b>	<b>N/A</b>	<b>N/A</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>	<b>0</b>	<b>0</b>

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Licensee Comments: none

### Reactor Coolant System Leakage



Thresholds: White > 50.0 Yellow > 100.0

**Notes**

Reactor Coolant System Leakage	10/15	11/15	12/15	1/16	2/16	3/16	4/16	5/16	6/16	7/16	8/16	9/16
Maximum leakage	0.175	0.182	0.198	0.132	0.128	0.116	0.125	0.121	0.125	0.134	0.131	0.117
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

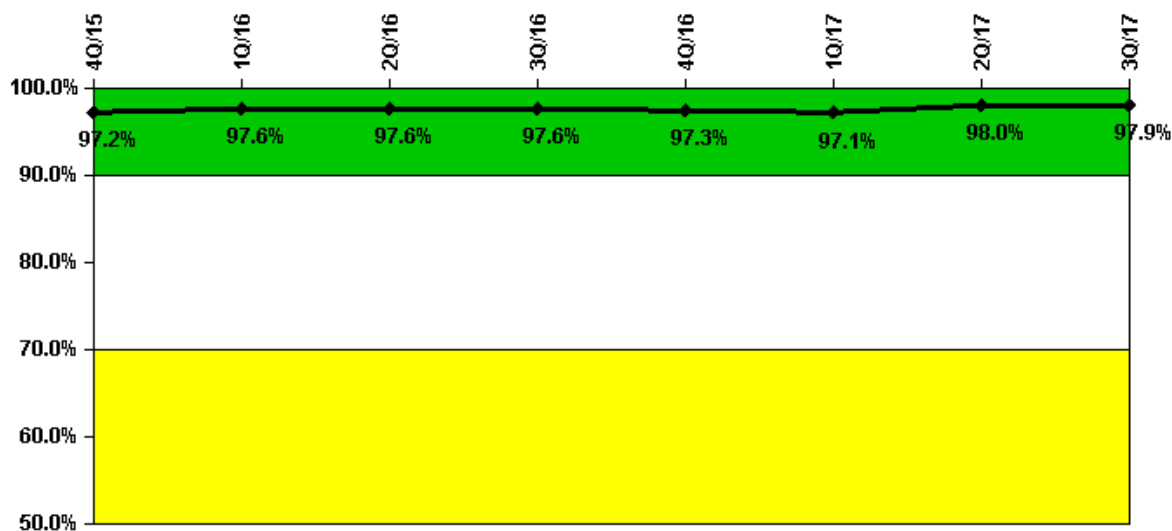
Indicator value	1.8	1.8	2.0	1.3	1.3	1.2	1.3	1.2	1.3	1.3	1.3	1.2
Reactor Coolant System Leakage	10/16	11/16	12/16	1/17	2/17	3/17	4/17	5/17	6/17	7/17	8/17	9/17
Maximum leakage	N/A	N/A	0.132	0.135	0.131	0.135	0.134	0.495	1.050	1.278	1.298	1.422
Technical specification limit	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0

Indicator value	N/A	N/A	1.3	1.4	1.3	1.4	1.3	5.0	10.5	12.8	13.0	14.2
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Licensee Comments: none

### Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

#### Notes

Drill/Exercise Performance	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Successful opportunities	19.0	31.0	98.0	63.0	5.0	60.0	48.0	91.0
Total opportunities	19.0	32.0	99.0	65.0	5.0	62.0	48.0	94.0

