



Home > Nuclear Reactors > Operating Reactors > Reactor Oversight Process > Plant Summaries> Palisades > Quarterly Performance Indicators

Palisades – Quarterly Performance Indicators

4Q/2017 Performance Indicators

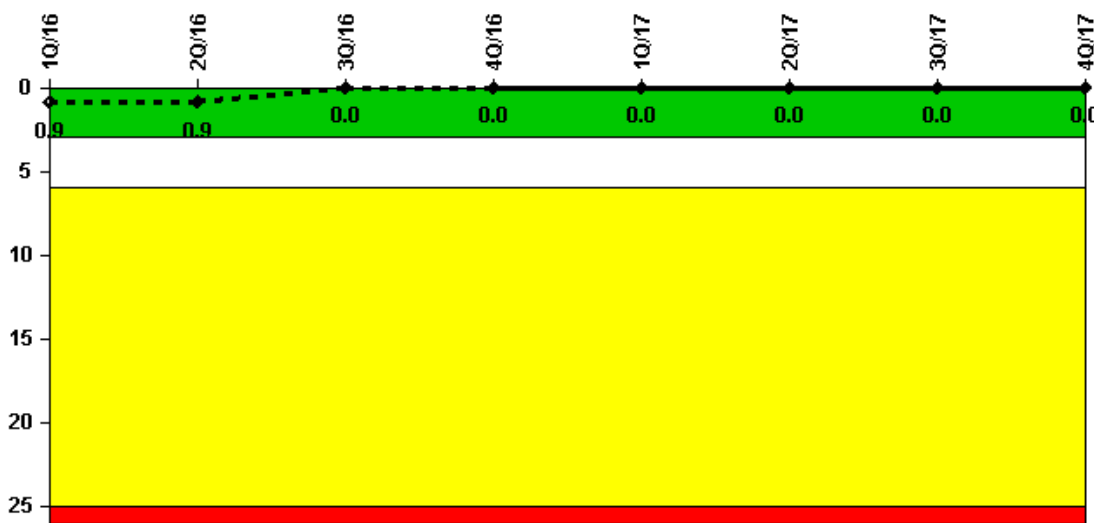
The solid trend line represents the current reporting period.

Licensee's General Comments: none

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- Unplanned Power Changes per 7000 Critical Hours (IE03)
- Unplanned Scrams with Complications (IE04)
- Safety System Functional Failures (MS05)
- Emergency AC Power Systems (MS06)
- High Pressure Injection Systems (MS07)
- Heat Removal Systems (MS08)
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- Cooling Water Systems (MS10)
- Reactor Coolant System Activity (BI01)
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- Drill/Exercise Performance (EP01)
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- Alert and Notification System Reliability (EP03)
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Unplanned Scrams per 7000 Critical Hrs



Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

Notes

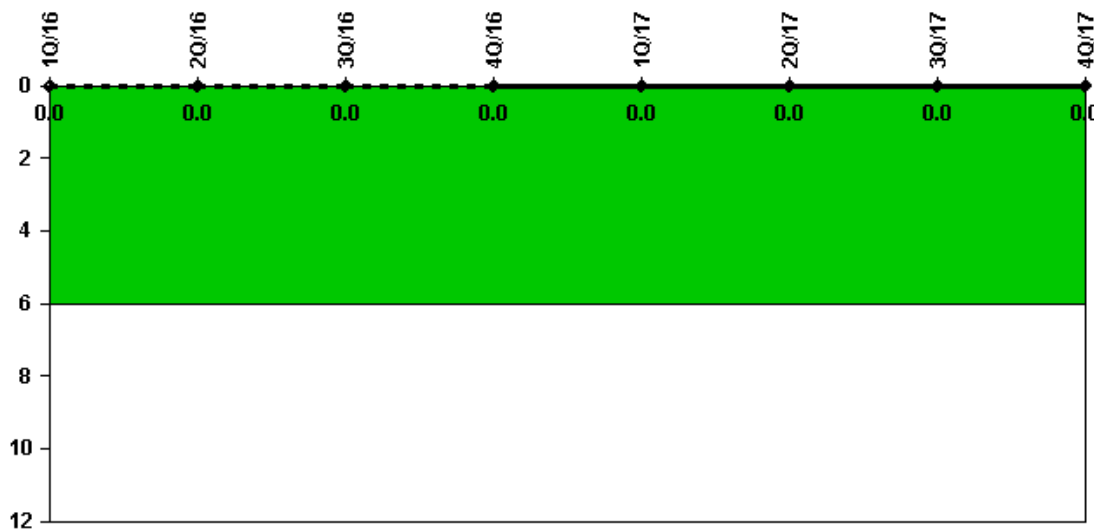
| Unplanned Scrams per 7000 Critical Hrs | 1Q/16 | 2Q/16 | 3Q/16 | 4Q/16 | 1Q/17 | 2Q/17 | 3Q/17 | 4Q/17 |
|--|--------|--------|--------|--------|--------|--------|--------|--------|
| Unplanned scrams | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Critical hours | 2183.0 | 2184.0 | 2208.0 | 2209.0 | 2030.7 | 1553.8 | 2208.0 | 2209.0 |

| Indicator value | 0.9 | 0.9 | 0 | 0 | 0 | 0 | 0 | 0 |
|-----------------|-----|-----|---|---|---|---|---|---|
|-----------------|-----|-----|---|---|---|---|---|---|

