

## UNIT COMMON CIRCULATING WATER SYSTEM BLOWDOWN AND MAKEUP VACUUM BREAKER VALVE ANNUAL INSPECTION

### 1. PURPOSE

- 1.1. This procedure provides the steps necessary to visually inspect CW Blowdown and Makeup Vacuum Breaker Valves to increase reliability. This procedure to be performed at least annually during all modes of operation.

### 2. MATERIAL AND SPECIAL EQUIPMENT

- Pry bar to remove valve pit manhole covers.
- 10 ft. tape measure.

### 3. PRECAUTIONS, LIMITATIONS, AND PREREQUISITES

#### 3.1. Precautions:

- 3.1.1. **INFORM** Shift Manager before starting and after completing surveillance.

#### 3.2. Limitations:

- 3.2.1. To preclude entry into confined space, all inspections to be performed without personnel entry into the valve pit.
- 3.2.2. Leaking CW Blowdown Vacuum Breakers shall be treated as possible NPDES violation and potentially contaminated (water/soil).
- 3.2.3. If any leak is discovered in the Blowdown system, **CONTACT** the Shift Manager immediately, **GENERATE** a Condition Report (CR) and Action Request (AR).
- 3.2.4. **CONTACT** Radiation Protection immediately if any leaks are discovered in the CW Blowdown system.
- 3.2.5. **NOTIFY** the licensed Wastewater Treatment Operator (Via Chemistry Department) if any leaks are discovered in the CW Blowdown system.
- 3.2.6. If a large leak (ie; water running off general area) is discovered in the Makeup system, **CONTACT** the Shift Manager immediately, **GENERATE** a Condition Report (CR) and Action Request (AR).
- 3.2.7. **NOTIFY** the licensed Wastewater Treatment Operator (Via Chemistry Department) if large leaks (ie; water running off general area) are discovered in CW makeup system.

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3.2.8. If, during the surveillance performance, debris is discovered on a valve which could interfere with valve operation and/or excessive corrosion build up is present on external valve assembly components (ie; bolting, air release piping, etc.), **GENERATE** an Action Request (AR) to have the valve repaired.

3.3. Prerequisites:

3.3.1. Circulating Water Blowdown must be in operation to perform Blowdown Vacuum Breaker Valve portion of this surveillance.

3.3.2. Circulating Water Makeup must be in operation to perform Makeup Vacuum Breaker Valve portion of this surveillance.

3.3.3. A suitable pry bar is required to remove valve pit manhole covers.

3.3.4. A  $\approx$ 10 foot tape measure is required for taking valve pit water levels.

#### 4. MAIN BODY

NOTE: To preclude entry into confined space, all inspections to be performed without personnel entry into the valve pit.

NOTE: Perform Steps 4.1. through 4.3. for each of the valves listed on the blowdown or makeup data sheets.

- 4.1. **REMOVE** the manhole cover for the associated valve pit.
- 4.2. **PERFORM** a visual inspection of the Vacuum Breaker valve and its associated Air Release valve. Specific items to look for are listed below:
  - Water leaking from top of Vacuum Breaker valve.
  - Water leaking from the vent of Air Release valve.
  - Debris on valve which could interfere with valve operation.
  - Excessive corrosion build up on external valve assembly components (i.e., bolting, air release piping, etc.).
  - High water level around base Vacuum Breaker valve.
- 4.3. **REPLACE** the manhole cover for the associated valve pit.
- 4.4. **PERFORM** Steps 4.1. through 4.3. for each of the valves listed on Blowdown and/or Makeup data sheets.
- 4.5. **GENERATE** an Action Request (AR) for any valves with UNSAT conditions on the data sheet(s).
- 4.6. **GENERATE** a Condition Report (CR) for any of the following conditions:
  - Any blowdown valves with leakage,  
**and/or**
  - Any makeup valves with large leakage (i.e., water running off general area).

#### 4.7. Acceptance Criteria

NOTE: Generate a Condition Report (CR) for any Acceptance Criteria not met.

4.7.1. No visible sign of water leakage from vacuum breaker valve assemblies listed on the data sheet. Applicable to blowdown vacuum breakers only.

4.7.2. No large leakage (ie; water running off general area) from vacuum breaker valve assemblies listed on the data sheet. Applicable to makeup vacuum breakers only.

