

Aspire Energy Resources Ltd.

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4462 - 01 Rev. 0

1.0 VESSEL

- 1 36" O.D. x 30'0" S/S x 1415 psi MAWP GLYCOL CONTACTOR TOWER
Manufactured by Propak in 2000
Retrayed/certified by Aspire Energy in 2014
Constructed with AB, BC and Sask. Registration
"U" stamped
0.0625" corrosion allowance
-20 / 151 F design temperature
3 phase integral separator
Eight (8) weld-in bubble cap trays
Two (2) 4" thick 304 SS de-mister pads
Inlet Deflector and float hood
RT-1
Lift lugs

VESSEL CONNECTIONS

N1 - Inlet	(1)	6" 600# RFWN
N2 - Gas Outlet	(1)	6" 600# RFWN
N3 - Drain	(1)	1 1/2" 3000# CPLG
C1 - H2O LC	(1)	2" 3000# CPLG
C2 - H2O Out	(1)	1" 3000# CPLG
C3a/b - H ₂ O L.G.	(2)	3/4" 6000# CPLG
C4 - HC LC	(1)	2" 3000# CPLG
C5- HC Out	(1)	1" 3000# CPLG
C6a/b- HC L.G.	(2)	3/4" 6000# CPLG
C7 - P.I.	(1)	1/2" 6000# CPLG
C8 - T.I.	(1)	3/4" 6000# CPLG
C9 - PSV	(1)	2" 3000# CPLG
C10 - HLSD	(1)	2" 3000# CPLG
C11 - Glyc.Out	(1)	1 1/2" 6000# CPLG
C12 - Glyc.In	(1)	1" 6000# TOL
C13a/b - Glyc.Coil	(2)	1" 6000# CPLG
C14a/h - Tray Drains	(10)	1" 6000# CPLG
C15 - Equalize	(1)	1 1/2" 6000# CPLG
C16a/b - Inspect.	(2)	2" 3000# CPLG

- 1 20" O.D. x 6'0" S/S x 150 Psi MAWP GLYCOL FLASH TANK
Re-certified by Aspire Energy in 2014
Constructed with Alberta Registration
"U" stamped
"nil" corrosion allowance
-20 / 150 F design temperature
Two phase design

VESSEL CONNECTIONS

C1-Inlet	1- 1" 3M TOL
C2-Gas Outlet	1- 1" 3M TOL
C3-LLC	1- 2" 3M TOL
C4-Drain	1- 1" 3M CPLG
C5-H2O LG	2- 3/4" 3M TOL
C6-Glycol Out	1- 1" 3M TOL
C7-P.I.	1- 1/2" 3M TOL
C8-T.I.	1- 3/4" 3M TOL

2.0 GLYCOL REGENERATOR

REBOILER

30" Diameter x 144" Long
1 1/2" fiberglass insulation c/w aluminum cladding

SURGE TANK

30" Diameter x 120" Long
1" Lean / Rich Glycol coil
1" fuel gas preheat coil

FIRETUBES

12" Diameter firetubes c/w stack. Rated @ 750,000 Btu/hr (10,000 flux/rate)
Aluminum flame arrestor c/w Eclipse main burner & pilot.

STILL COLUMN

12" diameter x 96" high c/w 3" 150# RFF vent connection.
3/4" ceramic saddles
1" reflux coil
1 1/2" fiberglass insulation c/w aluminum cladding

