

**Equipment
Photos available.**

Liquid Bromine Storage Tank

Horizontal Storage Tank, Lead Lined Shell and Heads. CS with 0.5" thickness. 8' OD X 23'-8" Tan/Tan with 3/8" thick homogeneous lead liner throughout all tank internal surfaces. All nozzles are aligned with the top center line of the vessel. Rating 122PSI @ 150°F.

Date of manufacture: 2005

DMA Unloading and Storage

Consisting Of; (3) Horizontal Storage Tanks, approx. 44 ft. (l) (36 ft. Seam To Seam) x 11 ft. (d). 29,980 Gallon, MAWP; 114/FV-15 @ 450°F, with (2) Unloading Compressors, Vertical Knock-Out Pot (1999), MAWP; 270 PSI @ 150 °F, Rail And Truck Unload Platforms.

Date of Manufacture: 2000

EQ4155 Dominant Bath Reactor

7'-6" (d) by 17' T/T. Rated for 180 psig @ 200°F. Constructed of Hastelloy C-276 with 0.336" wall thickness.

Date of manufacture: 2000

EQ4160 Reactor Recycle Pump

Goulds Model 3180XL 10 X 12 - 22 Impeller. Rated for 3,600 gpm with 200 hp explosion proof motor.

Date of manufacture: 2000

EQ4161 Reactor Recycle Cooler

Alfa Laval plate exchanger with 59 0.6mm Hastelloy B plates approx. 72" X 46". Total of 1,935 sq. ft. surface area. Rated for 150 psig at 200°F. Complete spare set of plates.

Date of manufacture: 2000

EQ4162 Reactor Eductor

Approximately 8" dia. by 90.5" long. Rated for 180 psig @ 200°F. Made of Hastelloy B. Complete spare in warehouse.

Date of manufacture: 2000

EQ4201 DMA Stripper Column

42" – 60" (D) x 58' (W) 0.625" wall thickness. Koch-Glitsch packing. rated for 180 psi @ 400°F. Built by Mueller out of 304L SS. Capacity is 5000 gal. Top packing bed 9'X5' Fleximax 200 316L, Lower packing bed 27'-6" X 3'-6" Fleximax 200 316L. Column operates at 60psig with a pressure drop across the column equal to 40 inches of water.

Date of manufacture: 2000

EQ4203 DMA Stripper Receiver

3' dia X 4'-3" tall and 0.375" wall thk. Made of 304L SS. Rated for 170 psi @ 400°F.

Date of manufacture: 2000

EQ4205 Pressure Settler

6500 Gallon Capacity, 84" (ID) x 249" Tan/Tan, 0.75" wall thickness, MAWP; 180/FV @ 400°F, Internal Liquid/Liquid Coalescer 316L, MOC SA-240Tp.304L.

Date of manufacture: 2000

EQ4206 DMA/Water Mix Cooler

Constructed of 304L and rated for 180 psi @ 400°F on both sides. 29" dia X 12' long.

Built in 2003.

EQ4208 Amination Tubular Reactor

8" Schedule 80 pipe with 0.5" wall thickness. Two sets; 600' long and 800' long. Rated for 1,234 psig @ 400°F. Made of 304L SS.

Date of manufacture: 2000

EQ4214 DMA Surge Tank

Carbon steel 0.75" wall thk. 12' dia X 24'. Rated for 50 psi @ 300°F. 21,000 Gallon Capacity. Fall Protection Work Platform.

EQ4300 Flash Evaporator Vessel

108" (d) x 16' made of 304L SS. Rated for 50 psi @ 525°F. 8,000 Gallon Capacity. With Graham Corp 4-Stage Ejector. Package Consisting Of; Hammer Head Condenser (see EQ4303), 17582.3 gpm/hr, (1) Critical Spare Heat Exchanger; 2957740BTU/Hr, Manning & Lewis 600lb. Steam Re-Boiler (see EQ4302). The Flash Still was fabricated by Paul Mueller, the internal packing was manufactured by Koch-Glitsch.

Date of manufacture: 2000

EQ4302 Flash Evaporator Reboiler

2' dia X 172" long rated for 700 psi @ 600°F on both sides. 155 – 3/4" 14 ga Hast C276 tubes and 316L SS shell.

Date of manufacture: 2000

EQ4303 Flash Evaporator Condenser (Hammerhead)

304L SS shell and tubes. 6' dia X 14' long tube, 17' long overall. Shell wall thk of 0.5".

Date of manufacture: 2000

EQ4501 Brine Cooler

26" dia X 143" long with 782 – 1/2" tubes. Rated for 180 @ 400°F and made of 304L SS on both sides.

Date of manufacture: 2000

EQ4505+ Carbon Beds (6)

Rated for 180 psi @ 400°F and made of 304L SS. 10' dia X 13' tall.