#### 5. RETURN TO NORMAL

5.1. None.

#### 6. REFERENCES

6.1. Commitments -- None.

6.2. Station Procedures:

6.2.1. BwOP CW-M2, CW System Valve Lineup.

6.2.2. BwOP CW-9, Circulating Water Makeup System Startup.

6.2.3. BwOP CW-10, Circulating Water Makeup Pump/System Shutdown.

6.2.4. BwOP CW-12, Circulating Water Blowdown System Fill, Startup, Operation, and Shutdown.

6.2.5. CR A2000-04281, Blowdown Vacuum Breaker Failure Root Cause Report.

6.3. Station Drawings:

6.3.1. M-44, Sheet 3A, CW Makeup System.

6.4. ODCM Radioactive Effluent Technical Standards (RETS):

6.4.1. 12.2.1.a.

6.4.2. 12.3.1.a.

7. **ATTACHMENTS**

7.1. Attachment 1, CW Blowdown Vacuum Breaker Valve Annual Inspection Data Sheet.

7.2. Attachment 2, CW Makeup Vacuum Breaker Valve Annual Inspection Data Sheet.

**ATTACHMENT 1**

**CW Blowdown Vacuum Breaker Valve Annual Inspection Data Sheet**

**Page 1 of 6**

NOTE: Vacuum breaker valves are listed on Attachment 1 starting at the River Screen House and working back to the plant.

NOTE: Generate an Action Request (AR) for any valves with UNSAT conditions. Generate a Condition Report (CR) for any Blowdown Valves with UNSAT leakage.

**0CW078**

Location: 0.1 mile north of Smiley Rd. & 50' west of Hwy 113. Gain access from Hwy 113.

- 1. Valve assembly leak-free: SAT UNSAT (Circle appropriate)
- 2. Debris present on valve: SAT UNSAT (Circle appropriate)
- 3. Excessive external corrosion: SAT UNSAT (Circle appropriate)
- 4. Water present in valve pit: NO YES: \_\_\_\_ inches (Circle appropriate)

Comments: \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**0CW075**

Location: 0.2 mile north of Smiley Rd. & 0.1 mile west of West River Rd (22400 West). Gain access from Smiley Rd. near visible natural gas pipe crossing sign.

- 1. Valve assembly leak-free: SAT UNSAT (Circle appropriate)
- 2. Debris present on valve: SAT UNSAT (Circle appropriate)
- 3. Excessive external corrosion: SAT UNSAT (Circle appropriate)
- 4. Water present in valve pit: NO YES: \_\_\_\_ inches (Circle appropriate)

Comments: \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**ATTACHMENT 1****CW Blowdown Vacuum Breaker Valve Annual Inspection Data Sheet**

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**OCW144**

Location: 0.2 mile north of Smiley Rd. & 0.5 mile west of West River Rd (22400 West).  
Gain access from Smiley Rd. near visible natural gas pipe crossing sign (same starting point as OCW075 vlv).

- |      |                               |     |                  |                      |
|------|-------------------------------|-----|------------------|----------------------|
| ☐ 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2.   | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3.   | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4.   | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ / \_\_\_\_\_

**OCW069**

Location: 0.2 mile North of Smiley Rd. & 1.2 mile west of West River Rd. (22400 West).  
Gain access from Smiley Rd. on east side of farmer fence row at steel gate.

- |      |                               |     |                  |                      |
|------|-------------------------------|-----|------------------|----------------------|
| ☐ 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2.   | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3.   | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4.   | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ / \_\_\_\_\_

**ATTACHMENT 1****CW Blowdown Vacuum Breaker Valve Annual Inspection Data Sheet**

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**OCW066**

Location: 0.2 mile north of Smiley Rd. & 0.5 mile east of Essex Rd. Gain access from Essex Rd. near cemetery.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

**OCW140**

Location: 0.2 mile north of Smiley Rd. & 0.2 mile east of Essex Rd. Gain access from Essex Rd. near cemetery (same starting point as OCW066).

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_



**ATTACHMENT 1****CW Blowdown Vacuum Breaker Valve Annual Inspection Data Sheet**

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**0CW063**

Location: 0.2 mile north of Smiley Rd. & 0.1 mile west of Essex Rd. Gain access from Smiley Rd. near forest preserve property drive.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**0CW138**

Location: 0.2 north of Smiley Rd. & 0.7 mile west of Essex Rd. Gain access from Smiley Rd. at Braidwood Dunes & Savanna Nature Preserve sign.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**ATTACHMENT 1**

**CW Blowdown Vacuum Breaker Valve Annual Inspection Data Sheet**

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**0CW060**

VB-3

Location: 0.2 mile due north of Braidwood holding pond. Gain access from holding pond at demineralizer makeup pump house.

