**AIRHEATER STARTUP AND SHUTDOWN PROCEDURE**

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**UGEE CHEMICALS LIMITED**

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1. **PURPOSE**

- To describe a safe operating procedure for starting up and shutting down the Air Heater.

**2.0 SCOPE**

- Providing guidance in the training, qualification, and execution of this task by responsible personnel.

**3.0 TERMS & DEFINITIONS**

Not Applicable

**4.0 RESPONSIBILITY & AUTHORITY**

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| --- | --- | --- |
| No. | Position | Description of Responsibility |
| 1. | Control room operator/ Back up | Carries out the start-up of the air heater, and conducts the process audit on the equipment. |
| 2. | **Shift Team Leader / Shift E&I** | Supports start-up and backup for control room operator. |

**5.0 POTENTIAL RISK**

* Hot surface,
* Bruise,
* Diesel spills,
* Gas leak,
* Splash.

**6.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED**

* Cotton Glove.

- Safety Shoe.

**7.0 DESCRIPTION OF ACTIVITIES**

**7.1 NATURAL GAS START-UP PROCEDURE:**

1. Confirm the exhaust fan is in running mode.
2. Press the reset button on the Saacke Power Panel.
3. From the MCC room, use the selector switches on the Saacke power panel, and switch the dilution fan, combustion fan, and rotary cup atomizer to auto mode.
4. Open the main gas supply valve to the Air heater gas train.
5. Confirm that gas pressure is within the centerline on the manometer (4.2 bars – 4.5 bars).
6. Pull the safety lever under the Pressure Reducing Valve (PRV) on the gas train.
7. Open and close the bleed-off valve to confirm gas presence after the PRV.
8. Confirm that the gas pressure after PRV is within the centerline on the manometer (320 mbars – 350 mbars).
9. Open the gas inlet valve to the Air heater burner.
10. PULL OUT the burner vane to the gas operation position.
11. Open the ignition LPG cylinder valve and its supply line valve.
12. Open and close the ignition gas bleed-off valve at the top of the burner.
13. Confirm that the ignition gas pressure is within the centerline on the manometer (50 mbars – 60 mbars).
14. From the Local control panel at the Air heater area, continuously press the ‘MESSAGE ACKNOWLEDGE’ tab until all alarms are cleared.
15. Press the ‘OPERATION’ tab and select “LOCAL” on the page.
16. Press ‘BURNER START’ on the page.
17. Press “REMOTE” on the page.
18. Press ‘BURNER’ tab.
19. Confirm that the main flame phase is attained and the flame is stable on the page.
20. Close the local panel HMI door.
21. Close the ignition LPG cylinder valve and its supply line valve.

**7.2 NATURAL GAS SHUTDOWN PROCEDURE:**

1. Set the burner to minimum fire by entering a tower inlet temperature set point of 180 0C on the SCADA.
2. Divert the burner to ‘Stack position’.
3. Press the ‘OPERATION’ tab and select “LOCAL” on the page.
4. Press ‘BURNER STOP’ on the page.
5. Keep both fans running for a minimum of 30 minutes before shutting down the panels.
6. Shut off the gas inlet valve for the air heater burner.
7. Shut off the main gas supply valve for the air heater gas train.
8. Power down the panels from the MCC room and confirm on the field that the Air heater is completely shut down.

**7.3 OIL (DIESEL) START-UP PROCEDURE:**

1. Confirm that the Diesel pump at Old Power Area diesel dyke is running [otherwise press the start (green) button on the OPA diesel control panel]
2. Confirm the exhaust fan is in running mode.
3. Press the reset button on the Saacke Power Panel.
4. From the MCC room, using the selector switches on the Saacke power panel, switch the dilution fan, combustion fan, and rotary cup atomizer to auto mode.
5. Select either pump 1 or 2 using the diesel pump selector switch.
6. Open the main oil supply valve to the Air heater oil train.
7. Open the oil supply valve to the Air heater rotary atomizer.
8. PUSH IN the burner vane to the oil operation position.
9. Open the ignition LPG cylinder valve and its supply line valve.
10. Open and close the ignition gas bleed-off valve at the top of the burner.
11. Confirm that the ignition gas pressure is within the centerline on the manometer (50 mbars – 60 mbars).
12. From the Local control panel at the Air heater area, press continuously the ‘MESSAGE ACKNOWLEDGE’ tab until all alarms are cleared.
13. Press ‘OPERATION’ tab and select “LOCAL” on the page.
14. Press ‘BURNER START’ on the page.
15. Press “REMOTE” on the page.
16. Press ‘BURNER’ tab.
17. Confirm that the oil pump delivering pressure is within centerline on the pressure gauge (1 bar – 2 bars).
18. Confirm that main flame phase is attained and flame is stable on the page.
19. Close local panel HMI door.
20. Close the ignition LPG cylinder valve and its supply line valve.

**7.4 OIL (DIESEL) SHUTDOWN PROCEDURE:**

1. Set the burner to minimum fire by entering a tower inlet temperature set point of 180 0C on the SCADA.
2. Divert burner to ‘Stack position’.
3. Press ‘OPERATION’ tab and select “LOCAL” on the page.
4. Press ‘BURNER STOP’ on the page.
5. Keep both fans running for a minimum of 30 minutes before shutting down the panels.
6. Shut off the oil inlet valve to the Air heater rotary atomizer.
7. Shut off the main oil supply valve to the Air heater oil train.
8. Power down the panels from the MCC room and confirm on the field that the Air heater is completely shut down.

**7.5 EMERGENCY SHUTDOWN PROCEDURE:**

1. Push any of the Emergency Stop button on;
2. Saacke Air heater panel in the MCC room.
3. Air heater local panel at Air heater area.
4. The wall of the generator area.
5. The beam at the Dilution/Combustion fan platform.
6. Confirm the burner is shut down instantly and completely.
7. Manually close the oil supply valves for oil operation and gas supply valves for gas operation.
8. Continue to running the exhaust fan.
9. Allow the exhaust temperature to fall below 90oC.
10. Stop the exhaust fan on the SCADA.
11. Inform the next level manager and the thermal safety owner for the department.

**Note: The reset button on the Control Panel must be pressed to restart the air heater after every power off or power failure or emergency shutdown.**

**8.0 RELATED DOCUMENTS & RECORDS**

* Training & Qualification
* Model Answers
* Air Heater Process Audit
* Air Heater Step-up card

9.0 REFERENCES & ATTACHMENTS

Not Applicable.

Appendix

Not Applicable

**Document History**

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| Date | Description of change | Reviewed by | Version No. |
| 30th Mar. 2025 | First issue of document. | Operations Manager | 1.0 |
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