Ultrafab Industries Ltd.

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Yoho Resources Calgary Alberta

Attn: Jack Tarnowsky Quote #7- 9316a

Please find enclosed this quote as per your request.

Re: H2S removal Application

Operating Conditions				
Design Pressure	1440	psia	600	# ANSI
Operating Pressure	73	psia	500	kpaa
Operating Temp	41	οF	5.0	С
Gas Flow	0.88	MMscfd	25.00	103m3
H2S Inlet	175	ppm	175	ррт
H2S Outlet	0	ppm	0	ррт

The H2S Removal System

A comprehensive system consisting of a 100 bbl double walled split tank, for storage of 50 bbl new chemical and 50 bbl spent chemical. Skid and building to house: sweetening tower, separator, fuel gas scrubber, injection pump and heater. The entire sweetening package is all steel and is housed on a single skid and painted Tan. A vent scrubber is included and installed inside of the building to eliminate odors from the chemical. Piping is internal to ensure an eye pleasing design and reduce the risk of freezing.

Equipment Included:

100 BBL Double Walled Split Tank and Building:

- All steel Tank
- Aluminum building (approximately 8' X 10') with 3' x 7' man door with glazing and panic hardware
- Internal leak monitor plus drain valve on tank
- Split Tank Partition Wall
- Painted Desert tan

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Skid Description

- 8" Wide Flange Skid with Pick-Up Throat at both ends
- Skid measures approximately 20' long
- Rigid Skid rails and 4" square tubing support
- One piece checker plate cover over entire skid for added rigidity
- Reinforced vessel support

Insulation

- 1-1/2" thick High Density Foam Insulation applied under skid
- Tank is insulated between the inner and outer tank wall
- Wall between tank and building is left not insulated for heat transfer to spent tank
- Contactor above building 1½" fiberglass, aluminum clad insulation

Heaters

- One (1) 24,000 BTU Catalytic Heater c/w Vent Hood, Regulator and Safety Shut off, 25" Battery Lead
- One (1) 12,000 BTU Catalytic Heater c/w Vent Hood, Regulator and Safety Shut off, 25" Battery Lead

Second heater is added for direct heat on the storage tank. Heater mount is integrated adjacent to the tank.

Piping, Vents, Hatches, and Manways

- 2 3" truck out c/w 3" valve, piping and Camlok
- Spent chemical valve located inside building with handle extended outside
- 2 24" Round Man ways on top of tank sealed
- 1 3" roof vents
- 1 8" Wenco 16 oz Thief Hatch (sweet)
- 1 Ladders with safety hoop 2 Sealed gauge boards
- Truck out ground cable and signage

H2S Removal Contactor – description

- 24"OD x 12'- 0" S/S MWP 1480 PSIG Sweetening tower
- Design data: 2001 ASME code section VIII Div 1 VW 12A
- Province of registration Alberta, B.C., Saskatchewan
- Service: Sour
- Radiography Full
- Corrosion Allowance 1/8"
- PWHT Yes
- Proprietary internal design for improved contact
- Internal down comer for freezing prevention

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Nozzles

- 6 2" 600# Nozzles
- 2 8" 600# Flanges
- 2" Drain (to skid edge)

Piping

- 3" 600 ANSI Sweetener Inlet c/w 3" 600# ANSI Check Valve
- Sour Inlet sample point and needle valve vented outside
- 3" 600# ANSI Sweetener Outlet Piping
- 3" 600# Separator Inlet Piping
- 3" 600# Gas Out Piping
- 2" 600# Globe valve at outlet
- Sweet Gas Outlet sample point with needle valve and vented outside

1 – 16" x 5' – 0" S/S MWP 1440 PSIG Separator Description:

- Province Registration Alberta, B.C., and Saskatchewan
- Service Sweet, Radiography: full long seams, spot circ. Seams
- Corrosion allowance 1.8 mm, PWHT No
- Norriseal Level controller
- Norriseal Dump Valve and 1" Piping with bypass
- 1" PSV on Vessel (sweet)
- Anti-corrosion drain design

Additional equipment

- 1 5100 CVS Chemical Injector Pump
- Rate gauge and removable drip tray
- 6" x 24" Fuel gas scrubber c/w PSV, regulator and HLSD
- Bellofram regulators used throughout
- Vent regulators and diaphragms outside of building

Specialties

- Ultrafab Vent Gas Scrubber installed inside of building, to <u>eliminate</u> odorous vapors
 2" piping, site gauge and insulation
- Differential pressure gauges
- Ultra high efficiency contactor to minimize chemical consumption
- Rigid skid structure to prevent twisting during loading and unloading of equipment
- All steel fabrication for longevity and consistency of operation