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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides a safe, uniform method for inspecting, cleaning, and testing of Generac ATS at the 200 Area TEDF Pump Stations 1 and 2.

1.2 Scope

This procedure should be performed concurrently with motor control center inspection and cleaning performed due to power outage requirement.

2.0 INFORMATION

2.1 Terms and Definitions

- ATS – Automatic Transfer Switch.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Radiation and Contamination Control

3.1.1 Work in radiological areas will be performed using a radiological work permit following review by Radiological Control per ALARA Work Planning procedure, TFC-ESHQ-RP_RWP-C-03.

3.2 Environmental Compliance

3.2.1 In the event of a spill/leak/release, notify the SOM/FWS and respond per ETF-ERP-85B-003, Emergency Spill or Release at ETF.
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

NOTE - MT&E used to collect acceptance criteria data during performance of this procedure shall meet the following requirements:

- Be within its current calibration cycle as evidenced by an affixed calibration label
- Be capable of desired range
- Accuracy is equal to or greater than M&TE tolerance specified on PM/S data sheet or is at least four times greater than specified device tolerance.

The following supplies may be needed to perform this procedure:

- Vacuum cleaner with non-metallic attachments
- Clean wiping cloths
- Megohmmeter (1000V DC)
- ATS manual operating handle and actuating pin (inside ATS enclosure).

4.2 Performance Documents

The following documents may be needed to perform this procedure:

- DOE-0336, Hanford Site Lockout/Tagout Procedure
- ETF-55-001, Monitor and Control System Operations

4.3 Field Preparations

4.3.1 BEFORE de-energizing pump stations, CONFIRM Operations have notified appropriate TEDF generators.
5.0 PROCEDURE

Special Instructions

Depending on which pump station is being maintained, start at either Section 5.1 or 5.2.

5.1 Pump Station 1 ATS Testing

5.1.1 RECORD the as-found configuration of the MCC circuit breakers on the work package.

5.1.2 ENSURE shutdown of LOP at LCU per ETF-55-001, Section 5.10.

5.1.3 ENSURE shutdown of power at Chassis 2.

5.1.4 ENSURE shutdown of power at Chassis 1.

5.1.5 ENSURE UPS-1 is powered OFF at LCU.

5.1.6 BEFORE de-energizing the MCC, ENSURE all remaining connected loads are shut down.

5.1.7 DE-ENERGIZE the MCC as follows:

5.1.7.1 POSITION feeder breakers to the OFF position.

5.1.7.2 POSITION the main breaker to OFF.

5.1.8 OPEN pole-mounted disconnect switch F8X651 (68A-DSW-001).

5.1.9 CONFIRM ATS indication lights show load transferred to standby power source.

5.1.10 OPEN pole-mounted disconnect switch F8X652 (68A-DSW-002).

5.1.11 REQUEST electrical utilities personnel open primary disconnects and install hold off tag.

5.1.12 REQUEST Operations overtag electrical utilities hold off tag per DOE-0336.

5.1.13 INSPECT F8X651 (68A-DSW-001) for cleanliness AND

USE a vacuum cleaner to remove the following:

- Dust
- Dirt
- Foreign objects.
5.1 Pump Station 1 ATS Testing (Cont.)

5.1.14 INSPECT wiring and terminations for the following:
- Arcing
- Overheating
- Deterioration
- Loose hardware.

5.1.15 IF damage is observed, PERFORM minor repairs AND RECORD the following on the work package:
- Type of damage
- Any repairs made.

5.1.16 INSPECT F8X652 (68A-DSW-002) for cleanliness AND USE a vacuum cleaner to remove the following:
- Dust
- Dirt
- Foreign objects.

5.1.17 INSPECT wiring and terminations for the following:
- Arcing
- Overheating
- Deterioration
- Loose hardware.

5.1.18 IF damage is observed, PERFORM minor repairs AND RECORD the following on the work package:
- Type of damage
- Any repairs made.

5.1.19 GO TO Section 5.3.
5.2 **Pump Station 2 ATS Testing**

5.2.1 RECORD the as-found configuration of the MCC circuit breakers on the work package.

5.2.2 ENSURE shutdown of LOP at LCU per ETF-55-001, Section 5.10.

5.2.3 ENSURE shutdown of power at Chassis 2.

5.2.4 ENSURE shutdown of power at Chassis 1.

5.2.5 ENSURE UPS-1 is powered OFF at LCU.

5.2.6 BEFORE de-energizing the MCC, ENSURE all remaining connected loads are shut down.

5.2.7 DE-ENERGIZE the MCC as follows:

5.2.7.1 POSITION feeder breakers to the OFF position.

5.2.7.2 POSITION the main breaker to OFF.

NOTE - The following step will start the Pump Station 2 standby generator.