- |    |                               |     |                        |                      |
|----|-------------------------------|-----|------------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT                  | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT                  | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT                  | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: <u>3.5</u> inches | (Circle appropriate) |

Comments: \_\_\_\_\_

**0CW136**

Location: 0.2 mile north of holding pond & .1 mile west of 0CW060 valve. Gain access from holding pond at demineralizer makeup pump house (same starting point as 0CW060).

- |    |                               |     |                   |                      |
|----|-------------------------------|-----|-------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT             | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT             | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT             | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: _____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

**ATTACHMENT 1**

**CW Blowdown Vacuum Breaker Valve Annual Inspection Data Sheet**

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**0CW058**

Location: 50' due south of switch yard. Gain access from gravel road just south of switch yard.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**ATTACHMENT 2**

**CW Makeup Vacuum Breaker Valve Annual Inspection Data Sheet**

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NOTE: Vacuum breaker valves are listed on Attachment 2 starting at the River Screen House and working back to the plant.

NOTE: Generate an Action Request (AR) for any valves with UNSAT conditions. Generate a Condition Report (CR) for any Blowdown Valves with UNSAT leakage.

**OCW146**

Location: 0.1 mile north of Smiley Rd. & 50' west of Hwy 113. Gain access from Hwy 113.

- |    |                               |     |                   |                      |
|----|-------------------------------|-----|-------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT             | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT             | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT             | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: _____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

**OCW036**

Location: 0.2 mile north of Smiley Rd. & 0.1 mile west of West River Rd (22400 West).  
Gain access from Smiley Rd. near visible natural gas pipe crossing sign.

- |    |                               |     |                   |                      |
|----|-------------------------------|-----|-------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT             | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT             | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT             | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: _____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

**ATTACHMENT 2**

**CW Makeup Vacuum Breaker Valve Annual Inspection Data Sheet**

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**0CW124**

Location: 0.2 mile north of Smiley Rd. & 0.5 mile west of West River Rd (22400 West).  
Gain access from Smiley Rd. near visible natural gas pipe crossing sign (same starting point as 0CW036 vlv).

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_  
\_\_\_\_\_ / \_\_\_\_\_

**0CW039**

Location: 0.2 mile North of Smiley Rd. & 1.2 mile west of West River Rd. (22400 West).  
Gain access from Smiley Rd. on east side of farmer fence row at steel gate.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_  
\_\_\_\_\_ / \_\_\_\_\_

**ATTACHMENT 2****CW Makeup Vacuum Breaker Valve Annual Inspection Data Sheet****Page 3 of 4****0CW128**

Location: 0.2 mile north of Smiley Rd. & 0.5 mile east of Essex Rd. Gain access from Essex Rd. near cemetery.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**0CW130**

Location: 0.2 mile north of Smiley Rd. & 0.2 mile east of Essex Rd. Gain access from Essex Rd. near cemetery (same starting point as 0CW128).

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**ATTACHMENT 2****CW Makeup Vacuum Breaker Valve Annual Inspection Data Sheet****Page 4 of 4****0CW132**

Location: 0.2 mile north of Smiley Rd. & 0.1 mile west of Essex Rd. Gain access from Smiley Rd. near forest preserve property drive.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_

**0CW134**

Location: 0.2 north of Smiley Rd. & 0.7 mile west of Essex Rd. Gain access from Smiley Rd. at Braidwood Dunes & Savanna Nature Preserve sign.

- |    |                               |     |                  |                      |
|----|-------------------------------|-----|------------------|----------------------|
| 1. | Valve assembly leak-free:     | SAT | UNSAT            | (Circle appropriate) |
| 2. | Debris present on valve:      | SAT | UNSAT            | (Circle appropriate) |
| 3. | Excessive external corrosion: | SAT | UNSAT            | (Circle appropriate) |
| 4. | Water present in valve pit:   | NO  | YES: ____ inches | (Circle appropriate) |

Comments: \_\_\_\_\_

\_\_\_\_\_ / \_\_\_\_\_