Duke Energy Company
CATAWBA NUCLEAR STATION

Cold Weather Protection

Procedure No.
PT/0/B/4700/038

Revision No.
047

Continuous Use

PERFORMANCE

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Date(s) Performed 11-8-21 – 11-15-21

Work Order/Task Number (WO#) 20404592-01

COMPLETION

- ☑ Yes ☐ NA Checklists and/or blanks initialed, signed, dated, or filled in NA, as appropriate?
- ☑ Yes ☐ NA Required attachments included?
- ☐ Yes ☐ NA Charts, graphs, data sheets, etc. attached, dated, identified, and marked?
- ☐ Yes ☑ NA Calibrated Test Equipment, if used, checked out/in and referenced to this procedure?
- ☑ Yes ☐ NA Procedure requirements met?

Verified By
** Printed Name and Signature* K. Anderson [signature] Date 11/15/21

Procedure Completion Approved
** Printed Name and Signature* Rick Sweet [signature] Date 11/15/21

Remarks (*attach additional pages, if necessary*)

Encl. 13.1 - Aligning Site Systems for Cold Weather - October.

Item - HGMOSS Jr. IF - NICK FRYSINGER

IMPORTANT: Do **NOT** mark on barcodes.

Attachment Number: *BODY*

Procedure No.: *PT/0/B/4700/038*

Printed Date: *11/8/21*

Revision No.: *047*

REVISION REMARKS	
Rev 047	PRR: 02284691 Enclosure 13.3, added new Step 1.8. This is a non-technical change for cold weather conditions as determined by EC0000415346. PRR: 02337669 In Section 6 (Limit and Precautions), added new L&P to warn against ice formation on cooling towers.

Cold Weather Protection

1. Purpose

Ensure the readiness of cold weather equipment and systems for safe reliable operation of the units during cold weather months.

2. References

AD-EG-ALL-1523 (Temporary Ignition Source Control)

3. Time Required

3.1 Enclosure 13.1 (Aligning Site Systems For Cold Weather - October)

- 3.1.1 Manpower - Two operators
- 3.1.2 Time - 2 weeks
- 3.1.3 Frequency - Annually (October)

3.2 Enclosure 13.2 (Aligning Site Systems For Cold Weather - November)

- 3.2.1 Manpower - Two operators
- 3.2.2 Time - 8 hours
- 3.2.3 Frequency - Annually (November)

3.3 Enclosure 13.3 (Verification of Site Systems During Cold Weather)

- 3.3.1 Manpower - Two operators and Cold Weather Protection Engineer (at applicable work order review step)
- 3.3.2 Time - 1 week
- 3.3.3 Frequency - Monthly (November, December, January, February and as desired by OWPM)

3.4 Enclosure 13.4 (Verification of Site Systems During Extreme Cold Weather Conditions)

- 3.4.1 Manpower - Two operators
- 3.4.2 Time - 8 hours

NOTE: The variation in cold weather extremes is to be considered as 10°F will freeze water much faster than 22°F. Long periods of extreme cold have a worse impact than a short overnight temperature dip.

3.4.3 Frequency:

- Supervisor determined need based on forecast or weather extreme.
- Upon receipt of OAC Alarm for Lo-Lo Dry Bulb Temperature (OAC Point C1P0118 or C2P0118) at 22°F and Enclosure 13.4 (Verification of Site Systems During Extreme Cold Weather Conditions) has **NOT** been completed within the past 7 days.
- Temperature is forecast to remain less than or equal to 32°F for at least 24 hours with a low of less than or equal to 22°F and Enclosure 13.4 (Verification of Site Systems During Extreme Cold Weather Conditions) has **NOT** been completed within the past 24 hours.

4. Prerequisite Tests

None

5. Test Equipment

5.1 If performing Enclosure 13.3 (Verification of Site Systems During Cold Weather), obtain the following items:

CAUTION: Freeze Spray is used per directions on can when called for. MSDS data is available by its Trade Name (Freeze Spray) or its MSDS # (44734).

