Intelligent Optimization
ABB Totalflow's Chemical Injection Application

ABB Totalflow's Chemical Injection Application is designed to optimize the use of chemicals in a flowing well, in production lines and in pipe lines. The application has several modes of Chemical Injection: Batch, Continuous, Winterizer, Scavenger, Scale Inhibitors, Pipeline and Plunger Lift with Chemicals. The goal of this application is to enhance the injection of chemicals by using intelligent controls based on well and line conditions, not just a timer.
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Power and productivity
for a better world™

ABB Totalflow's Chemical Injection Application
Intelligent controls based on well and line conditions – not just a timer

Chemical option

Batch

This program starts with the well open and the chemical pump off until the flowrate drops below the setpoint. Once below the setpoint, the well is closed and the slug and pump run times are calculated. The pump turns on and runs for this amount of time. When the pump time expires, there is a user settable mix time. After the mix time expires, the valve checks to ensure that the pressure is greater than the setpoint prior to opening. Once the well is open, it flows until it starts to load up. In the open cycle, there are setpoints to determine when the cap gas is depleted, when the slug is unloaded and when the well is starting to load up. The well then closes and restarts the cycle again.

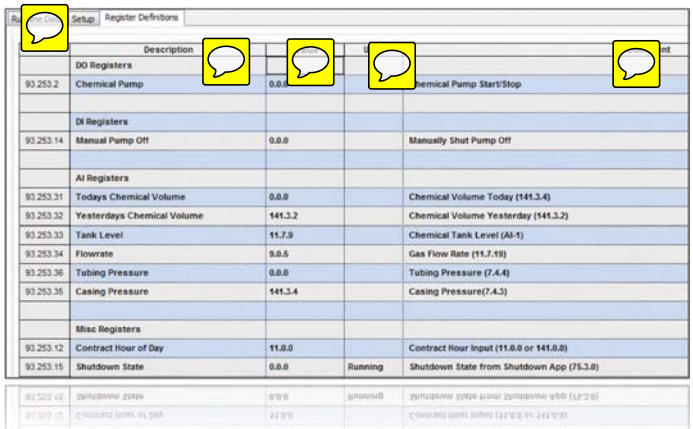
Plunger Lift with Chemicals

This program is designed to assist plunger lift. It will lighten the load, thus requiring less bottom hole pressure to lift the plunger. Once the well is closed (valve is controlled by plunger lift) the chemical pump is turned on. The pump on time is determined by the slug size, pump speed and chemical-to-slug ratio. Mixing time is set by the timer option in the closing valve state of plunger lift.

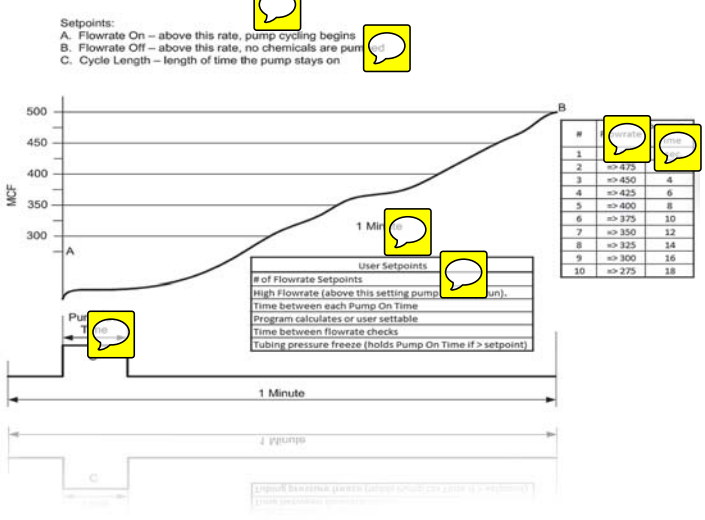
Continuous

The chemical pump is controlled based on the gas flowrate. The lower the flowrate, the longer the pump will run in a one minute window. If the flowrate is above the highest setpoint the pump will not run. The user will enter the number of flowrate setpoints and the pump on times for each setpoint. If the tubing pressure is above a designated setpoint, the last pump on time will be frozen until the pressure drops below that setpoint.

Chemical Injection – Continuou



Flowrate and cycle length



Benefits

Using the Totalflow Chemical Injection Application, chemical injection can be controlled by active well or pipeline conditions, not by manually entered run times. If flowrate drops below a setpoint, the well is closed. If the amount of fluids increases, the amount of chemicals injected is modified to meet these changes.

Using more advanced feature[illegible]uch as Critical Rate, a more precise decision is used to determine when to close the well.

Batch: AI – tank level, DO – Chemical Pump, (2) DO's Well Control, PI – tubine meter
Applications: AGA Measurement, Plunger Lift (for Critical Velocity)

Plunger Lift / Chemicals, DO – Chemical Pump
Applications: AGA Measurement, Plunger Lift (for Critical Velocity)

Continuous, DO – Chemical Pu[illegible]
Applications: AGA Measurement

Scavenger – DO – Chemical Pu[illegible], AI – H2S Input
Applications: AGA Measurement

Winterizer – DO – Chemical Pump, AI – Temperature
Applications: None

Scale Inhibitor – DO – Chemical Pump
Applications: Pulse Accumulator

Pipeline – DO – Chemical Pump
Applications: AGA Measurement