STRIPPER COLUMN

Optional

3.0 AIR TO GLYCOL EXCHANGER

(3) 1 1/4" O.D. x 120" long Fin tube

4.0 GAS TO GLYCOL EXCHANGER

(1) 6 5/8" O.D. x 8 3/4" O.D. x 96" S/S long

5.0 INSTRUMENTATION (*Dressed 2 Phase*)

FE-100 (Recond.)	(1)	DANIELS SENIOR ORIFICE FITTING 6" 600# RF flanged connections Schedule 40 AGA 2000 edition One 1" TOL and One 3/4" TOL on downstream
FR/PR-100 TR (Recond.)	(1)	BARTON 202A 3 PEN FLOW RECORDER 0 to 100" WC 0 to 1500 psi 0 to 150 F temperature element 24hr/7day battery operated programmable chart drive c/w 5 valve C.S. manifold
BPCV-100	(1)	SPOOL 4" 600# ANSI RF flanged
LC-100	(1)	FISHER MODEL L2 LEVEL CONTROLLER 2" MNPT connection 1 7/8" diameter x 12" long vertical PVC displacer Snap acting control module 6 to 30 psi Output
LCV-100	(1)	FISHER MODEL D2 LEVEL CONTROL VALVE 1" FNPT connections Adjustable trim 6 to 30 psig supply Air to open / fail closed
LG-100	(1)	QUALITY LIQUID LEVEL GAUGE (or equal) Reflex type c/w gauge and isolation valves
PCV-300	(1)	FISHER 630-R BACK PRESSURE CONTROL VALVE 1" FNPT connection

LC-300	(1)	FISHER L2 LIQUID LEVEL CONTROLLER 2" MNPT connection Throttle acting control module 1 7/8" diameter x 12" long PVC displacer
LCV-300	(1)	FISHER D-BODY LEVEL CONTROL VALVE 1" NPT connections Air to open / fail closed 3/8" trim
LG-300	(1)	QUALITY LIQUID LEVEL GAUGE Reflex type c/w gauge and isolation valves
PSV-300	(1)	TAYLOR PRESSURE RELIEF VALVE 1" MNPT x 1 1/2" FNPT connection "F" Orifice Set @ 150 Psi, mounted on vessel
PRV-800	(1)	FISHER MODEL 627-R PRESSURE REDUCING VALVE 1" FNPT connections 5 to 20 psi range 3/8" orifice Standard service construction
BMS-100	(1)	PROFIRE 2100 SAFETY COMBUSTION CONTROLLER 24 VDC supply
TC-100 HTSD-100	(1)	PROFIRE TYPE "K" THERMOCOUPLE XP enclosure 3/4" x 11.5" 316 SS T.W.
TCV-100	(1)	KIMRAY MODEL 1400-SMT DAB CONTROL VALVE 1" NPT connections Air to open / fail closed 1/2" port
ESDV-100 101	(1)	ASCO 1" NPT SOLENOID VALVE 1" NPT connections 24 VDC XP design
SOV-100	(1)	ASCO 1/4" 2 WAY SOLENOID VALVE 24 VDC XP design
SOV-101	(1)	ASCO 1/4" 3 WAY SOLENOID VALVE 24 VDC XP design

PSL/PSH-100	(2)	UNITED ELECTRIC PRESSURE SWITCHES(or equal) XP design Range to suit
PRV-100 (Recond.)	(1)	FISHER MODEL 630 PRESSURE REDUCING VALVE 1" FNPT connections 90 to 150 psi 1/8" orifice
PRV-200/201 801/802	(4)	BELLOFRAM T-50 PRESSURE REDUCING VALVE ¼ " FNPT connections 5 to 35 psig spring range
PSV-100	(1)	TAYLOR 8200 PRESSURE RELIEF VALVE (or equal) 2" 600# RF x 3" 150# RFF connections Set @ 1415 psi, mounted on contactor "G" orifice
PSV-200	(1)	TAYLOR 8200 PRESSURE RELIEF VALVE 1" MNPT x 1" FNPT connections Set @ 150 psi, mounted on fuel gas scrubber "E" Orifice
PSV-300	(1)	TAYLOR 8200 PRESSURE RELIEF VALVE 1" MNPT x 1" FNPT connections Set @ 50 psi, mounted on Glycol Flash Tank "E" Orifice
PSV-400	(1)	TAYLOR 8200 PRESSURE RELIEF VALVE 1" MNPT x 1" FNPT connections Set @ 50 psi, mounted around filter "E" Orifice
PSV-700	(1)	DALCO CONE RELIEF DEVICE 1 psi, mounted on reboiler
TI-100/700	(2)	TREND TEMPERATURE INDICATORS 2 ½" Dial, Range to suit c/w ½" x ¾" x 6" long CS thermowell
TI-300	(1)	TREND TEMPERATURE INDICATOR 3" dial range to suit ¾" NPT x 6" "U" length 304 SS thermowell