5.2.8 OPEN the pole-mounted disconnect switch F8X650 (68B-DSW-001).

5.2.9 REQUEST electrical utilities personnel open the primary disconnect and install the hold-off tag.

5.2.10 CONFIRM the standby generator starts.

5.2.11 CONFIRM ATS indication lights show the load is transferred to the standby generator.

5.2.12 MOVE the Start/Stop switch on the generator control console to the STOP position.

5.2.13 OPEN the generator load side circuit breaker, DS-GEN-1.

5.2.14 REQUEST Operations overtag the electrical utilities hold-off tag per DOE-0336.

5.2.15 REQUEST Operations install a lock and tag on the generator load side circuit breaker DS-GEN-1.
5.2 Pump Station 2 ATS Testing (Cont.)

5.2.16 **ON** generator control console, **MOVE** Auto/Manual/Off switch to OFF position.

5.2.17 **POSITION** the DS-BAT to OFF.

5.2.18 **INSPECT** F8X650 (68B-DSW-001) for cleanliness **AND**

USE a vacuum cleaner to remove the following:
- Dust
- Dirt
- Foreign objects.

5.2.19 **INSPECT** wiring and terminations for the following:
- Arcing
- Overheating
- Deterioration
- Loose hardware.

5.2.20 **IF** damage is observed, **PERFORM** minor repairs **AND**

**RECORD** the following on the work package:
- Type of damage
- Any repairs made.
5.3 Inspection, Cleaning, and Insulation Testing of ATS

5.3.1 MOVE the Maintenance switch inside the ATS cabinet to MANUAL.

5.3.2 CONFIRM the System Test switch on the ATS cabinet door is set to AUTOMATIC mode.

5.3.3 ENSURE the MCC main circuit breaker is OFF.

5.3.4 INSPECT the ATS for cleanliness AND USE a vacuum cleaner remove the following:

- Dust
- Dirt
- Foreign objects.

5.3.5 INSPECT the enclosure for water or water damage.

5.3.6 IF water is found in the enclosure, PERFORM the following:

5.3.6.1 LOCATE AND IDENTIFY the source.

5.3.6.2 REMOVE water from the enclosure using cloths.

5.3.6.3 NOTIFY FWS.

5.3.7 INSPECT wiring and terminations for the following:

- Arcing
- Overheating
- Deterioration
- Loose hardware.

5.3.8 IF damage is observed, PERFORM minor repairs AND RECORD the following on the work package:

- Type of damage
- Any repairs made.
5.3 Inspection, Cleaning, and Insulation Testing of ATS (Cont.)

5.3.9 REMOVE the transfer switch mechanism cover AND

INSPECT contacts and control assembly enclosure for the following:
- Dirt
- Moisture
- Overheating.

5.3.10 IF any of the above conditions are observed, CORRECT the condition AND

RECORD the following on the work package:
- Condition found
- Corrective action.

5.3.11 REPLACE the transfer switch mechanism cover.

5.3.12 INSPECT the following for damage:
- Door
- Door gasket
- Door-mounted devices.

5.3.13 IF damage is observed, PERFORM repairs AND

RECORD the following on the work package:
- Type of damage
- Any repairs made.
5.3 Inspection, Cleaning, and Insulation Testing of ATS (Cont.)

NOTE - Transfer mechanism must be placed in TRIPPED position before being set to NORMAL or STANDBY positions.

5.3.14 PLACE main contacts in TRIPPED position as follows:

5.3.14.1 INSERT the ATS actuating pin into the Trip hole (Figure 1).

5.3.14.2 PUSH the pin into the hole.

5.3.14.3 OBSERVE the transfer mechanism window “A” displays the word OFF and window “B” displays the word OFF.

5.3.14.4 REMOVE the pin from the Trip hole.

5.3.14.5 IF window displays are not as specified, STOP AND NOTIFY the FWS.

5.3.15 PLACE the transfer switch main contacts to NORMAL position as follows:

5.3.15.1 ATTACH the handle to the lug (Figure 1).

5.3.15.2 PUSH the handle upward until it stops.

5.3.15.3 OBSERVE transfer mechanism window “A” displays the word ON and window “B” displays the word OFF.

5.3.15.4 REMOVE the handle from the lug.

5.3.16 MEASURE AND RECORD insulation resistance of bus as follows:

- Phase-to-phase
- Phase-to-ground.
5.3 Inspection, Cleaning, and Insulation Testing of ATS (Cont.)