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Licensee Comments: none

Unplanned Power Changes per 7000 Critical Hrs



Thresholds: White > 6.0

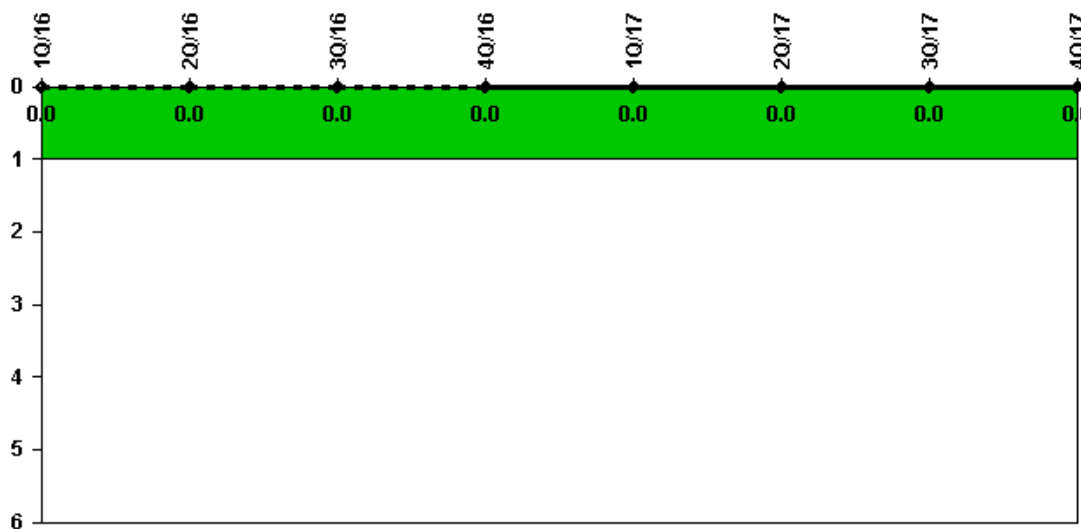
Notes

| 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 | 0 | 0 | 0 | 0 |
| Critical hours | 2183.0 | 2184.0 | 2208.0 | 2209.0 | 2030.7 | 1553.8 | 2208.0 | 2209.0 |
| Indicator value | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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Licensee Comments: none

