NWP INDUSTRIES LP
#50, 805 – 5th Ave SW Calgary, Alberta T2P 0N6 Phone (403) 213-5520 Fax (403) 718-0438

Project Data List Rev 0
Work Order 09128 Series
P&ID : 09128-001-P-000 Rev 0

Sept 13, 2018

Project Coordinator : Spencer Wiley

Sales Rep : House Account

Client: NWP Stock

NWP STOCK 1.0 MM BTU / Hr. Lineheater Package

GENERAL DESCRIPTION

Quantity	Description
2	**1.0 MM BTU / Hr. Lineheater Package**

- 42” x 16'-0” Horizontal Lineheater
- 3” 1500# RTJ x 3” 1500# RTJ Split Process Coil, 6 pass each
- Skidded, insulated with all B149.3 compliant instrumentation
- Ex Works: Innisfail, Alberta

1.0 GENERAL

GENERAL DESCRIPTION
Tag #: **H-100**

- 42” OD x 16’-0” Long
- Horizontal design
- 12” Sch 20, 0.25” SA-53-ERW removable non code firetube, Flux Rate: 10,000 BTU/ft2
- Rated at 1,000,000 BTU / Hr
- Coils CRN .213
- 12” Ø x 0.25” wall firetube stack
- 12” Ø x 0.25” wall 84” Long Surge Tank
- Two support saddles

2.0 COILS

- **COIL A** - only 3” Sch. 160, SA-106B, six pass preheat coil with 1500# ANSI RTJ flanged outer ends, 3125PSIG @ -20° to 200° F, 100% Radiography, Post Weld Heat Treat, 1/8” C.A., constructed in accordance with ASME B31.3 Normal Fluid Service. ABSA Registration

- **COIL B** - only 3” Sch. 160, SA-106B, six pass reheat coil with 1500# ANSI RTJ flanged outer ends, 3125 PSIG @ -20° to 200° F, 100% Radiography, Post Weld Heat Treat, 1/8” C.A., constructed in accordance with ASME B31.3 Normal Fluid Service. ABSA Registration

- **Preheat Fuel Gas Line** - 1” Sch. 160, SA-106-B, socket-weld, 6000# fittings. Hydro tested to 2220 PSIG

3.0 INSTRUMENTATION

Tag #	Quantity	Description
BE 100	(1)	**Flame Arrested Burner** Black Gold rush Model FA-24-12-I 1,000,000 BTU/Hr Net c/w 26” flame cell element One piece aluminium construction to fit 12” firetube ACL-M150 air/gas mixer ACL-B15012 venturi barrel ACL-ON150 High Efficiency burner nozzle.
BMC-100	(1)	**Burner Ignition Controller** - ACL Model 5500 Model ACL-5500 Combustion Safety Controller 12-24 VDC Microprocessor based flame fail/ignition system with auto re-light System on, pilot on and alarm indicating LEDs CSA approved Class 1 Div 2 Group A, B, C & D Hazardous Location CSA approved as a combustion controller, B149.3compatible (CAN/CSA C22.2 No. 199-M89) Solid state ignition module housed in controller box 1- alarm output 1- shutdown interlock 2- solenoid valve outputs (pilot & main) 1- remote start 1- remote stop 1- proof of closure 1- temperature control contacts