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|------------|-----|---|
| PI-100 | (1) | WESTERN GAUGE PRESSURE INDICATOR
4" face, ½" bottom mount
0 to 1500 psi, mounted on vessel |
| PI-200 | (1) | WESTERN GAUGE PRESSURE INDICATOR
2 ½" face, ¼" bottom mount
0 to 160 psi, mounted on FGS |
| PI-300 | (1) | WESTERN PRESSURE INDICATOR
4" dia. Face x ½" bottom mount connection
0 to 300 psi range
Mounted on Glycol Flash Tank |
| PI-800/801 | (2) | WESTERN GAUGE PRESSURE INDICATORS
1 ½" face, ¼" bottom mount
0 to 30 psi, mounted on burners |
| DPI-400 | (1) | WESTERN GAUGE DIFFERENTIAL PRESSURE
INDICATOR
0 to 30 psi range
Mounted around Particulate filter |

6.0 FILTERS

- (2) Shelco Model 806 Filter Canister.
One (1) 25 Micron,
One (1) Charcoal Cartridge

7.0 PUMPS

- (1) Rotortech Model Glycol Circulation Pump
Model GS-1108-E10
10 HP, 480 VAC, 3 Ph, inverter duty XP motor
c/w Glycol accumulator, controls and valving

8.0 SKID AND BUILDING SPECIFICATIONS

1 SKID BASE 12'0" WIDE x 24'0" LONG

- 8" Beam Main Members
- 8" Beam Cross Members
- 3/16" Checker-plate decking under building area
- Lift lugs

1 FOAM PANEL METAL BUILDING

12'0" Wide x 24'0" Long x 10'6" High Eave, Shed Type

24 Gauge Galvalume

Two (2) 3'0" Wide x 7'0" High Insulated Steel Mandoor c/w panic hardware

One (1) 36" x 36" Double-glazed sliding window with screen

Two (2) 12" x 12" louvers c/w closures

9.0 FUEL GAS SYSTEM

(1) 8 5/8" O.D. x 24" High x 150 psig Fuel Gas Scrubber

Registered Design

c/w HLSD

10.0 TESTING SPECIFICATIONS

Hydrotesting

Pressure Vessel Will be hydrotested to 1.3 or 1.5 times the maximum allowable working pressure as per ASME Section VIII.

Pressure Piping Will be hydrotested to 1.5 times the maximum allowable working pressure as per ASME B31.3.

Radiography

Vessel RT-1

Piping 10%

PWHT

Vessel None

Piping None

Ultrasonic Thickness Testing

Vessel Yes

Mag. Particle Testing

Firetube Yes

11.0 MATERIAL SPECIFICATIONS

Welded Piping

Pipe	A-106-B, Sch. 80
Flanges	A-105-N
Weld Fittings	A-234-WPB
Threadolets	A-105-N
Bolting	A-193-B7, A-194-2H
Gaskets	304 Spiral Wound Flex

Socket Welded Piping

Pipe	A-106-B, Sch. 80/160
Pipe Fittings	A-105, 3000#

Threaded

Pipe	A-106-B, Sch. 80/160
Pipe Fittings	A-105, 3000#
Tube Fittings	DKLOK, 316 SS
Tubing	3/8" 316 SS seamless 0.035" wall

12.0 MANUAL VALVES

- 1" S.W., 2000 psi, Fortune, Ball Valve
- 1" Y-Strainer, ASTM A105N,
- 1" Check Valve, ASTM A105N,
- 1" NPT RP, 2000 Psi, MAS, Nace, Ball Valves
- 3/4" NPT RP, 2000 Psi, MAS, Nace, Ball Valves
- 1/2" NPT RP, 2000 Psi, MAS, Nace, Ball Valves
- 1/2" NPT, 6000# CS, Century, Needle Valves
- 1/4" NPT, 6000# CS, Century, Needle Valves

13.0 PAINT AND COATING SPECIFICATIONS

External Preparation	SSPC-SP# 3
External Finish	One (1) Shop Coat Industrial Primer One (1) Shop Coat Medium Grey Enamel