Unplanned Scrams with Complications



Thresholds: White > 1.0

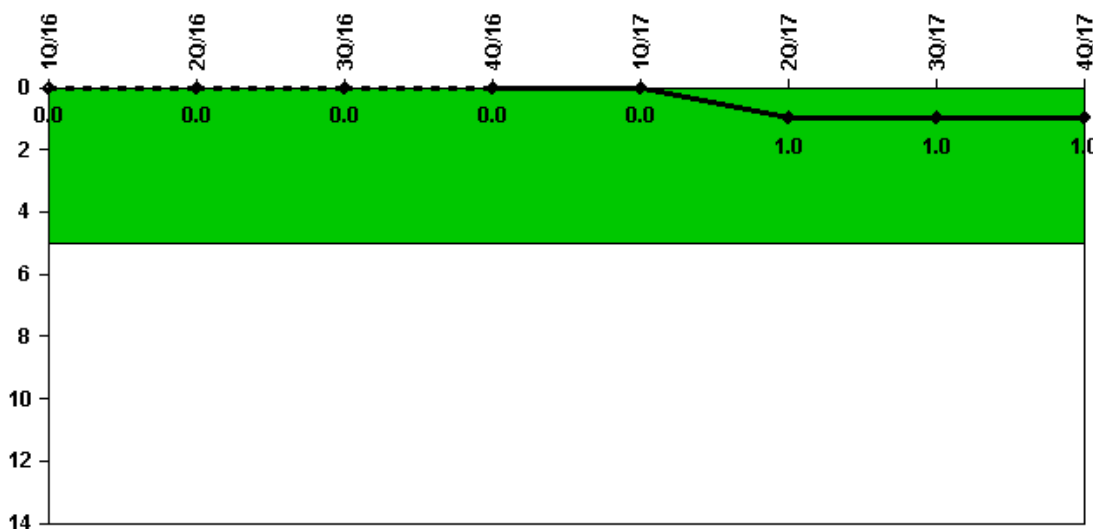
Notes

| 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 0 0 1 0 0

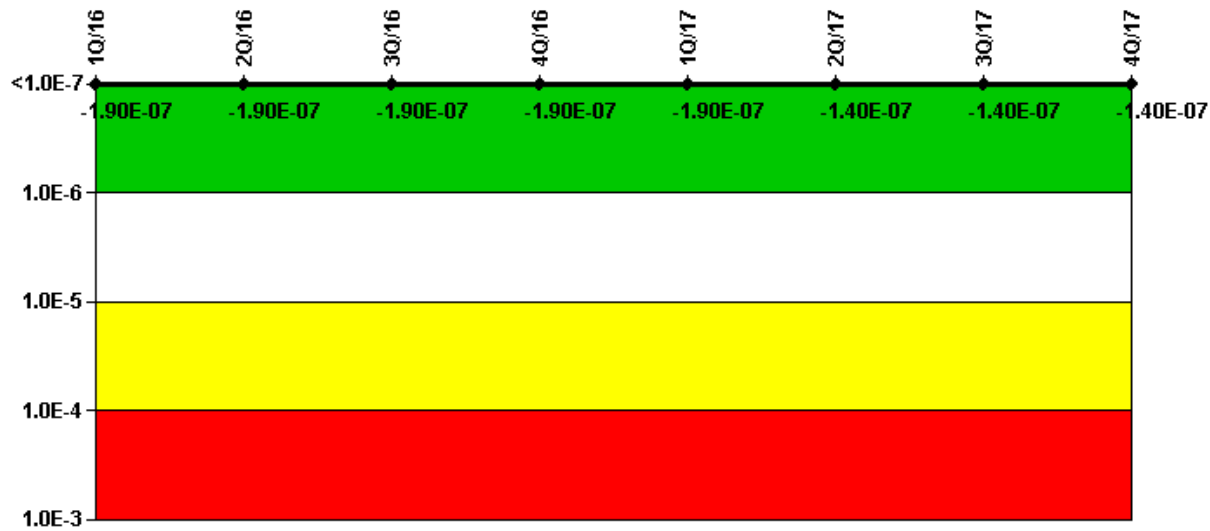
Indicator value 0 0 0 0 0 1 1 1

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Licensee Comments:

2Q/17: LER 2017-001-00 identified potential for loss of safety function in 5 systems. Counts as one loss due to a single event per NEI 99-02 rev.7.

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 (Δ CDF) | -2.73E-08 | -2.73E-08 | -2.73E-08 | -2.73E-08 | -2.62E-08 | -1.35E-08 | -1.35E-08 | -1.35E-08 |
| URI (Δ CDF) | -1.59E-07 | -1.59E-07 | -1.59E-07 | -1.59E-07 | -1.59E-07 | -1.26E-07 | -1.25E-07 | -1.24E-07 |
| PLE | NO | NO | NO | NO | NO | NO | NO | NO |
| Indicator value | -1.90E-07 | -1.90E-07 | -1.90E-07 | -1.90E-07 | -1.90E-07 | -1.40E-07 | -1.40E-07 | -1.40E-07 |

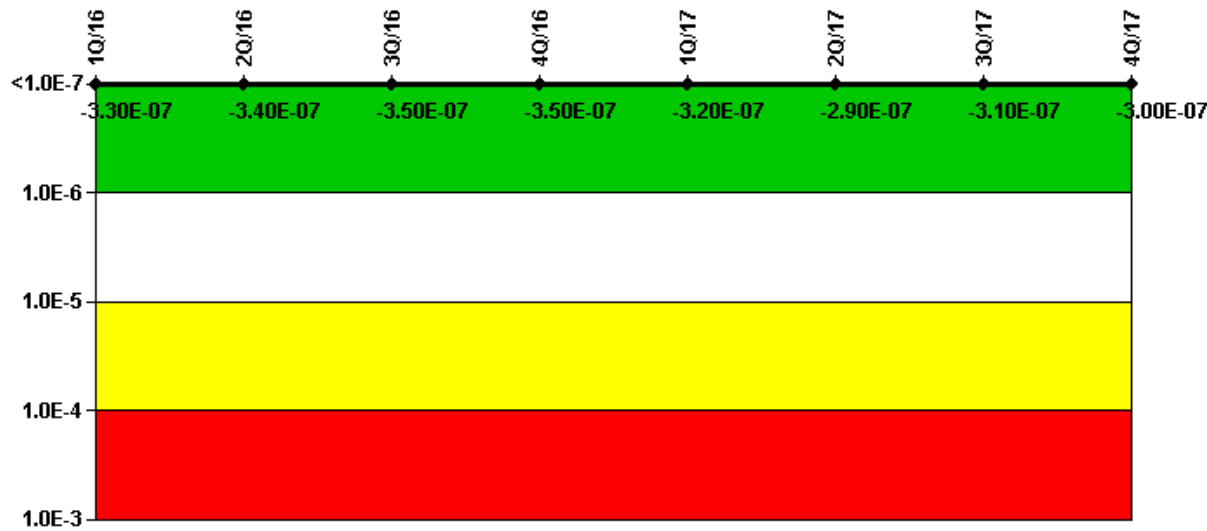
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Licensee Comments:

3Q/17: Changed PRA Parameter(s). An MSPI Basis Document revision was approved on July 12, 2017 to incorporate the February 2017 PRA model revision and several reliability estimate updates. The changes were entered in CDE in July 2017 and were effective for second quarter 2017. The third quarter 2017 System-Generated PI Comment - Changed PRA Parameter(s) applies to the second quarter parameters updated in July 2017.

2Q/17: Changed PRA Parameter(s).

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) | -6.44E-08 | -7.38E-08 | -8.83E-08 | -8.91E-08 | -5.27E-08 | -6.39E-08 | -8.01E-08 | -7.17E-08 |
| URI (ΔCDF) | -2.65E-07 | -2.65E-07 | -2.65E-07 | -2.65E-07 | -2.65E-07 | -2.29E-07 | -2.29E-07 | -2.29E-07 |
| PLE | NO | NO | NO | NO | NO | NO | NO | NO |
| Indicator value | -3.30E-07 | -3.40E-07 | -3.50E-07 | -3.50E-07 | -3.20E-07 | -2.90E-07 | -3.10E-07 | -3.00E-07 |