- Can of Freeze Spray CRC (Commodity ID # 866921)
- Handheld remote reading pyrometer (infrared sensing with laser pointer)
- Key # 239 (VP Purge Fan Room)
- Key # 300 (Thermostat Covers)
- Key # 462F (Met Tower Building)
- Key # 425 (SSF Duct Heater Thermostats)

5.2 If performing Enclosure 13.4 (Verification of Site Systems During Extreme Cold Weather Conditions) obtain a Handheld remote reading pyrometer (infrared sensing with laser pointer).

6. Limits and Precautions

Freeze Spray is used per directions on can when called for. MSDS data is available by its Trade Name (Freeze Spray) or its MSDS # (44734):

- Applying Freeze Spray to Electric Unit Heaters may result in electrical shock.
- Do **NOT** shake Freeze Spray can.
- Always use Freeze Spray can in upright position.
- While traveling and traversing outside during extreme cold weather conditions RC cooling tower conditions which allow ice formation should be recognized as a unique personal safety concern near the towers or tower stairs.

7. Unit Status

None

8. Prerequisite System Conditions

None

9. Test Method

Systems are aligned for cold weather conditions per expected climatic conditions. Monthly, proper system operation for cold weather conditions is verified and degraded equipment is identified. When extreme cold weather conditions exist, additional equipment checks are performed.

10. Data Required

None

11. Acceptance Criteria

11.1 All required steps have been completed.

11.2 All equipment problems have been evaluated and corrective action implemented.

11.3 All equipment problems (discrepancies and deficiencies) are documented on an Equipment Problem Evaluation Form with applicable degraded equipment ID and associated W/R's and/or W/O's as corrective actions.

12. Procedure

KA 12.1 **IF** aligning site systems for cold weather in October, complete 13.1 (Aligning Site Systems For Cold Weather - October).

N/A 12.2 **IF** aligning site systems for cold weather in November, complete 13.2 (Aligning Site Systems For Cold Weather - November).

N/A 12.3 **IF** verifying site systems for monthly cold weather surveillance, complete 13.3 (Verification of Site Systems During Cold Weather).

N/A 12.4 **IF** verifying site systems during extreme cold weather, complete 13.4 (Verification of Site Systems During Extreme Cold Weather Conditions).

12.5 Evaluate the acceptance criteria by performing one of the following:

KA 12.5.1 Verify the acceptance criteria specified in Section 11 is met.

OR

____ 12.5.2 **IF** the acceptance criteria is **NOT** met, perform the following:

- ☐ Notify the Unit/WCC SRO that the acceptance criteria is **NOT** met.

  _____ ____/____
  Unit/WCC SRO Contacted Date Time

- ☐ Initiate a CR to document the test failure.
- ☐ Document all issues on an Equipment Problem Evaluation Form.

N/A 12.6 **IF** any discrepancy is noted during the performance of this test that does **NOT** keep the test from meeting the acceptance criteria, it shall be given to the Unit/WCC SRO for evaluation via an Equipment Problem Evaluation Form.

N/A 12.7 **IF** Enclosure 13.3 (Verification of Site Systems During Cold Weather) **OR** Enclosure 13.4 (Verification of Site Systems During Extreme Cold Weather Conditions) was performed send copies of the completed Equipment Problem Evaluation Form to the OWPM group.

13. Enclosures

13.1 Aligning Site Systems For Cold Weather - October

13.2 Aligning Site Systems For Cold Weather - November

13.3 Verification of Site Systems During Cold Weather

13.4 Verification of Site Systems During Extreme Cold Weather Conditions

Enclosure 13.1

Aligning Site Systems For Cold Weather - October

1. Procedure

NOTE: Steps 1.1 through 1.7 may be performed in any order.

1.1 Ensure YH (Heating Water System) in service as follows:

NOTE: Valve 1AS-81 (Aux Steam To Plant Heat Isol) is subject to thermal binding and may be difficult to operate.