LG-100	(1)	**Level Gauge –** Plainsman Model LG-5700-16-12-CTM
LSLL-100	(1)	**Level Switch** – SOR Model 1510B-G2A-C-L9-ES-CSNCCV 1510=Side Mounted, Float Operated B=303SS Construction G2=2 Inch Process Connection A=MNPT C=316SS Float L=Hermetically Sealed Reed Switch for Low Power PLC/RTU Circuits 25 VA Max Continuous 9=SPST ES=Electric Level Switch, Explosion Proof, CL 1 GRP. A,B,C&D: Single Seal CS=CSA Certification CV=CRN OF9885
TH-100	**(1)**	Thief Hatch, Jayco 16 oz. pressure, 0.4 oz. vacuum Sweet Service
PI-105	**(1)**	**Pressure Gauge –** Wika Model 233.53 Liquid filled 2-1/2 inch dia. face 1/4-inch NPT bottom mount end connection Stainless Steel 0 to 15 PSIG, Dual Scale
PI-106	**(1)**	**Pressure Gauge –** Wika Model 233.53 Liquid filled 2-1/2 inch dia. face 1/4-inch NPT bottom mount end connection Stainless Steel 0 to 30 PSIG, Dual Scale
PRV-103	(1)	**Instrument Gas Regulator** - Fisher Model 67CFR Regulator ¼" FNPT connections, Tapped Bonnet 0-60 PSIG Adjustable spring range, 5 micron filter c/w 0-60 psi gauge **(PI-103)**
PRV-104	(1)	**Instrument Gas Regulator** - Fisher Model 67CFR Regulator ¼" FNPT connections, Tapped Bonnet 0-125 PSIG Adjustable spring range, 5 micron filter c/w 0-160 psi gauge **(PI-104)**
TC-100	(1)	**Temperature Controller** - Kimray Model HT-12 Temperature Controller, 1/2" MNPT, -30 F to 750 F Temp range 5 *to* 30 psig output signal, 12" probe
TW-101	(1)	1/2" FNPT x 1"MNPT x 12" long SS separable socket
TI/TW-100	(1)	**Temperature Indicator** - Trend Model 330120 Temperature Gauge, 1/2" NPT Back Mount connection, 0-250 F dual scale

		3” dial, 12” stem c/w 304 SS thermowell 1/2” FNPT x 1” MNPT x 9” “U” dimension length 304 SST thermowell
TSHH-100	(1)	**High Temperature Shut-down –** CCS Model CCS6900TE14 High Temp. Shut-down Switch 1/2” MNPT End Connection 24 VDC, Factory set @ 90 C
TW-102	(1)	1/2” FNPT x 1” MNPT x 4.5” “U” 316SS thermowell (Part 113-34-1-316)
SCV-100/101	(2)	**Speed Control Valve**, Model NAS4000-No2 1/4" NPT, 150 PSI MAWP

4.0 VALVE TRAIN

Tag #	Quantity	Description
BF025G	(6)	**¼” Ball Valve, NEO 2500**, Two-Piece Full Bore, SS, 2000 PSI WOG, Lockable Handle CSA 3.16 Certified
BF100G	(2)	**1” Ball Valve, NEO 2500**, Two-Piece Full Bore, SS, 2000 PSI WOG, Lockable Handle CSA 3.16 Certified
NM025	(2)	**Huber Magnum**, ¼” Needle Valve 6000#, Model # MF 25 SS ¼” F x ¼” M STRAIGHT, 316SS BODY
PI 100/101	(2)	**Pressure Gauges** Wika Model 233.53 2-1/2" Dial, SS ¼” NPT, 0 - 30 psi Liquid Filled/ Dual Scale Center Back Mount
PSHH 100	(1)	**High Fuel Pressure Shutdown Switch** CCS Dual Snap Model 6900GZE12 1/2" NPT, SS CONSTRUCTION, CSA APPROVED SET @ 14 psi Rising CALIBRATION CERTIFICATE IS REQUIRED
PSLL 100	(1)	**Low Fuel Pressure Shutdown Switch** CCS Dual Snap Model 6900GZE12 1/2" NPT, SS CONSTRUCTION, CSA APPROVED SET @ 4 psi Falling CALIBRATION CERTIFICATE IS REQUIRED
PRV 101	(1)	**Main Regulator - Fisher 627R** Maximum Inlet Pressure 250 PSI Outlet Pressure Range 5 to 20 PSI Spring Range 1” FNPT / Orifice Size ½” ¾” Tapped Bonnet Body Material: Ductile Iron Spring Case Material: Aluminum

Nitrile Disk
Set @ 9 PSI

PRV/PI 102 (1) **Pilot Regulator – Fisher**
Model 67CFR Regulator
¼” FNPT connections, Tapped Bonnet
0-35 PSIG Adjustable spring range, 5 micron filter
c/w 0-60 psi gauge **(PI-102)**

SDV-UY 100 (1) **Fossil Main Gas Safety Valve**, Pneumatic Actuator
Fossil Series 1" ESD 24 VDC
Series 88-Explosion Proof Class 1 Div 1 Fail Closed
End Connection: FNPT
Actuator: Rack and Pinion Spring Return
Actuator Min Air Pressure: 70 psig
Actuator Max Air Pressure: 120 psig
Limit Switch: 2 SPDT switches with Beacon
Indicator, Hazardous Area Classified
Solenoid: ASCO 8551 Series 24 VDC (6.9 watts),
NEMA 7-9 Hazardous Area Classified
Approvals:
CSA 6.5-2000/ANSI Z21.21 - Automatic Valves for Gas Appliances
CGA 3.9-M94 Automatic Safety Shut-Off Gas Valves
CSA C/I - Commercial/Industrial
API 607 4th Edition Firesafe