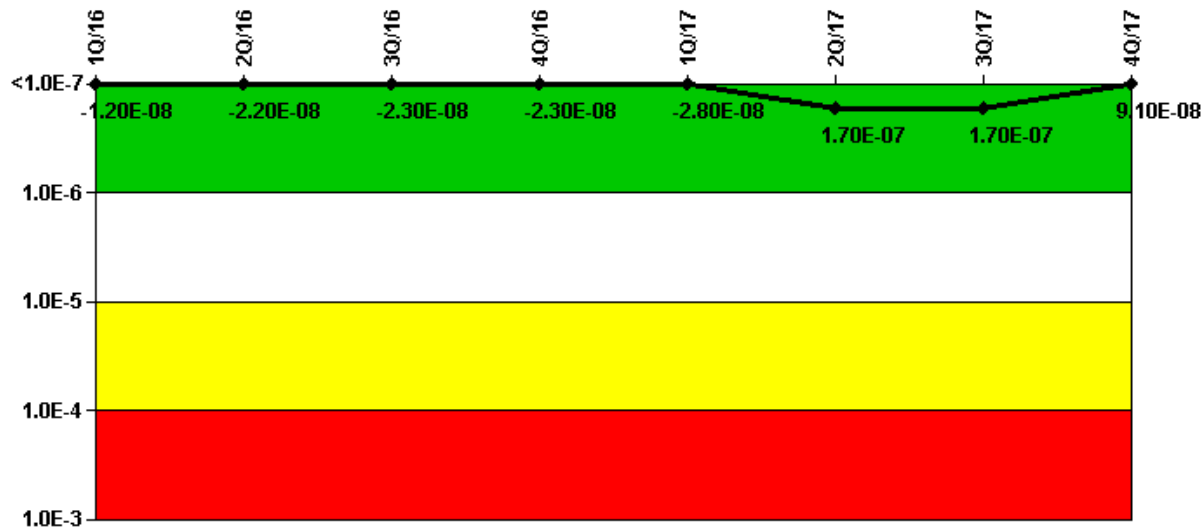
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Licensee Comments:

3Q/17: Changed PRA Parameter(s). An MSPI Basis Document revision was approved on July 12, 2017 to incorporate the February 2017 PRA model revision and several reliability estimate updates. The changes were entered in CDE in July 2017 and were effective for second quarter 2017. The third quarter 2017 System-Generated PI Comment - Changed PRA Parameter(s) applies to the second quarter parameters updated in July 2017.

2Q/17: Changed PRA Parameter(s).

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 (ΔCDF) | 1.89E-07 | 1.79E-07 | 1.77E-07 | 1.77E-07 | 1.73E-07 | 1.79E-07 | 1.80E-07 | 1.73E-07 |
| URI (ΔCDF) | -2.00E-07 | -2.00E-07 | -2.00E-07 | -2.00E-07 | -2.00E-07 | -1.14E-08 | -1.18E-08 | -8.19E-08 |
| PLE | NO | NO | NO | NO | NO | NO | NO | NO |
| Indicator value | -1.20E-08 | -2.20E-08 | -2.30E-08 | -2.30E-08 | -2.80E-08 | 1.70E-07 | 1.70E-07 | 9.10E-08 |

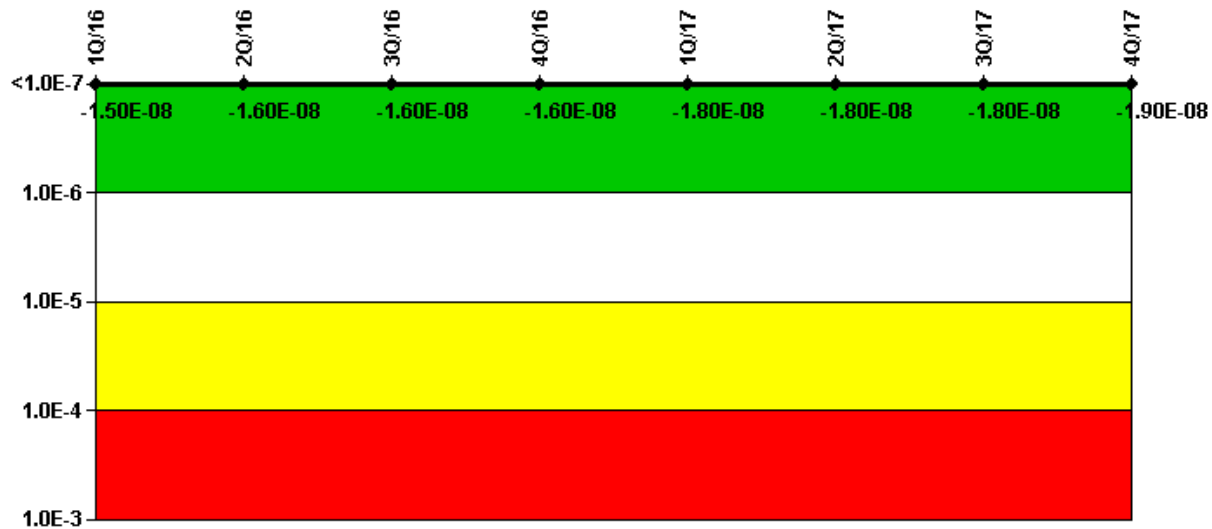
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Licensee Comments:

3Q/17: Changed PRA Parameter(s). An MSPI Basis Document revision was approved on July 12, 2017 to incorporate the February 2017 PRA model revision and several reliability estimate updates. The changes were entered in CDE in July 2017 and were effective for second quarter 2017. The third quarter 2017 System-Generated PI Comment - Changed PRA Parameter(s) applies to the second quarter parameters updated in July 2017.

2Q/17: Changed PRA Parameter(s).