**Indicator value**                    **97.2% 97.6% 97.6% 97.6% 97.3% 97.1% 98.0% 97.9%**

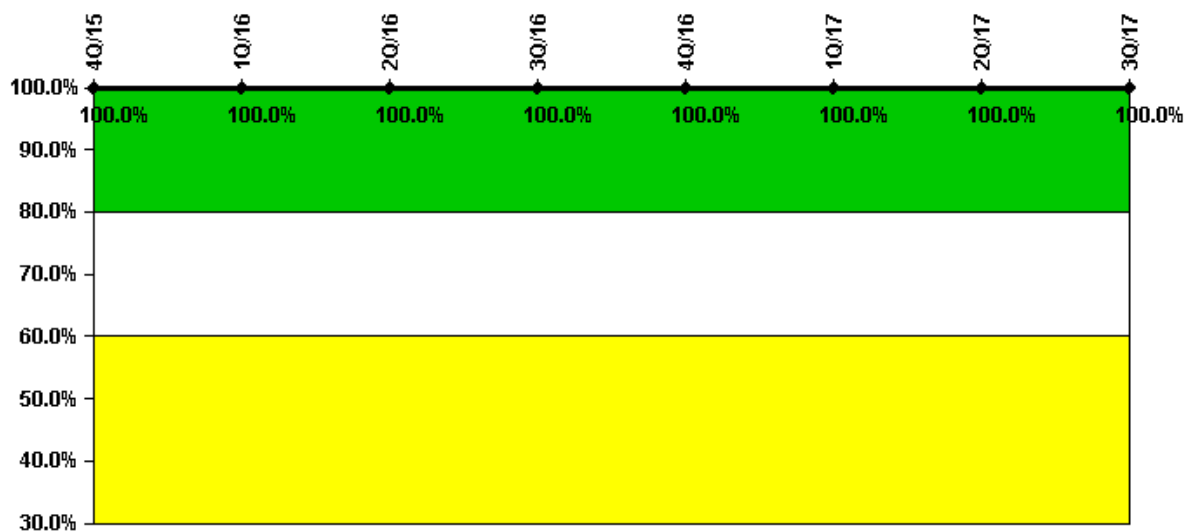
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#### Licensee Comments:

2Q/17: The 2nd Quarter 2017 Drill/Exercise Performance is being revised to include nine additional opportunities. This change does not affect the color of the Drill/Exercise Performance indicator.

2Q/16: The 2nd Quarter 2016 June Drill/Exercise Performance is being revised to include five additional opportunities. This change does not affect the color of the Drill/Exercise Performance indicator.

### ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

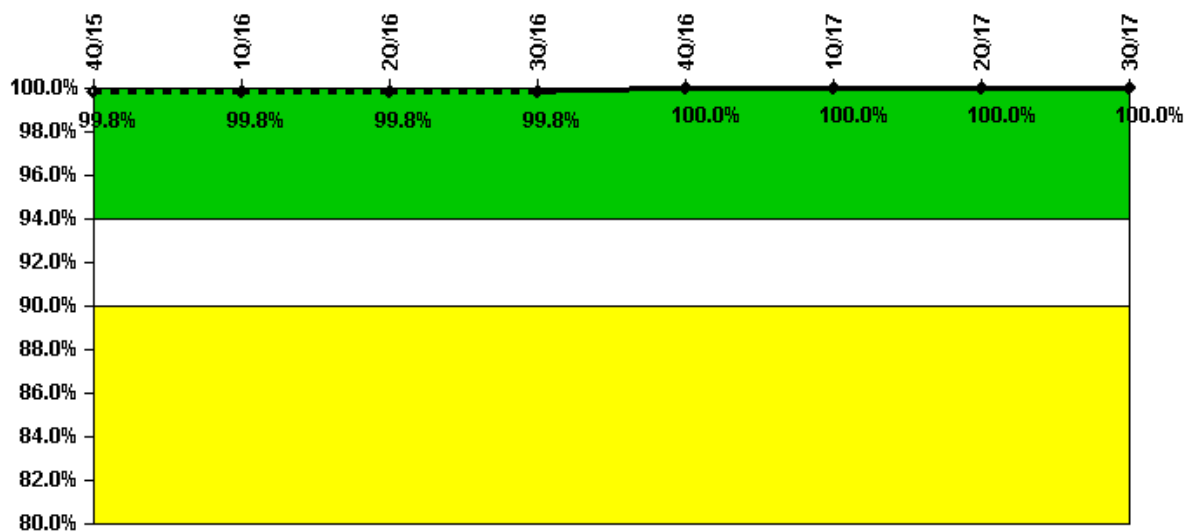
ERO Drill Participation	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Participating Key personnel	103.0	103.0	108.0	107.0	111.0	107.0	109.0	113.0
Total Key personnel	103.0	103.0	108.0	107.0	111.0	107.0	109.0	113.0