Date of manufacture: 2000

EQ4516 Brine Stripper Column

Paul Mueller Company Vertical column 55" (T-T) x 30" (OD) MOC SA-240-304L SS. MAWP: 180/-14.7 at 400/400°F.; FV Capacity is 297 cu. ft.; (2) Packing beds, 19'-3" x 30" ea. Koch Fleximax 200 Flow rates: Vapor 4,000 lb/h, Liquid 32,000 lb/h.

Date of manufacture: 2000

EQ6307+ Rich DMA + Misc Tanks (6)

10' (D) X 17' (H). Rated for 150 psi@450°F. Made of 9/16" thick walls, 304L SS.

Date of manufacture: 2000

EQ6316 Brine Stripper Condenser

1' (d) X 12' long. 304L SS on both sides.

Date of manufacture: 2000

EQ6340 HBr Burners

Shell is 5/16" thick Inconel 600 rated for 300 psig @ 850°F. Inconel helical coil internals. Two burners in service with one new installed spare. These units have a burning chamber where bromine and hydrogen are mixed to form an HBr vapor composition; Manufactured by Precision Stainless Inc. 24 ft. tall.

Date of manufacture: 1998.

EQ6370 Sparger Column

24" (D) x 8' (H) made of 3/8" thk Nickel 200. Rated for 180 psi @ 400°F. With internal tube bundle.

Built in 2005.

EQ7204+ Brine + Misc API Tanks (3)

12' (D) x 26' (H). API tanks made of 304L SS.

Date of manufacture: 2000

EQ2550 Topping Column (Fractionation Column)

6'-6" (D) x 75.5' (H) made of 316L SS. Wall thickness of 0.625". Rated for 127 psi @ 400°F. Koch packing. This column is designed for full vacuum and consists of 4 sections: upper, middle, lower, and the pot with three packing beds. The column will separate light from heavy material, and will segregate pure cuts of hydrocarbon material from a blended feed stock. The performance of the column is determined by the type of packing and pump size. This column has been operating at a feed rate of 5,000 - 10,000lbs/hr with a finished product rate of 4,500 to 9,800 lbs/hr. Date of manufacture: 1987

Evaporator System (all 304L SS unless noted otherwise)

Swenson Package on modular frame as follows: 1st Effect Evaporator (EQ7313), Mfg 2003 Paget Eq, 6' dia X 10" tall, 304 SS, 150 PSIG@375 F. Tube Bundle 399 - 3/4" 16 ga U-tubes, SA789 UNS#31803. Spare Tube Bundle, Mfg 2003 Benicia Fab., Tubes .75", SA-249-TP316L, 399 U-Tubes. Swenson Package: Modular construction, Mfg 2000. Circulation Heater (EQ4523 45" (D), Overheads Condenser (EQ4524), Evaporator, Vacuum System, Circulation Pump, Product Transfer Pump, Condensate Collection Tank (30" (D)), Condensate Pump, NaBr Transfer Pump, and modular structure. 2nd effect body (EQ4521 66" (D))

Brine Evaporation Details-- The Brine Evaporation system is a double-effect type system to increase the amount of evaporation per lb. of steam used. The First Effect Evaporator is heated using 150# steam in the tube bundle. The vapor (steam) generated in the first effect is then used as the heat source for the Second Effect Evaporator. In this manor, the heat in the original 150# steam is reused in the Second Effect. The brine entering the First Effect will normally be 20-25% NaBr. The First Effect is designed to concentrate the brine to approx. 35% NaBr and operates at 310°F and 45 PSIG. In addition, the First Effect generates steam that is used in the Second Effect. A level controller maintains the level in the First Effect that is high enough to cover the tubes of the First Effect tube bundle. The 150# steam flow

to the First Effect is controlled by a FCV. The Second Effect Evaporator operates at atmospheric pressure. The NaBr is fed from the First Effect into the Second Effect at a rate determined by the level in the First Effect. The steam generated in the First Effect is now used as the heating source in the Second Effect. The Second Effect Evaporator concentrates the NaBr from approx. 35% to a target of 45-50% NaBr. The overheads from the Second Effect pass through two overheads condensers where the steam is condensed to liquid and sent to a condensate collection tank. The NaBr from the Second Effect gravity flows through a cooler and into a storage tank for certification.

Performance: Concentrate a 37,000 lb/hr stream at 24% by weight brine to a 48% strength DCS control system is comprised of a Honeywell TDC 3000, Allen-Bradley PLC5 and Triconex TMR system. All steam tracing MOC is 3/8" SS tubing Area Classification: 1D1 Structure is designed for Seismic Zone 2A, and to withstand a 90mph wind load per ASCE7-95.

