Centrifuge Sludge Drying Operation - Alfa Laval G3-95

DO NOT use this plant* unless you have been inducted in its safe use and operation by an Authorised Experienced Operator

This SWI may not cover all possible hazards and risks and should be referred to as a control measure in the risk assessment process. Additional training may be required for high risk plant. Site and task may change required PPE.

PERSONAL PROTECTIVE EQUIPMENT


Eye protection must be worn


Protective body clothing must be worn


Hearing protection must be worn


Foot protection must be worn


Hand protection must be worn

POTENTIAL HAZARDS AND RISKS

Cutting, Stabbing or Puncturing
Injury from contact with discarded needles and syringes

Slip, Trips, Falls
Slip, trip, fall due to uneven or slippery work surfaces

Manual Task Injury
Manual task injury from incorrect manual handling techniques

Other
Exposure to hazardous chemicals
Exposure to biological hazards
Hearing damage from excessive noise

PRE-OPERATIONAL SAFETY CHECKS

- ✓ Complete site specific risk assessment
- ✓ Complete the appropriate pre-operational plant checklist
- ✓ Complete pre-operational Generator check (fuel, water, oil)
- ✓ Ensure you are familiar with plant operations and controls
- ✓ Check that the water supply is turned on

OPERATING PROCEDURES

- ✓ Turn Generator ON
- ✓ Start flex tool drive, premix polymer
- ✓ Turn water on
- ✓ Check polymer level in feeder
- ✓ Open office/control room
- ✓ Turn on isolation switch
- ✓ Alarm will sound pre start-up
- ✓ Wait until OMRON screen and two touch screen powers up
- ✓ System in Auto
- ✓ Press alarm reset button, red light will turn from on to off
- ✓ Reset alarm on two touch screen **ACK ALL + ACK SELECTED**
- ✓ Go back to main screen on OMRON
- ✓ Reset any alarms on the OMRON, press **ALARM RESET** button on panel
- ✓ Process start up procedure
- ✓ Press **ON** 1 – Start Polymer
  Press **ON** 2 – Start Hydraulic System
  Press **ON** 3 – Rotate Conveyers to position
- ✓ Press sludge feed on OMRON screen
- ✓ Go to feed set up
- ✓ Set rate M^3/HR, start at low feed 10m^3/HR
- ✓ Go back and press **MAIN CONTROL**
- ✓ Press **POLYMER**
- ✓ Press **POLYMER SET UP**
- ✓ Set rate at m^3/HR, start\at low polymer feed 0.5m^3/HR
- ✓ Go to two touch and then adjust bowl speed to 1500RPM
- ✓ Go to two touch Diff speed 1 RPM
- ✓ Go to two touch and adjust Torque 2.50 KNM
- ✓ Before pressing start button on OMRON ensure to complete a visual inspection on the feed lines, centrate lines and tank centrate discharge point
- ✓ Complete the Environmental Site Checklist for Centrifuge
- ✓ If all hoses are in good working order press green **START** button on OMRON panel
- ✓ Grease pump on main bearing with correct grease
- ✓ Watch vibrations on two touch screen
- ✓ Run centrifuge with the OMRON screen showing **SLUDGE FEED** overview
- ✓ Monitor the feed on screen while observing the cake feeding out of the screw conveyor, ensure to look for dryness and firm cake/product
- ✓ Slowly increase speed on bowl, first starting at 1700 RPM then increase the speed to the following
  - 2200
  - 2700

  Until 3000 RPM is reached
- ✓ Diff speed to remain at 1 RPM
- ✓ Increase sludge speed slowly until desired speed is reached using **FEED SET UP**
- ✓ Feed sludge & Polymer dosing is all regulated through the OMRON
- ✓ Bowl speed & diff speed is all regulated through two touch

- ✓ If centrifuge needs to be stopped mid process press **OFFLINE** button (all feeds to bowl will stop polymer & sludge)
- ✓ Recheck centrate tank, sludge feed line and centrate return lines for leaks under pressure
- ✓ Ensure to check discharge point, lagoon and storm pond levels for sufficient back flows
- ✓ Once centrifuge is running, monitor flows and make adjustments as required
- ✓ Continually monitor sludge feed tank level on OMRON
- ✓ Continually monitor pontoon pump
- ✓ Continually monitor diff speed
- ✓ Continually monitor torque
- ✓ Continually monitor bowl speed

ENDING OPERATIONS

- ✓ Run sludge through bowl as pre wash shutdown
- ✓ Go to OMRON screen
- ✓ Select polymer
- ✓ Select polymer setup, set rate M^3/HR reduce to 0.0. no polymer while feeding sludge
- ✓ On two touch screen –
  - Reduce bowl speed to 1500 RPM
  - Increase diff to 20 RPM (torque should lower)
- ✓ OMRON – increase feed from 60m^3/HR down to 5m^3/HR, repeat this process three times. This will help flush bowl
- ✓ After approximately 10 minutes of pre flush press the **STOP** button on the OMRON
- ✓ Auto wash down should then commence
- ✓ Check centrate line to lagoon, storm pond and pump station ensuring all lines are in good working order
- ✓ Wash down cycle will take approximately 1 hour
- ✓ Isolate control cabinets
- ✓ Lock door
- ✓ Shut down generator

DO NOT

- × Do not use if plant is faulty. Attach a DO NOT OPERATE tag and report fault to your supervisor
- × Do not leave plant running unattended
- × Do not leave keys in machinery whilst unattended
- × Do not wear loose jewellery
- × Do not use mobile phone while operating plant

***Plant in this SWI refers to any machinery, equipment, appliance, container, implement and tool.**