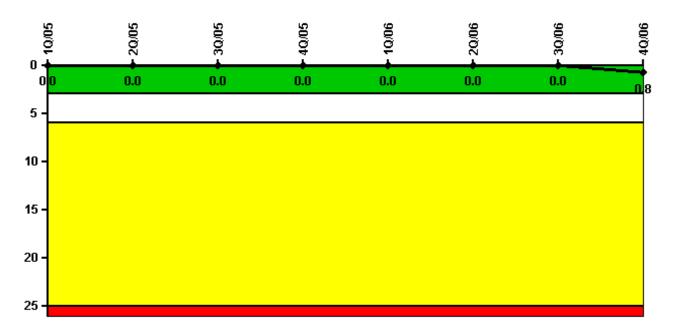
4Q/2006 Performance Indicators - Duane Arnold

# **Duane Arnold**

### 4Q/2006 Performance Indicators

Licensee's General Comments: none

### **Unplanned Scrams per 7000 Critical Hrs**

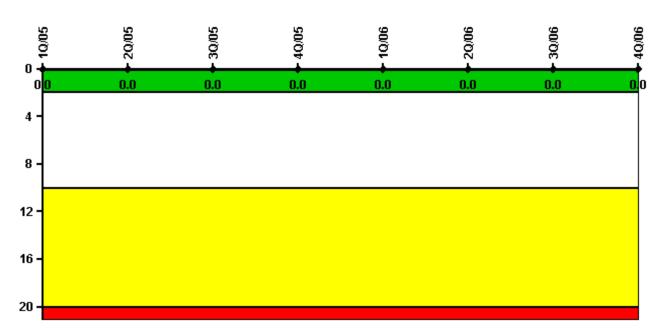


#### Thresholds: White > 3.0 Yellow > 6.0 Red > 25.0

#### Notes

| Unplanned Scrams per 7000 Critical Hrs | 1Q/05  | 2Q/05  | 3Q/05  | 4Q/05  | 1Q/06  | 2Q/06  | 3Q/06  | 40/06  |
|--|--------|--------|--------|--------|--------|--------|--------|--------|
| Unplanned scrams                       | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 1.0    |
| Critical hours                         | 2069.4 | 1438.1 | 2208.0 | 2209.0 | 2160.0 | 2183.0 | 2208.0 | 2135.5 |
|  |        |        |        |        |        |        |        |        |
| Indicator value                        | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0.8    |

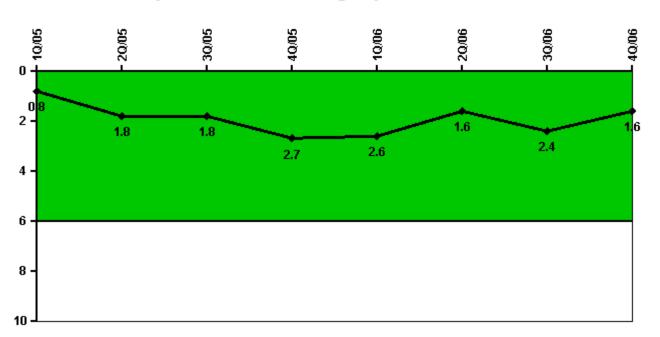
### Scrams with Loss of Normal Heat Removal



#### Thresholds: White > 2.0 Yellow > 10.0 Red > 20.0

#### Notes

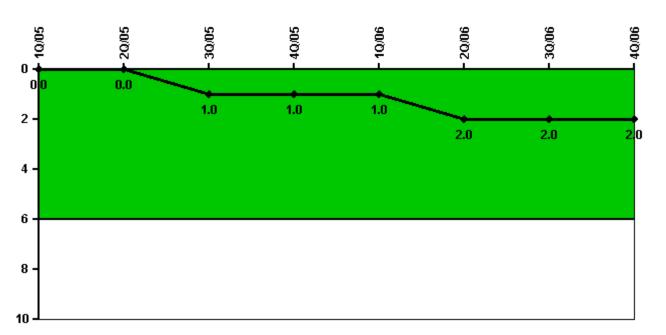
| Scrams with Loss of Normal Heat Removal | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 2Q/06 | 3Q/06 | 4Q/06 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Scrams                                  | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|   |       |       |       |       |       |       |       |       |
| Indicator value                         | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |