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) | 2.50E-08 | 2.39E-08 | 2.39E-08 | 2.39E-08 | 2.28E-08 | -2.85E-10 | -2.87E-10 | -2.87E-10 |
| URI (ΔCDF) | -4.04E-08 | -4.04E-08 | -4.04E-08 | -4.04E-08 | -4.04E-08 | -1.76E-08 | -1.81E-08 | -1.87E-08 |
| PLE | NO | NO | NO | NO | NO | NO | NO | NO |
| Indicator value | -1.50E-08 | -1.60E-08 | -1.60E-08 | -1.60E-08 | -1.80E-08 | -1.80E-08 | -1.80E-08 | -1.90E-08 |

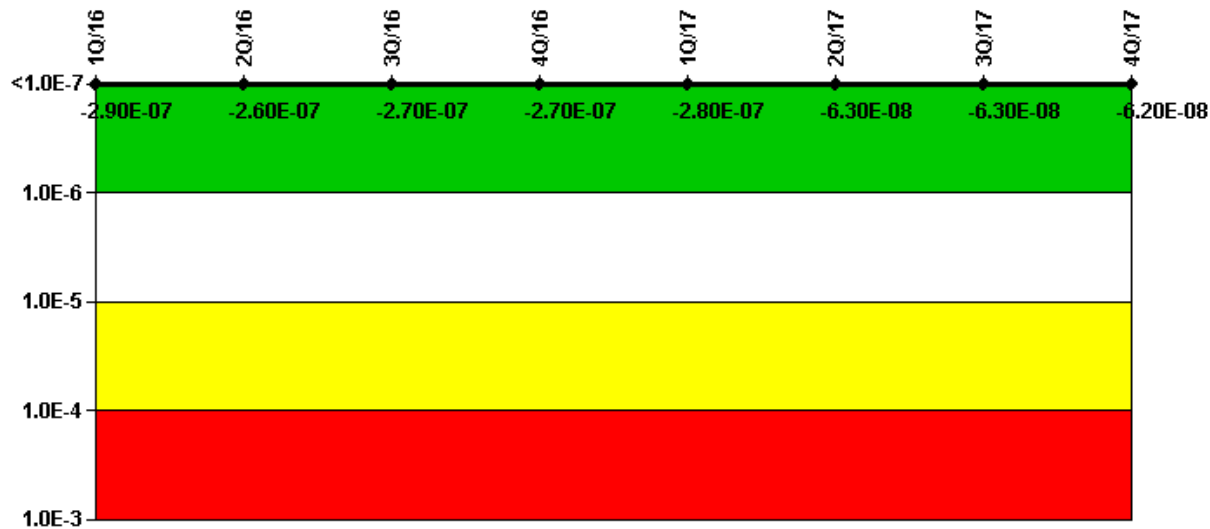
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Licensee Comments:

3Q/17: Changed PRA Parameter(s). An MSPI Basis Document revision was approved on July 12, 2017 to incorporate the February 2017 PRA model revision and several reliability estimate updates. The changes were entered in CDE in July 2017 and were effective for second quarter 2017. The third quarter 2017 System-Generated PI Comment - Changed PRA Parameter(s) applies to the second quarter parameters updated in July 2017.

2Q/17: Changed PRA Parameter(s).

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) | -5.46E-08 | -3.42E-08 | -4.33E-08 | -4.10E-08 | -4.94E-08 | -3.18E-08 | -3.22E-08 | -3.22E-08 |
| URI (ΔCDF) | -2.31E-07 | -2.31E-07 | -2.31E-07 | -2.31E-07 | -2.31E-07 | -3.15E-08 | -3.07E-08 | -2.98E-08 |
| PLE | NO | NO | NO | NO | NO | NO | NO | NO |
| Indicator value | -2.90E-07 | -2.60E-07 | -2.70E-07 | -2.70E-07 | -2.80E-07 | -6.30E-08 | -6.30E-08 | -6.20E-08 |

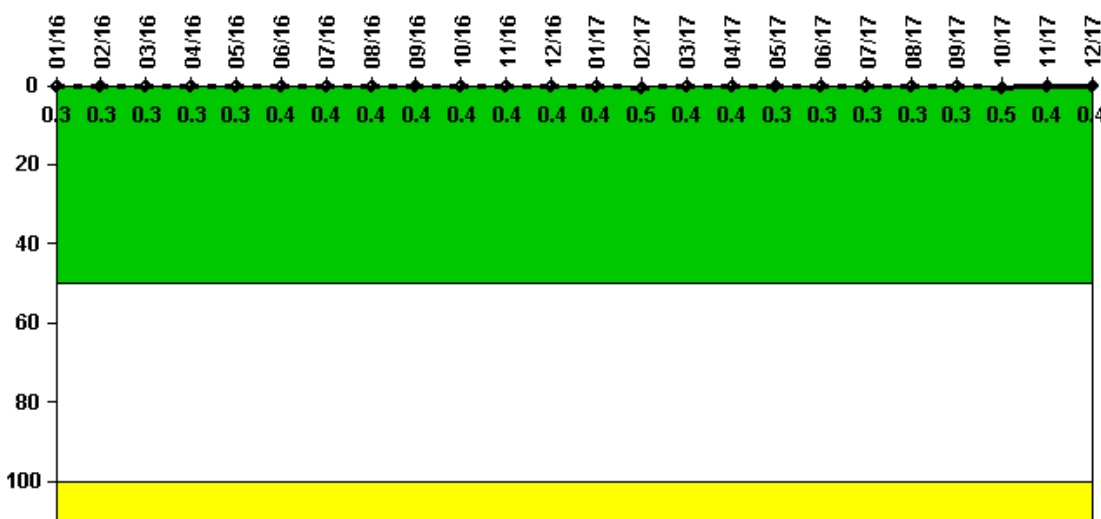
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Licensee Comments:

3Q/17: Changed PRA Parameter(s). An MSPI Basis Document revision was approved on July 12, 2017 to incorporate the February 2017 PRA model revision and several reliability estimate updates. The changes were entered in CDE in July 2017 and were effective for second quarter 2017. The third quarter 2017 System-Generated PI Comment - Changed PRA Parameter(s) applies to the second quarter parameters updated in July 2017.