1.1.1 Ensure 1AS-81 (Aux Steam To Plant Heat Isol) is open for Seasonal Control of Auxiliary Steam to YH Converters per OP/0/B/6250/007 A (Auxiliary Steam System Alignment).

1.1.2 Ensure YH System in service by performing the Operational Verification Enclosures of the following:

- OP/1/B/6400/011 C (Turbine Building Heating Water System)
- OP/2/B/6400/011 C (Turbine Building Heating Water System)
- OP/0/B/6400/011 A (Service Building Heating Water System)
- OP/0/B/6400/011 B (Auxiliary and Reactor Building Heating Water System)

1.2 Ensure the Unit 1 Fuel Pool Supply Unit (FPSU-1) Cooling Coils are isolated and drained per OP/1/A/6450/004 (Fuel Pool Ventilation System).

1.3 Ensure the Unit 2 Fuel Pool Supply Unit (FPSU-2) Cooling Coils are isolated and drained per OP/2/A/6450/004 (Fuel Pool Ventilation System).

1.4 Ensure Unit 1 ABSU Cooling Coils are isolated and drained per OP/0/A/6450/003 (Auxiliary Building Ventilation System).

- ABSU-1A (1A Aux Bldg Supply Unit (ABSU-1A))
- ABSU-1B (1B Aux Bldg Supply Unit (ABSU-1B))

1.5 Ensure Unit 2 ABSU Cooling Coils are isolated and drained per OP/0/A/6450/003 (Auxiliary Building Ventilation System).

- ABSU-2A (2A Aux Bldg Supply Unit (ABSU-2A))
- ABSU-2B (2B Aux Bldg Supply Unit (ABSU-2B))

J - John Whitsen

K. K. Anderson

Enclosure 13.1

Aligning Site Systems For Cold Weather - October

NOTE: 4 portable high temperature electric heaters are located in Turbine building basements. 2 typically located on the Unit 1 Side (TB1-568, 1B-17) and 2 typically located on the Unit 2 side (TB2-568, 2B-17). These locations may vary depending on use. Installation of portable electric heaters shall comply with AD-EG-ALL-1523 (Temporary Ignition Source Control).

1.6 **IF** any portable High Temperature Electric Heaters are **NOT** in service, notify WCC SRO of the following:

- ☑ The High Temperature Electric Heaters will each be run for at least two (2) minutes
- ☑ Tests of High Temperature Electric Heaters are continuously monitored thus a Fire Impairment per NSD 316 (Fire Protection Impairment and Surveillance) is **NOT** required.

1.7 Perform the following for each of the four (4) portable High Temperature Electric Heaters (**NOT** labeled as they are facility equipment):

- SA • High Temperature Electric Heater #1 SEAN ATKINSON - SA
- SA • High Temperature Electric Heater #2
- • High Temperature Electric Heater #3
- • High Temperature Electric Heater #4

1.7.1 Verify the heater is in good physical condition including the cable and plug.

1.7.2 **IF** heater is **NOT** in use per OP/1(2)/B/6450/016 (Turbine Building Ventilation), verify the heater is functional as follows: (run ≥ 2 minutes)

1.7.2.1 Operate the High Temperature Electric Heater per OP/1(2)/B/6450/016 (Turbine Building Ventilation).

1.7.2.2 Verify heater operates properly without abnormal noise, smoke, arcing, etc.

1.7.2.3 After at least two (2) minutes, shutdown heater per OP/1(2)/B/6450/016 (Turbine Building Ventilation).

1.7.2.4 Verify the heater is located near applicable turbine building equipment storage room **OR** at an easily visible location on applicable TB-568 elevation.

N/A 1.7.3 **IF** heater is in use per OP/1(2)/B/6450/016 (Turbine Building Ventilation), verify heater operates properly without abnormal noise, smoke, arcing, etc.

N/A 1.8 **IF** any problems regarding portable High Temperature Electric Heaters were found in Step 1.7 contact Site Services for resolution or repair.

J. Z. Murray