#### Thresholds: White > 6.0

#### Notes

| Unplanned Power Changes per 7000 Critical Hrs | 1Q/05  | 2Q/05  | 3Q/05  | 4Q/05  | 1Q/06  | 2Q/06  | 3Q/06  | 40/06  |
|---|--------|--------|--------|--------|--------|--------|--------|--------|
| Unplanned power changes                       | 0      | 2.0    | 0      | 1.0    | 0      | 1.0    | 1.0    | 0      |
| Critical hours                                | 2069.4 | 1438.1 | 2208.0 | 2209.0 | 2160.0 | 2183.0 | 2208.0 | 2135.5 |
|   |        |        |        |        |        |        |        |        |
| Indicator value                               | 0.8    | 1.8    | 1.8    | 2.7    | 2.6    | 1.6    | 2.4    | 1.6    |



#### Thresholds: White > 6.0

#### Notes

| Safety System Functional Failures (BWR) | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 2Q/06 | 3Q/06 | 4Q/06 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| Safety System Functional Failures       | 0     | 0     | 1     | 0     | 0     | 1     | 1     | 0     |
|   |       |       |       |       |       |       |       |       |
| Indicator value                         | 0     | 0     | 1     | 1     | 1     | 2     | 2     | 2     |

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 | 10/05 | 20/05 | 30/05 | 40/05 | 10/06 | 2Q/06         | 3Q/06         | 4Q/06         |
|---|-------|-------|-------|-------|-------|---------------|---------------|---------------|
| UAI (ΔCDF)  |       |       |       |       |       | 4.60E-07      | 4.40E-07      | 5.00E-07      |
| URI (ACDF)  |       |       |       |       |       | -4.40E-05     | -6.10E-07     | -6.10E-07     |
| PLE   |       |       |       |       |       | NO            | NO            | NO            |
|   |       |       |       |       |       |               |               |               |
| Indicator value   |       |       |       |       |       | -4.35E-<br>05 | -1.70E-<br>07 | -1.10E-<br>07 |

Licensee Comments:

## Mitigating Systems Performance Index, High Pressure Injection System



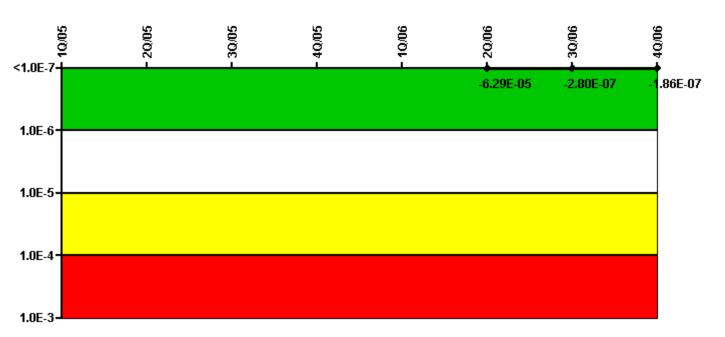
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

#### Notes

| Mitigating Systems Performance Index, High Pressure Injection System | 10/05 | 2Q/05 | 30/05 | 40/05 | 10/06 | 2Q/06         | 30/06         | 4Q/06         |
|--|-------|-------|-------|-------|-------|---------------|---------------|---------------|
| UAI (ΔCDF)   |       |       |       |       |       | 1.30E-08      | 6.30E-09      | 3.60E-08      |
| URI (ACDF)   |       |       |       |       |       | -4.00E-06     | -7.10E-08     | -7.10E-08     |
| PLE  |       |       |       |       |       | NO            | NO            | NO            |
|  |       |       |       |       |       |               |               |               |
| Indicator value  |       |       |       |       |       | -3.99E-<br>06 | -6.47E-<br>08 | -3.50E-<br>08 |