**Indicator value**                    **100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0%**

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Licensee Comments: none

### Alert & Notification System



Thresholds: White < 94.0% Yellow < 90.0%

#### Notes

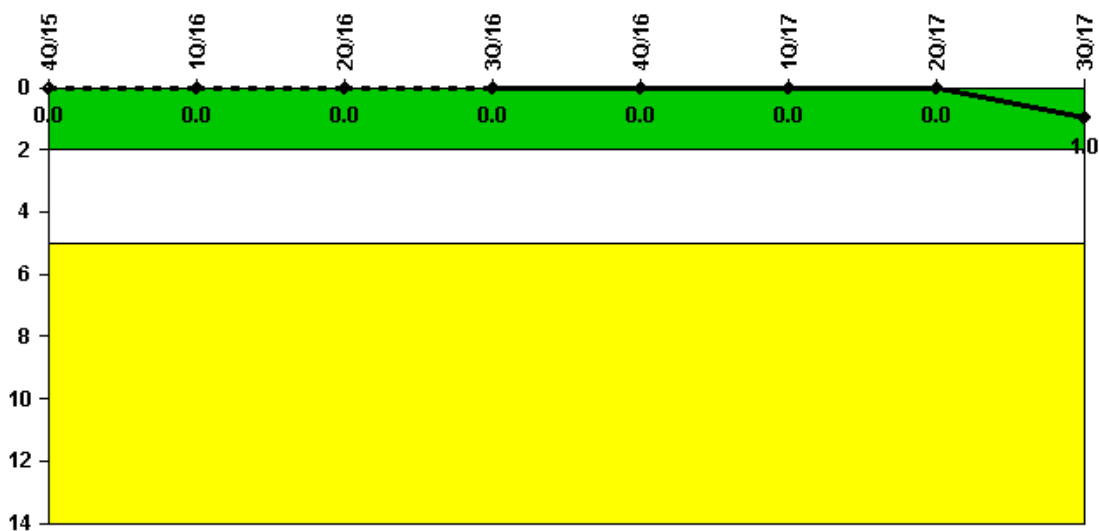
Alert & Notification System	4Q/15	1Q/16	2Q/16	3Q/16	4Q/16	1Q/17	2Q/17	3Q/17
Successful siren-tests	146	147	147	147	147	147	147	147
Total sirens-tests	147	147	147	147	147	147	147	147

**Indicator value**                    **99.8% 99.8% 99.8% 99.8% 100.0% 100.0% 100.0% 100.0%**

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Licensee Comments: none

### Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

**Notes**

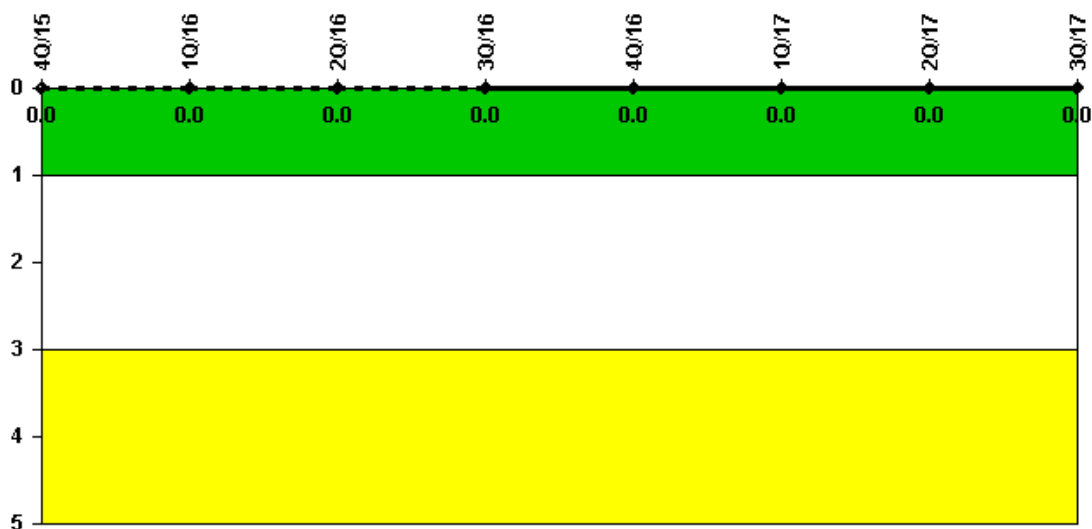
**Occupational Exposure Control Effectiveness** 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17

High radiation area occurrences	0	0	0	0	0	0	0	1
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>1</b>

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Licensee Comments: none

### RETS/ODCM Radiological Effluent



Thresholds: White > 1.0 Yellow > 3.0

#### Notes

#### RETS/ODCM Radiological Effluent 4Q/15 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/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: October 31, 2017

Page Last Reviewed/Updated Monday, November 06, 2017