2Q/17: Changed PRA Parameter(s).

Reactor Coolant System Activity



Thresholds: White > 50.0 Yellow > 100.0

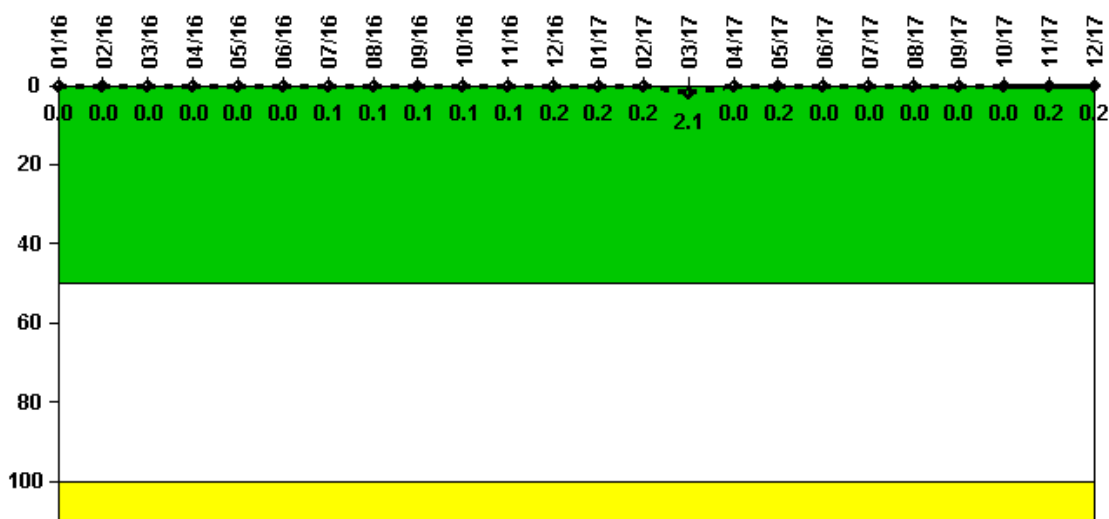
Notes

| 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 | 0.002940 | 0.003340 | 0.003460 | 0.002720 | 0.002760 | 0.003810 | 0.003750 | 0.004070 | 0.004370 | 0.003670 | 0.003652 | 0.003840 |
| 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 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 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 | 0.003920 | 0.004763 | 0.003826 | 0.003650 | 0.002505 | 0.002590 | 0.002763 | 0.002790 | 0.002640 | 0.005390 | 0.004120 | 0.003990 |
| 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 | 0.4 | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.5 | 0.4 | 0.4 |

TOP

Licensee Comments: none

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 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.009 | 0.012 | 0.012 | 0.012 | 0.011 | 0.015 |
| 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 |

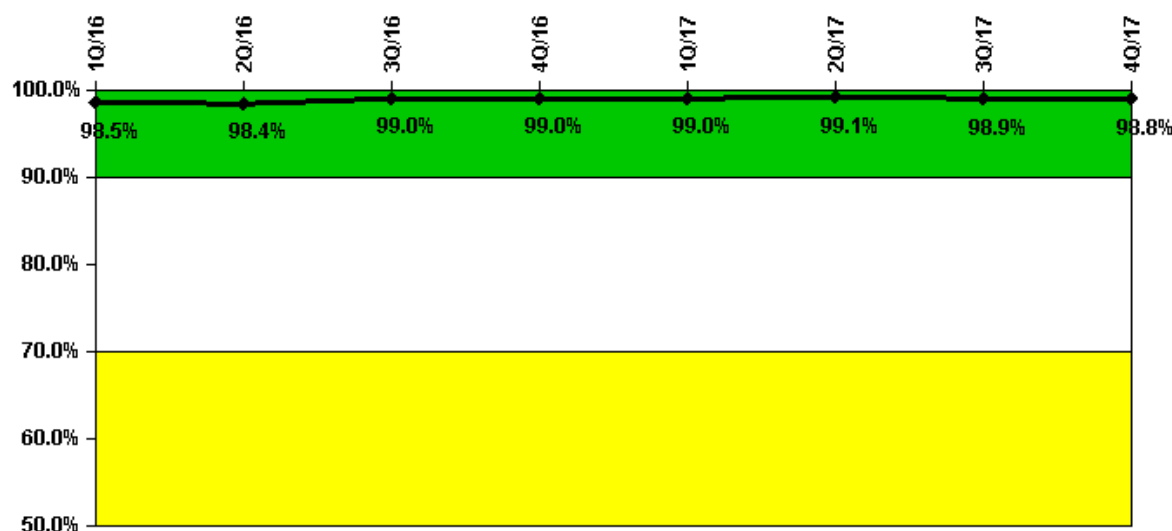
| Indicator value | 0 | 0 | 0 | 0 | 0 | 0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
|--------------------------------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Reactor Coolant System Leakage | 1/17 | 2/17 | 3/17 | 4/17 | 5/17 | 6/17 | 7/17 | 8/17 | 9/17 | 10/17 | 11/17 | 12/17 |
| Maximum leakage | 0.016 | 0.016 | 0.211 | 0 | 0.015 | 0.001 | 0.001 | 0.003 | 0.003 | 0.001 | 0.018 | 0.015 |
| 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 | 0.2 | 0.2 | 2.1 | 0 | 0.2 | 0 | 0 | 0 | 0 | 0 | 0.2 | 0.2 |
|------------------------|------------|------------|------------|----------|------------|----------|----------|----------|----------|----------|------------|------------|