5.3.17 PLACE ATS main contacts first in a TRIPPED position, then in a STANDBY position as follows:

5.3.17.1 INSERT the ATS actuating pin into Trip hole (Figure 1).

5.3.17.2 PUSH the pin into the hole.

5.3.17.3 OBSERVE the transfer mechanism window “A” displays the word OFF and window “B” displays the word OFF.

5.3.17.4 REMOVE the pin from the Trip hole.

5.3.17.5 ATTACH the handle to the lug (Figure 1).

5.3.17.6 INSERT the pin into the Selector hole.

5.3.17.7 PUSH the pin into the hole while moving the handle upward until it stops.

5.3.17.8 OBSERVE the transfer mechanism window “A” displays the word OFF and window “B” displays the word ON.

5.3.18 MEASURE AND RECORD insulation resistance of bus as follows:

- Phase-to-phase
- Phase-to-ground.
5.4 Re-Energizing

5.4.1 IF MCC inspection and cleaning is being performed concurrently with this procedure power outage, ENSURE the MCC is safe to energize.

5.4.2 MOVE the Maintenance switch to AUTOMATIC.

5.4.3 REQUEST Operations personnel clear all locks and tags per DOE-0336.

5.4.4 IF re-energizing Pump Station 1, PERFORM the following:

5.4.4.1 REQUEST electrical utilities personnel remove hold off tag and close primary disconnects.

5.4.4.2 CLOSE the pole-mounted disconnect switch F8X652 (68A-DSW-002).

5.4.4.3 CONFIRM ATS indicating lights show load connected to standby power source.

5.4.4.4 CLOSE the pole-mounted disconnect switch F8X651 (68A-DSW-001).

5.4.4.5 CONFIRM ATS indicating lights show load transferred to normal power source.

5.4.4.6 RESTORE MCC breakers to as-found positions or as directed by the FWS AND RECORD FWS direction on the work package.

5.4.4.7 ENSURE UPS-1 power is ON.

5.4.4.8 ENSURE Chassis 1 power is ON.

5.4.4.9 ENSURE Chassis 2 power is ON.
5.4 Re-Energizing (Cont.)

5.4.5 IF re-energizing Pump Station 2, PERFORM the following:

5.4.5.1 IF not already removed, REQUEST Operations personnel remove lock and tag from generator load side circuit breaker.

5.4.5.2 REQUEST electrical utilities personnel remove the hold-off tag and close primary disconnects.

5.4.5.3 CLOSE the generator load side circuit breaker.

5.4.5.4 POSITION the DS-BAT-1 to ON.

5.4.5.5 ON generator control console, MOVE the Auto/Manual/Off switch to MANUAL.

5.4.5.6 MOVE the Start/Stop switch to START.

5.4.5.7 CONFIRM the generator starts.

5.4.5.8 CONFIRM the ATS indicating lights show load connected to standby power source.

5.4.5.9 CLOSE the pole-mounted disconnect switch F8X650 (68B-DSW-001).

5.4.5.10 CONFIRM the ATS indicating lights show load transferred to normal power source.

5.4.5.11 ENSURE UPS-1 power is ON.

5.4.5.12 ENSURE Chassis 1 power is ON.

5.4.5.13 ENSURE Chassis 2 power is ON.

5.4.5.14 MOVE the generator Start/Stop switch to STOP.

5.4.5.15 RESTORE MCC breakers to as-found positions or as directed by the FWS AND RECORD FWS direction on the work package.
5.5 Acceptance Criteria

5.5.1 MOVE the ATS System Test switch on enclosure cover to NORMAL TEST mode.

5.5.2 CONFIRM the following occur:
- ATS indicating lights show load transferred to standby power source
- Pump Station 1 - load transfers to second utility source
- Pump Station 2 - generator starts and load transfers to generator power source.

5.5.3 RETURN the ATS System Test switch on enclosure cover to AUTOMATIC mode.

5.5.4 CONFIRM the following occurs:
- ATS indicating lights show load transferred back to normal power source
- Pump Station 1 - load transfers back to first utility source
- Pump Station 2 - generator shuts down and load transfers back to utility source.

5.6 Restoration

5.6.1 ENSURE the following:
- ATS Maintenance switch is set to AUTOMATIC
- ATS System Test switch is set to AUTOMATIC
- Generator Auto/Manual/Off switch is set to AUTO
- LOP power up has completed and display is active.

5.6.2 CONFIRM proper operation of indication lights AND REPLACE non-operating bulbs.

5.6.3 RESTORE to as-found conditions.

5.6.4 INFORM SOM test is complete and instrument/equipment/system may be returned to service.
5.7 Review

5.7.1 INFORM the FWS that the test is complete.

5.7.2 (FWS) REVIEW AND ENSURE the following:
- Completed data sheets meet the acceptance criteria
- Comments sections are filled out appropriately
- Work requests needed as a result of this procedure are identified and generated
- Work request number(s) of any work documents generated as a result of this procedure, are recorded in the Comments/Remarks section of the data sheet.

5.8 Records

This procedure is performed within a work package, as such, the procedure in its entirety will be maintained as a record per the Work Control process.

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.
Figure 1 - ATS Transfer Mechanism

*Figure dated 10-26-2015*