Emergency Generator

Kohler with 776 Total Run Hours, Natural Gas, 175kW Output, 60hz, 480vac, 3-Phase, With Block Heater, Battery Charger, Automatic Microprocessor Controlled, Nema 3 Enclosure, Outdoor Weather Housing, Residential Exhaust Silencer, 400 Amps, 3-20 Second Time Delay Normal To Emergency, 4-Position (Test, With Load, Auto, Off, Engine Start), Pilot Lights For Normal Or Emergency Source, Engine Model/Type; Detroit Diesel (converted to natural gas) S50G, 4-Cycle, Turbocharged, 1800rpm.

Date of manufacture: 1998.

Trane Chillers (3)

Chiller #1- TRANE RTHB-255 SN U96H-06429 Mfg 1996 Chiller #2- TRANE RTHB-255 SN U96H-06439 Mfg 1996 Chiller #3- TRANE RTHC SN RTHC1D1FOD1L3E1LFVQUCO Mfg 2000 Maintained through annual service agreements with Trane, by Trane technicians. Annual PV inspections. R-134A Refrigerant Chiller #1 has 48,209 hours of compressor running time. Chiller #2 has 54,053 hours of compressor running time. Chiller #3 has 60,801 hours of compressor running time. Date of manufacture: 1996-2003

Trane Portable Chiller on trailer

TRANE SERIES R Unit R-22 HCFC Refrigerant.

Date of manufacture: 2000

Ozone Generator

Model CFL-10/SP-31-D, rated 370lb/d.

Date of manufacture: 2000

Brill Oil Skimmer

Model 6V Used in spill containment for oil based material. Designed to skim oil layer from water.

Date of manufacture: 2004

Waukesha Pumps (3)

Model 5070, Stainless Steel, Faulk Gear Box, 7.5 & 10.0 hp Reliance XEX Motors, with SS Base Plate.

Date of manufacture: 2000

Spare Steam Heat Exchangers (2)

#1 Manufactured by Southern Heat Exchanger Corp in 2002 U-Tubes SB-163 Nickel Alloy 201 (N02201) (35 U-tubes, 5/8" OD) Tubesheet SB-160 Nickel Alloy 200 Shell SA-240-304L, #300 flanges

#2 Manufactured by Manning & Lewis in 1999 Same spec's as #1 (exception, 70 U-tubes)

Flare Stack

100 ft. tall, 11 ft. diameter Base, Stream Flow Rate; 100,00 Lbs/Hr, Temperature 70°F, Waste Vapor DMA, 100 SCFH Per Pilot, 110v, (3) Continuous Pilot Burners, Velocity Type Purge Reduction Seal. The stack is 304 SS and 316 SS, depending on the section. The access ladder and work platforms are galvanized. Control Panel/Ignitions System Consisting Of; Self-Inspired Flame Front Generator (SI-FFG), Auto Re-Ignition, Thermocouple, Ignition Fuel Gas Valves, Pressure Regulators, Pressure Indicators, Fuel Gas/Air Mixing Chamber, Ignition Chamber With Spark Igniting Device, Ignition Transformers, Emergency Shut Off Push Button, Control System Pre-Wired, Pre-Piped And Rack Mounted, Galvanized Caged Ladder, With (3) 360° Platforms.

Date of manufacture: 2003

Sundyne Pumps (2)

Model LMV-341 Pumps, 316 SS, With Reliance XEX Motors, 250hp, 460v, 3-Phase, 3570rpm, 255 gpm

Date of manufacture: 2000

Gould Model VIT Cooling Tower Pumps (2)

6500gpm, w/400hp, 1800rpm motors, 3-Phase, With (3) Spare GE Model 5K511GT6011P 400hp Motors, 3-Phase, 1785rpm, 60hz, 460v
Date of manufacture: 2000

East Cooling Tower

Fan Tower, Gear Boxes, Ratio: 7.1/1, Fans; 6-Blade, 192HP71, 12 Degree Pitch, 227rpm,

West Cooling Tower

Hudson Tuf-Lite Fan, 4000 Series Hub, 16 ft. Fan, Gear Reducer 7.7/1 Ratio.

Date of manufacture: 1998

Motor Control Center

Furnas System 89, (8) Multi-Bank Motor Control Centers, Each With 42,000 Amp PLC Racks, (7) With 300 Amp Vertical Bus Rating, (1) With 800 Amp Horizontal Rating, Misc. Buckets, Starters, Disconnects, Breaker Panels, Power Distribution Panels, (6) Square D 45kva 3-Phase Insulated Transformers, HV=480v, LV=208Y/120, (1) Square D 75kva 3-Phase Insulated Transformer, HV=480v, LV=208Y/120, (1) Square D 25kva Single Phase General Transformer, HV=240-480v, LV=120/240, (4) Allen Bradley 1336Plus Sensorless Vector Variable Frequency Drives, (2) 18-Bank Panels.