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Figure 1. Chemical Feed Pump 95C-P-3 Speed Setting

USQ Not Required - ETF is a <Hazard Category 3 Radiological Facility
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the safe operation of the Cooling Water Chemical Treatment System at ETF.

1.2 Scope

This procedure involves providing instructions for the startup, operation, and shutdown of the Cooling Water Chemical Treatment System and instructions for maintaining cooling tower water chemistry.

2.0 INFORMATION

None.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

WARNING - GENGARD GN8220 causes skin irritation and may cause serious eye damage.

3.1.1 Avoid skin and eye contact with water treatment chemical(s) and wash hands after handling, or potential contact, with chemicals.

3.2 Radiation and Contamination Control

3.2.1 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.

3.3 Environmental Compliance

3.3.1 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

The following supplies may be needed to perform this procedure:

- Safety glasses with side shields
- Butyl rubber gloves
- Nitrile gloves
- Dip slide for bacteria/fungal counts – easicult microbial dip slides or equal
- Label
- Clean 500-ml beaker
- SPECTRUS NX1106 (biocide) is available (MSDS/SDS #056490)
- GENGARD GN8220 (corrosion inhibitor) is available (MSDS/SDS #072013A).

4.2 Performance Documents

The following documents may be needed to perform this procedure:

- TFC-OPS-OPER-C-17, Operating Logbook.

4.3 Field Preparations

4.3.1 WHEN handling water treatment chemicals, ENSURE safety shower and eyewash are functional. Checking that inspection tag is current is adequate.

4.3.2 CONFIRM cooling water system in operation per ETF-95C-001, Cooling Water System Operation.

4.3.3 CONFIRM Electrical power is available per ETF-25B-001, Electrical Distribution System Startup and Operation.
5.0 PROCEDURE

Special Instructions

Sections 5.1 through 5.6 may be performed concurrently, in any logical order, and may be repeated as required.

5.1 Start Up Biocide Injection

5.1.1 ENSURE valve 95C-125 is OPEN.

5.1.2 ENSURE chemical feed pump 95C-P-4 discharge valve 95C-127 is OPEN.

5.1.3 PLUG chemical feed pump 95C-P-4 into wall receptacle.

5.1.4 CHECK chemical feed pump 95C-P-4:
   5.1.4.1 ADJUST stroke to 100%.
   5.1.4.2 ADJUST speed to 80%.

NOTE - When solutions appear inside discharge line, pump is primed.

5.1.5 IF pump 95C-P-4 is not primed, PRIME the pump as follows:
   5.1.5.1 PULL AND HOLD both yellow and black knobs OPEN.
   5.1.5.2 WHEN pump is primed (air bubbles cleared from pump suction line), RELEASE knobs.

5.2 Maintain and Shut Down Biocide Injection

NOTE - Biocide is used at a rate of approximately half a gallon per week.

5.2.1 OPERATE chemical feed pump 95C-P-4 for 30 minutes.

5.2.2 UNPLUG chemical feed pump 95C-P-4 from wall receptacle.

5.2.3 CLOSE chemical feed pump 95C-P-4 discharge valve 95C-127.

5.2.4 RECORD time cooling water biocide injection completed in ETF Control Room Logbook.

5.2.5 ONCE a month, PERFORM dual media dip slide sample per Section 5.3.
5.3 Perform Dual Media Dip Slide Sampling

5.3.1 OBTAIN the following items:
- Dip slide for bacteria/fungal counts – easicult microbial dip slides or equal
- Label
- Clean 500-ml beaker.

5.3.2 RECORD date and sample point on label.

NOTE - Nitrile gloves should be worn while obtaining sample.

5.3.3 DON nitrile gloves.

5.3.4 COLLECT cooling water grab sample in a clean container from valve V-SP95C015-K or any sample port valve associated with blowdown pump 95C-P-2.

5.3.5 POUR water sample into clean 500-ml beaker.

5.3.6 UNSCREW slide from vial without touching surfaces.

5.3.7 DIP slide directly into water to be tested for five to ten seconds, wetting both surfaces of slide.

5.3.8 SCREW slide back into vial.

5.3.9 ATTACH identifying label to vial.

5.3.10 INCUBATE dip slide in upright position in ETF process lab.

5.3.11 IF samples are more than 30 days old, DISPOSE of used slide as non-regulated waste.

5.3.12 IF notified that bacteria count is greater than $10^5$ bacteria/ml, INCREASE chemical addition to 40 minutes or as requested by Design Authority in next addition.
5.4 Start Up Corrosion Inhibitor Injection

5.4.1 CONFIRM corrosion inhibitor chemical tote bottom valve is OPEN.

5.4.2 CONFIRM chemical solution appears in sight glass (LI-95C-101).

5.4.3 ENSURE valve 95C-126 is OPEN.

5.4.4 ENSURE chemical feed pump 95C-P-3 discharge valve 95C-128 is OPEN.

5.4.5 PLUG chemical feed pump 95C-P-3 into wall receptacle.

5.5 Set Corrosion Inhibitor Pump Speed

5.5.1 ENSURE chemical feed pump 95C-P-3 stroke is adjusted to 20%.

5.5.2 OBTAIN cooling water blowdown flow per FI-95C051 from CRO (graphic Cooling).

5.5.3 REFER to graph on Figure 1 to obtain required pump 95C-P-3 speed.

5.5.4 ADJUST speed setting to value obtained from Figure 1.

WARNING
GENGARD GN8220 causes skin irritation and may cause serious eye damage.

5.5.5 DON the following PPE:
- Nitrile gloves
- Chemical googles.

5.5.6 IF pump is not primed, PRIME pump as follows:

5.5.6.1 HOLD both yellow and black knobs ¼ turn,

OR

PULL AND HOLD OPEN.

5.5.6.2 WHEN pump is primed (air bubbles cleared from pump suction line), RELEASE knobs.
5.6 Shut Down Corrosion Inhibitor Injection

5.6.1 UNPLUG chemical feed pump 95C-P-3 from wall receptacle.

5.6.2 CLOSE discharge valve 95C-128.

5.7 Records

The performance of this procedure generates no records.

The record custodian identified in the Company Level Record Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.
Figure 1. Chemical Feed Pump 95C-P-3 Speed Setting

PUMP 95C-P-3 SPEED SETTING (%) (assumes pump at 20% stroke length)