#### Licensee Comments:

Mitigating Systems Performance Index, Heat Removal System



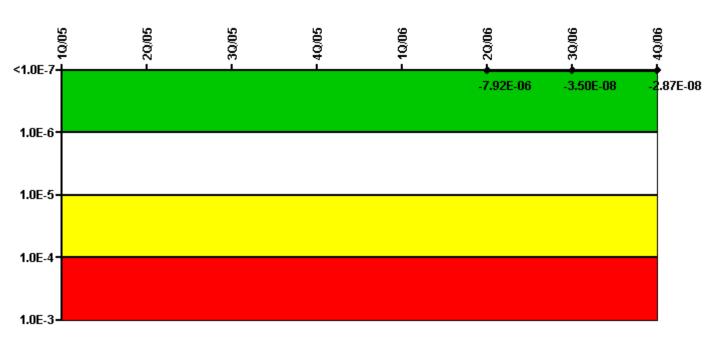
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

#### Notes

| Mitigating Systems Performance Index, Heat Removal System | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 20/06     | 3Q/06     | 40/06     |
|---|-------|-------|-------|-------|-------|-----------|-----------|-----------|
| UAI (ΔCDF)  |       |       |       |       |       | 6.40E-08  | -1.30E-07 | -1.10E-07 |
| URI (ACDF)  |       |       |       |       |       | -6.30E-05 | -1.50E-07 | -7.60E-08 |
| PLE   |       |       |       |       |       | NO        | NO        | NO        |
|   |       |       |       |       |       |           |           |           |
| Indicator value   |       |       |       |       |       | -6.29E-05 | -2.80E-07 | -1.86E-07 |

Licensee Comments:

### Mitigating Systems Performance Index, Residual Heat Removal System



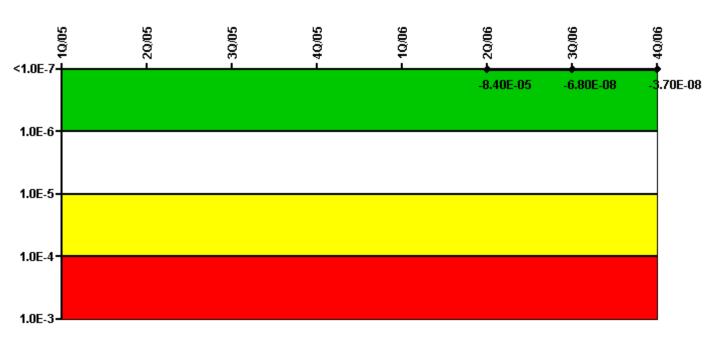
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

#### Notes

| Mitigating Systems Performance Index, Residual Heat Removal System | 10/05 | 20/05 | 30/05 | 40/05 | 10/06 | 2Q/06         | 3Q/06         | 4Q/06         |
|--|-------|-------|-------|-------|-------|---------------|---------------|---------------|
| UAI (ΔCDF)   |       |       |       |       |       | -2.00E-08     | 0.00E+00      | 6.30E-09      |
| URI (ACDF)   |       |       |       |       |       | -7.90E-06     | -3.50E-08     | -3.50E-08     |
| PLE  |       |       |       |       |       | NO            | NO            | NO            |
|  |       |       |       |       |       |               |               |               |
| Indicator value  |       |       |       |       |       | -7.92E-<br>06 | -3.50E-<br>08 | -2.87E-<br>08 |

#### Licensee Comments:

Mitigating Systems Performance Index, Cooling Water Systems



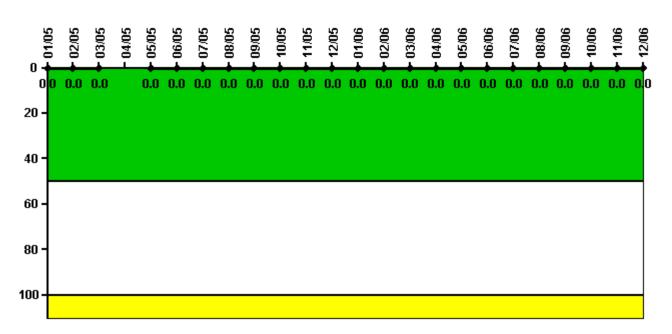
Thresholds: White > 1.00E-6 Yellow > 1.00E-5 Red > 1.00E-4