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Licensee Comments: none

Drill/Exercise Performance



Thresholds: White < 90.0% Yellow < 70.0%

Notes

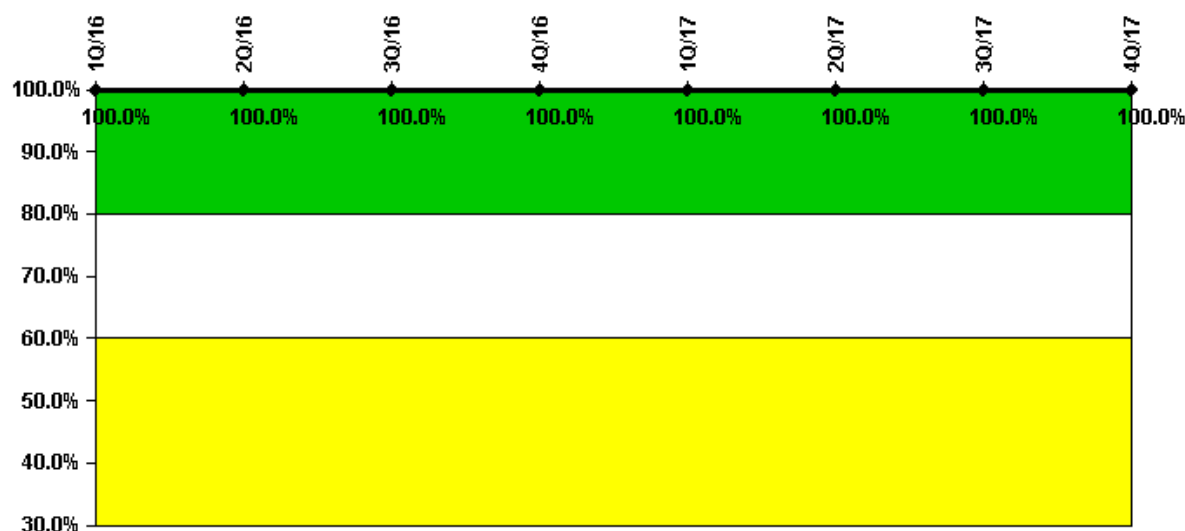
| Drill/Exercise Performance | 1Q/16 | 2Q/16 | 3Q/16 | 4Q/16 | 1Q/17 | 2Q/17 | 3Q/17 | 4Q/17 |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Successful opportunities | 115.0 | 34.0 | 16.0 | 17.0 | 69.0 | 8.0 | 36.0 | 101.0 |
| Total opportunities | 117.0 | 35.0 | 16.0 | 17.0 | 70.0 | 8.0 | 36.0 | 102.0 |

Indicator value **98.5% 98.4% 99.0% 99.0% 99.0% 99.1% 98.9% 98.8%**

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Licensee Comments: none

ERO Drill Participation



Thresholds: White < 80.0% Yellow < 60.0%

Notes

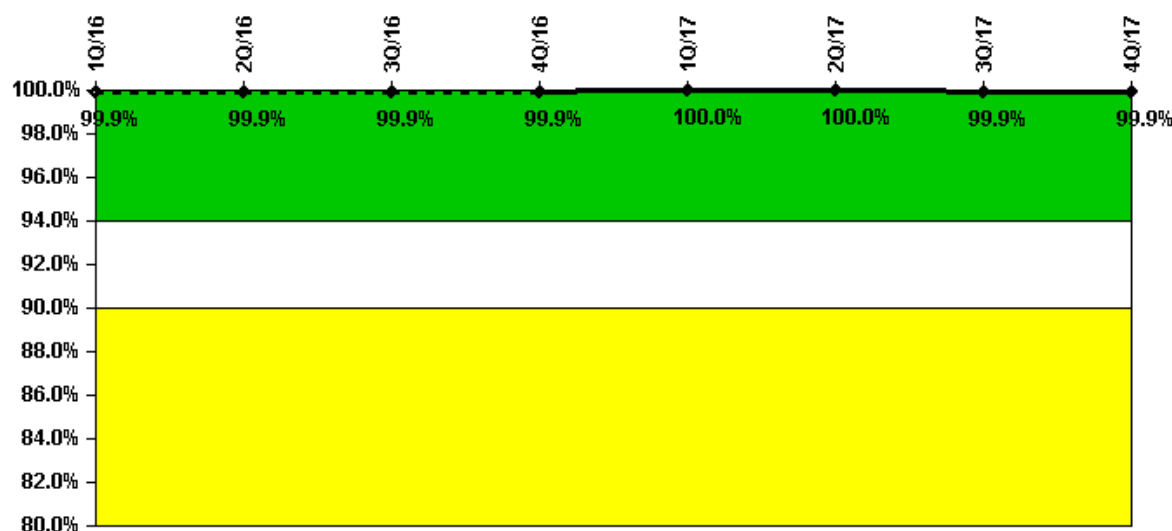
| ERO Drill Participation | 1Q/16 | 2Q/16 | 3Q/16 | 4Q/16 | 1Q/17 | 2Q/17 | 3Q/17 | 4Q/17 |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Participating Key personnel | 75.0 | 73.0 | 72.0 | 68.0 | 72.0 | 74.0 | 74.0 | 78.0 |
| Total Key personnel | 75.0 | 73.0 | 72.0 | 68.0 | 72.0 | 74.0 | 74.0 | 78.0 |

