

5 Ton Atmospheric Carbon Strip Circuit

Executive Summary

The 5 ton atmospheric strip circuit is of modular, skid mounted design and construction thereby minimizing erection time and cost. The NaOH storage tanks are robust and separately supported. Overall footprint of the circuit is 63'-1" x 40'-0" which includes the area for the two NaOH tanks.

The plant was originally designed and operated stripping 5 ton batches of CIC loaded carbon with hot caustic/cyanide solution at a temperature of 195-205°F at atmospheric pressure for 48 to 96 hours.

Tanks are of mild steel construction and tanks dealing with heated solutions are insulated and stainless steel clad.

Electrical controls are simple and safely designed with a push button control panel and remote combination starters for the plant equipment. The boiler has its own controls. This circuit is not PLC controlled. Also included is a 10 kVa transformer, cabling from the panels to the starters, and cabling to the boiler control panel. Panels are Nema 4 enclosures.

Sufficient instrumentation is provided to operate the circuit including level, temperature, flow and pressure instrumentation.

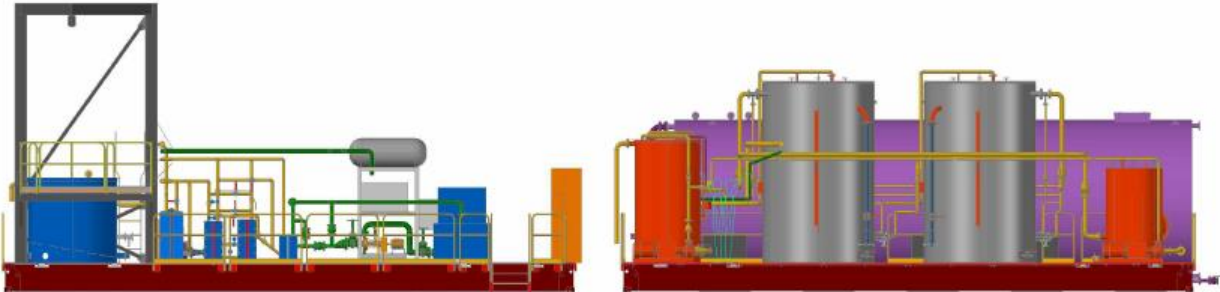
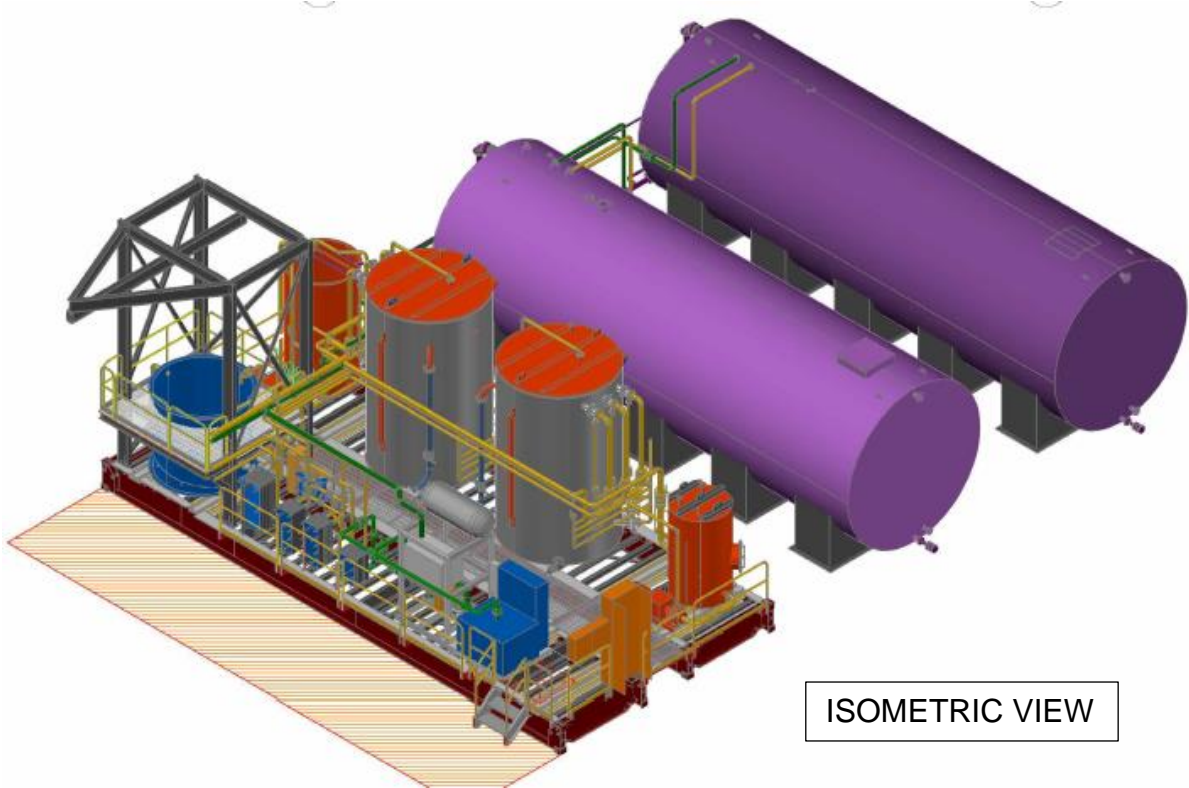
Operational Philosophy