#### Notes

| Mitigating Systems Performance Index, Cooling Water Systems | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 20/06     | 3Q/06     | 40/06     |
|---|-------|-------|-------|-------|-------|-----------|-----------|-----------|
| UAI (ΔCDF)  |       |       |       |       |       | 8.50E-09  | 1.30E-08  | 4.40E-08  |
| URI (ACDF)  |       |       |       |       |       | -8.40E-05 | -8.10E-08 | -8.10E-08 |
| PLE   |       |       |       |       |       | NO        | NO        | NO        |
|   |       |       |       |       |       |           |           |           |
| Indicator value   |       |       |       |       |       | -8.40E-05 | -6.80E-08 | -3.70E-08 |

Licensee Comments:

## **Reactor Coolant System Activity**

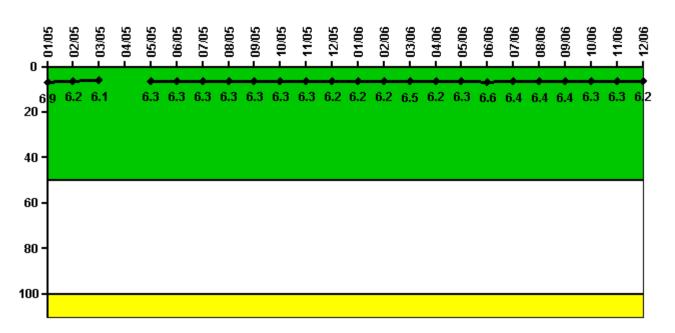


#### Thresholds: White > 50.0 Yellow > 100.0

#### Notes

| Reactor Coolant System Activity | 1/    | ′05 | 2/    | /05 | 3.    | /05  | 4/05  | 5/0   | 5 6 | /05 | 7/05  | 8/05  |     | 9/05  | 10/05 | 11/05 | 12/05    |
|---------------------------------|-------|-----|-------|-----|-------|------|-------|-------|-----|-----|-------|-------|-----|-------|-------|-------|----------|
| Maximum activity                | 0.000 | 009 | 0.000 | 003 | 0.000 | 003  | N/A   |       | 0   | 0   | 0     | 0     | 0.0 | 00006 | 0     | 0     | 0.000003 |
| 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    | N/A   |       | o   | 0   | 0     | 0     |     | 0     | 0     | 0     | 0        |
| Reactor Coolant System Activity | 1/06  | 2/0 | 06 3/ | ′06 | 4/06  | 5/06 | 6 6/0 | 06 7. | /06 | 8/0 | 6 9/0 | 6 10. | /06 | 11/06 | 12/06 | 5     |          |
| Maximum activity                | 0     |     | 0     | 0   | 0     | (    | 0     | 0     | 0   |     | 0     | 0     | 0   | 0     | (     | )     |          |
| Technical specification limit   | 0.2   | 0   | .2 (  | 0.2 | 0.2   | 0.2  | 2 0   | .2    | 0.2 | 0.  | 2 0   | .2    | 0.2 | 0.2   | 0.2   | 2     |          |
|                                 |       |     |       |     |       |      |       |       |     |     |       |       |     |       |       |       |          |
| Indicator value                 | 0     |     | 0     | 0   | 0     | (    | o 🗌   | 0     | 0   |     | 0     | 0     | 0   | 0     | C     | )     |          |