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

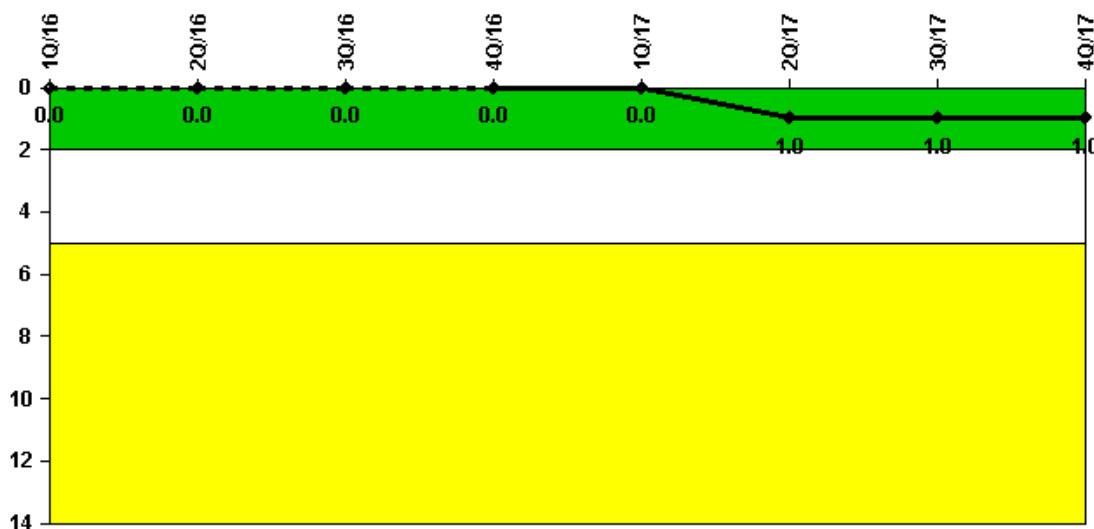
| Alert & Notification System | 1Q/16 | 2Q/16 | 3Q/16 | 4Q/16 | 1Q/17 | 2Q/17 | 3Q/17 | 4Q/17 |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Successful siren-tests | 182 | 183 | 183 | 183 | 183 | 183 | 182 | 183 |
| Total sirens-tests | 183 | 183 | 183 | 183 | 183 | 183 | 183 | 183 |

Indicator value **99.9% 99.9% 99.9% 99.9% 100.0% 100.0% 99.9% 99.9%**

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Licensee Comments: none

Occupational Exposure Control Effectiveness



Thresholds: White > 2.0 Yellow > 5.0

Notes

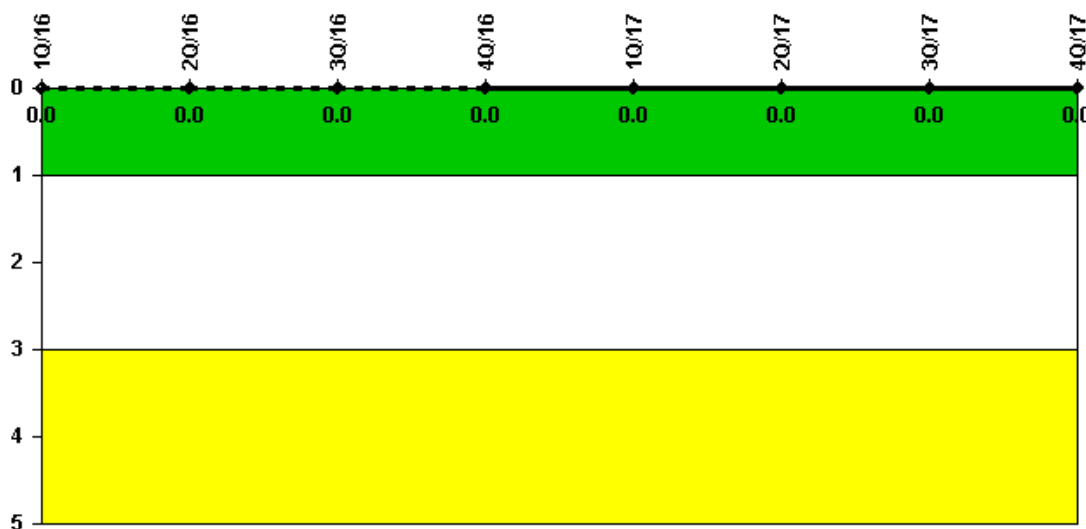
Occupational Exposure Control Effectiveness 1Q/16 2Q/16 3Q/16 4Q/16 1Q/17 2Q/17 3Q/17 4Q/17

| | | | | | | | | |
|--------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| High radiation area occurrences | 0 | 0 | 0 | 0 | 0 | 1 | 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 | 1 | 1 | 1 |

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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