Loaded carbon is transferred to the strip circuit via super sacks. The super sacks are discharged into the wetting/transfer tank using an electric monorail hoist. The wetted carbon is transferred from the tank to one of two strip vessels. Barren eluant solution is formulated in the barren eluant tank by mixing liquid caustic, barren solution, and cyanide in the tank. The solution is then pumped through the heat exchangers (two heat recovery exchangers and one heat up exchanger) and then passed through the loaded carbon in the strip vessels. After passing through the carbon bed the now pregnant eluant solution is discharged to the pregnant solution tank and pumped back through the hot side of the recovery heat exchangers before finally being discharged from the circuit. As currently installed the pregnant solution reported to the pregnant solution pond. The barren eluant comprises the cold side of the recovery heat exchangers. A pressurized hot water boiler (electric) is utilized to provide heat input for the heat up exchanger.

Stripping of gold and silver from the loaded carbon is accomplished with a hot caustic/cyanide solution at a temperature of 195-205°F at atmospheric pressure for 48 to 96 hours.

Operation of the plant equipment items is by remote combination starters with push buttons. The electrical feed connection is a 1400A circuit breaker. The load side will feed the boiler control panel and a distribution panel. The combination starters will be connected to the distribution panel. Also included is a 10 kVa transformer, cabling from the panels to the starters, and cabling from the circuit breaker to the boiler control panel. Panels will be Nema 4 enclosures.

Model Views



Pictures





Summary Parts List

- Structural steel support skids (2) with grating and handrail
- Barren eluant tank
- Barren eluant pump, ANSI horizontal
- Heat exchangers (4)
- Hot water boiler 3mBTU/hr with feed water tank, expansion tank and recirculation pump
- Water conditioning unit
- Desorption vessels (2) closed top atmospheric pressure rated vessel, 2.5-ton carbon capacity with inlet and discharge screens, insulated and stainless steel clad
- Pregnant solution tank, insulated and stainless steel clad
- Pregnant solution pump, ANSI horizontal
- Carbon wetting tank with hoist structure, platform and monorail hoist
- Carbon transfer pump, recessed impeller type
- 30,000gal NaOH storage tanks, insulated and stainless steel clad
- NaOH metering pump
- Wire samplers (2)

- Circuit piping and valves
- Electrical controls
- Lighting fixtures
- Instrumentation

Exclusions:

Cyanide storage tank
Walkways and platforms external to the plant
Piping and valves external to the circuit
24.9/480V Main transformer
Fire extinguishers and safety shower
Disassembly assistance