## **Reactor Coolant System Leakage**

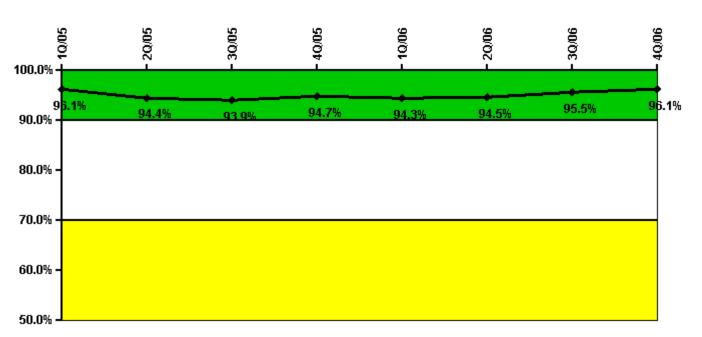


#### Thresholds: White > 50.0 Yellow > 100.0

#### Notes

| Reactor Coolant System Leakage | 1/05  | 2/05  | 3/05  | 4/05  | 5/05  | 6/05  | 7/05  | 8/05  | 9/05  | 10/05 | 11/05 | 12/05 |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Maximum leakage                | 1.730 | 1.540 | 1.520 | N/A   | 1.570 | 1.580 | 1.570 | 1.570 | 1.580 | 1.580 | 1.570 | 1.550 |
| 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                | 6.9   | 6.2   | 6.1   | N/A   | 6.3   | 6.3   | 6.3   | 6.3   | 6.3   | 6.3   | 6.3   | 6.2   |
| Reactor Coolant System Leakage | 1/06  | 2/06  | 3/06  | 4/06  | 5/06  | 6/06  | 7/06  | 8/06  | 9/06  | 10/06 | 11/06 | 12/06 |
| Maximum leakage                | 1.550 | 1.550 | 1.620 | 1.560 | 1.570 | 1.650 | 1.600 | 1.590 | 1.600 | 1.570 | 1.580 | 1.560 |
| 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                | 6.2   | 6.2   | 6.5   | 6.2   | 6.3   | 6.6   | 6.4   | 6.4   | 6.4   | 6.3   | 6.3   | 6.2   |

### **Drill/Exercise Performance**



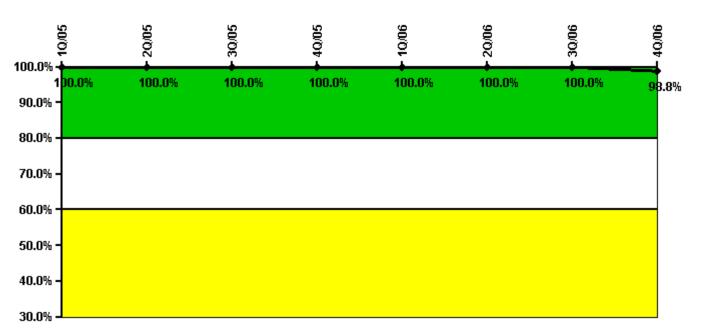
Thresholds: White < 90.0% Yellow < 70.0%

#### Notes

| Drill/Exercise Performance | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 2Q/06 | 3Q/06 | 4Q/06 |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Successful opportunities   | 30.0  | 27.0  | 22.0  | 48.0  | 33.0  | 51.0  | 62.0  | 24.0  |
| Total opportunities        | 30.0  | 31.0  | 24.0  | 48.0  | 35.0  | 55.0  | 62.0  | 24.0  |
|                            |       |       |       |       |       |       |       |       |
| Indicator value            | 96.1% | 94.4% | 93.9% | 94.7% | 94.3% | 94.5% | 95.5% | 96.1% |

#### 4Q/2006 Performance Indicators - Duane Arnold

## **ERO Drill Participation**



Thresholds: White < 80.0% Yellow < 60.0%

#### Notes

| ERO Drill Participation     | 1Q/05  | 2Q/05  | 3Q/05  | 4Q/05  | 10/06  | 2Q/06  | 3Q/06  | 40/06 |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|-------|
| Participating Key personnel | 68.0   | 90.0   | 88.0   | 86.0   | 88.0   | 90.0   | 88.0   | 83.0  |
| Total Key personnel         | 68.0   | 90.0   | 88.0   | 86.0   | 88.0   | 90.0   | 88.0   | 84.0  |
|                             |        |        |        |        |        |        |        |       |
| Indicator value             | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 98.8% |

