Standard Operating Procedure

Preventative Maintenance Procedure

Controlled Document No. SRV-SOP-101

Revision No. 01

Issue Date: 09 January 2023

Date Effective: 07 February 2023

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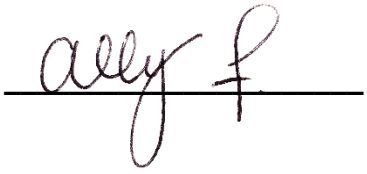
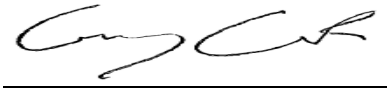
Signature:  **Date:** 09 January 2023

Quality Unit: Geoffrey Cook, Operations Manager

Signature:  **Date:** 07 February 202

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Document History

Superseded Document Title:	Service
Superseded Document No. / Revision:	00

Revision No.	Issue Date	Effective Date	Change	Author
00	19 Mar 2020	20 Mar 2020	Initial Version	Geoffrey Cook
01	09 Jan 2023	07 Feb 2023	Updated the title and fixed the document footer.	Ally Forstka

1.0 Purpose

This purpose of this procedure is to define the Preventive Maintenance requirements for the PGC Stability Chambers. The objective of this Preventive Maintenance Procedure is to ensure that the PGC Stability Chambers are properly maintained in order to improve equipment reliability and efficiency, prolong equipment life, reduce equipment downtime, and to ensure continued safe operation.

2.0 Scope

This PM document applies to Standard Range (5°C - 45°C) Temperature/Rh conditioners.

3.0 Definitions

Term	Definition
PPE	Personal Protective Equipment. Protective clothing, helmets, goggles, or other gear designed to protect the wearer's body from injury.
PM	Preventive Maintenance. Actions taken to reduce or prevent equipment failures.
PM Frequency	The length of time between preventive maintenance activities.

4.0 References

N/A

5.0 Responsibility

It is the responsibility of PGC Engineering for the development, revision, deletion and execution of this preventive maintenance procedure.

It is the responsibility of the Service Technician to act with care and responsibility.

6.0 Materials / Equipment

Required PPE

Cleaning supplies - toilet brush, rags, paper towels, etc.
Consumables - air, water, and UV filters.

7.0 Procedures

Preventative Maintenance on the following components will be performed on an “as needed” basis. Frequency is very dependent on the application of the unit and the processes inside the chamber.

7.1 Sump/Spray Chamber

7.1.1 Disconnect the conditioner from electrical power and follow proper lock out/tag out procedure. Then put the unit into standby via the SmartPad.

7.1.2 Close the external water inlet valve.

7.1.3 Open the manual service drain valve and allow sump water to drain.

7.1.4 Open or remove the *Process Section* access door

7.1.5 Thoroughly clean the water sump. Use a small amount of de-scaler if needed to remove caked mineral deposits. Remember to always read and follow the cleaning product instructions.
Clean the finned evaporator coil, being careful not to fold the fins. Remember that the coil can be blocked between the fins and still look clean on the surface. Pressure washing is sometimes the only effective way to get the gunk from deep between the fins.
If possible, remove the spray eliminators, damper, and whatever else, in order to access the hard-to-reach side of the coil.

7.1.6 Inspect and replace particulate filter quarterly or more often if needed.

Note: *Different applications will generate varying quantities of airborne particulates. Different water sources will also supply varying amounts of particulates. Due to this the service frequency for the particulate filter can vary widely. Visually inspect the filter frequently at first until an appropriate schedule can be developed.*

7.1.6 Remove the spray eliminator(s) and clean. If the spray eliminators

have polyester filter, pressure wash or replace as necessary.

7.1.7 Remove and clean the spray nozzles as necessary.

7.1.8 Inspect and clean the spray tree if possible and necessary.

7.1.5 Fill, flush and drain sump twice to remove all cleaners and sediment.

7.1.6 Visually verify that sump is free from deposits and foreign material.

7.2 Condenser

7.2.1 Water-cooled units Bronze Y-Strainer Filter Inspection:

7.2.1.1 Turn off coolant supply and switch return hand valves to the off position.

7.2.1.2 Remove filter housing nut and extract the filter for inspection.

7.2.1.3 Inspect filter for particulate matter, clean or replace filter as necessary.

7.2.2 Air-cooled units: Inspect the finned condenser coil. Clean with a brush or compressed air if necessary.

7.3 Major Components

7.3.1 Blower Wheel

7.3.1.1 Verify that the blower wheel is clean and free foreign particles that may reduce air flow.

7.3.1.2 Clean blower wheel with as necessary.

7.3.2 Heaters

7.3.2.1 If applicable, inspect the air and water heater(s). Inspect the surface and remove any deposits.

7.3.2.2 If excessive pitting of the heater surface is present, replace the heating element.

7.3.3 Condenser Fan - check that the fan is not covered in dust. Clean if necessary.

7.3.4 Plumbing

7.3.4.1 If external pump, check for dust and clean if needed.

7.3.4.2 Inspect the refrigeration and plumbing insulation. If condensate is present, fix insulation as necessary.

7.4 Filters

7.4.1 If applicable, change water and air filters as needed

7.4.2 If applicable, clean spray eliminators. Change if needed.

7.4.3 If applicable, the UV bulb and quartz tube should be change annually.

7.5 Restart

7.5.1 Close the drain valve, open the process water valve, and refill the unit sump

7.5.2 Verify the pump intake is submerged and there are no air bubbles in the plumbing to the pump intake. Air bubbles will cause the pump to cavitate and fail.

7.5.3 Verify the water float valve allows the sump to fill to the appropriate level - just below the overflow drain.

7.5.4 Use proper lock-out/tag-out procedures to put line power back to the unit. Use the SmartPad to bring the unit out of standby and back online.

8.0 As Needed Procedures

Preventative Maintenance on the following components will be performed as needed

8.1 Calibration, Air/RH Sensor

8.4.1 Refer to Air/RH Sensor Calibration Procedure in the Installation and Operations manual. Most Parameter units use a Rotronic sensor. Calibration of Rotronic sensors is recommended annually.

9.2 *Brazed Plate Condenser*

9.2.1 Back flush and descale as required dependent on quality of condenser fluid / water.