## Alert & Notification System

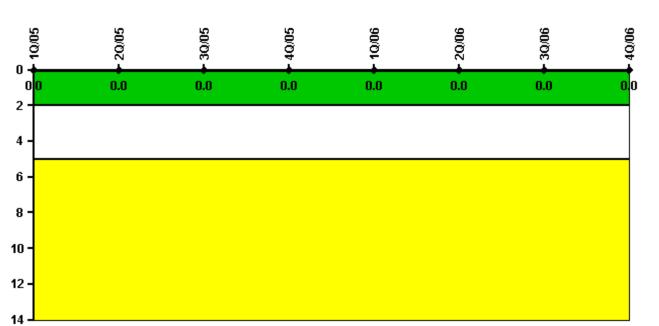
| 10,05                   | 20,05 | 30,05 | 4Q/05 | 10,06 | 2Q/06 | 30/06 | 40,06               |
|-------------------------|-------|-------|-------|-------|-------|-------|---------------------|
| 100.0%                  |       |       | -     | ì     |       | , i   |                     |
| 98.0% <del>9</del> 9.1% | 99.1% | 98.9% | 98.7% |       |       |       |                     |
| 96.0% -                 |       |       |       | 97.8% | 97.9% | 97.4% | <mark>9</mark> 8.0% |
| 94.0%                   |       |       |       |       |       |       |                     |
| 92.0% -                 |       |       |       |       |       |       |                     |
| 90.0%                   |       |       |       |       |       |       |                     |
| 88.0% -                 |       |       |       |       |       |       |                     |
| 86.0% -                 |       |       |       |       |       |       |                     |
| 84.0% -                 |       |       |       |       |       |       |                     |
| 82.0% -                 |       |       |       |       |       |       |                     |
| 80.0%                   |       |       |       |       |       |       |                     |

Thresholds: White < 94.0% Yellow < 90.0%

#### Notes

| Alert & Notification System | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 2Q/06 | 3Q/06 | 40/06 |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Successful siren-tests      | 427   | 427   | 422   | 418   | 412   | 428   | 414   | 428   |
| Total sirens-tests          | 429   | 429   | 429   | 429   | 429   | 429   | 429   | 429   |
|                             |       |       |       |       |       |       |       |       |
| Indicator value             | 99.1% | 99.1% | 98.9% | 98.7% | 97.8% | 97.9% | 97.4% | 98.0% |

## **Occupational Exposure Control Effectiveness**

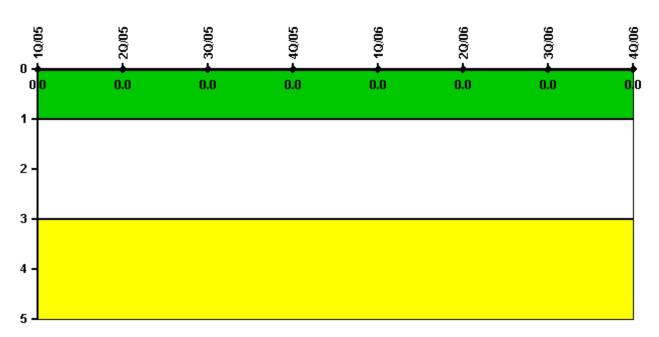


#### Thresholds: White > 2.0 Yellow > 5.0

#### Notes

| Occupational Exposure Control Effectiveness | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 2Q/06 | 3Q/06 | 4Q/06 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|
| 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     |

## **RETS/ODCM Radiological Effluent**



#### Thresholds: White > 1.0 Yellow > 3.0

#### Notes

| RETS/ODCM Radiological Effluent | 1Q/05 | 2Q/05 | 3Q/05 | 4Q/05 | 1Q/06 | 2Q/06 | 3Q/06 | 4Q/06 |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| RETS/ODCM occurrences           | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
|                                 |       |       |       |       |       |       |       |       |
| Indicator value                 | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |

Licensee Comments: none

Physical Protection information not publicly available.

Action Matrix Summary | Inspection Findings Summary | PI Summary | Reactor Oversight Process

Last Modified: February 7, 2007