SY100 (1) **Y STRAINER 1" - 3000 ALTA**
Model YS 3000
1/32 Perf 304SS Strainer
ASTM A105N Body
½” Drain Connection

TCV 100 (1) **Fisher Pneumatic Temperature Control Valve**
Fisher Model 119
1” NPT – 9/16” Port
5-35 PSI Range
Cast Iron Body
150 PSI MAWP
STD Service

XYV 101 (1) **Solenoid - ASCO**
¼” NPT Pilot Solenoid
ASCO 2-Way Solenoid – Model #: HV426716002
1/4" NPT SST Body
ASCO 24VDC Solenoid C/I Rated
ANSI Z21.21 & CSA C/I 6.5 Certification
1/4" NPT 10.6 Watts

5.0 SKID/ENCLOSURE

SK-200 (1) **Wide Flange 8” @ 18 Skid**
6'-0" wide, 20'-0" long

E-200 (1) **Foam Panel Enclosure**
24” W x 60” L x 72" H

1-1/2” polyurethane foam panel
Galvalume Interior/Exterior
One double foam panel door c/w whitcomb latch, barrel bolt, check chain and weather strip
Two adjustable Louvers 8”x8”

6.0 MANUAL VALVES

BR025	**(2)**	1/4”” NPT RP, 2000#, Barstock Ball Valve, Haitima
BR050	**(2)**	1/2” NPT RP, 2000#, Barstock Ball Valve, Haitima
BR200	**(1)**	2” NPT RP, 2000#, Barstock Ball Valve, Haitima

7.0 PACKAGE MATERIALS

Coil

Flanges:	SA 105 N RTJWN
Piping:	SA 106 B Sch 160
Fittings:	SA 234 WPB
Bolts/Nuts:	SA 193-B7M / SA 194-2HM
Gaskets:	316 S.S. Ring type
Structural Material:	SA 36

Firetube SA 53 ERW Sch 20, 0.25''

Threaded Piping

Pipe Fuel gas:	SA-106-B, Sch 80 SMLS. 1/16” C.A.
Threaded Fittings:	SA-105-N, 3000#

Welded Piping

Pipe:	NA
Flanges:	NA
Weld Fittings:	NA
Threadolets and Couplings:	NA
Gaskets:	316 S.S. Ring type
Bolting:	SA-193-B7M, SA-194-2HM
Tubing:	316 SS
Fittings:	316 SS
Ferrules:	316 SS

8.0 TESTING / POST WELD HEAT TREAT (PWHT)

Hydro-Testing:	Pressure Vessels:	As per ASME Section VIII Div 1
	Pressure Piping:	As per B31.3
Radiography:	Scrubber:	N/A
	Piping:	N/A
	Process Coil:	100%
	Firetube:	None
PWHT:	Process Coil:	Yes
	Piping:	N/A
Ultrasonic Test:	None Included	
Hardness Test:	None Included	

9.0 PAINT

SSPC-SP 6-63 Commercial Blast, DTM (Direct to Metal) Polyurethane Enamel 2 - 3 mils DFT
Vessels, Skid, Piping, Pipe Supports: Warm Grey
Fire tube Stack: High Heat Black.

10.0 INSULATION

- Heater shell (no ends) is insulated with 1-1/2" Fiber Glass (Microflex) Insulation with 0.020 stucco embossed aluminum outer cladding held with stainless steel banding

11.0 ELECTRICAL

- BMS electrical components wired to skid edge as per Class 1, Div 1 Canadian Electrical Code specifications.

12.0 DOCUMENTATION

- One equipment manual on CD is supplied. Hard copies are available at $500 per copy

13.0 ADDITIONAL NOTES

- Packages will be dismantled only to the extent required for shipping.
- All instrumentation has been quoted for sweet fuel gas.
- Heater Stack to be shipped loose with unit.
- No Process Performance Guarantee is included or should be inferred.
- NWP reviews all specifications provided to us. NWP, however, cannot accept responsibility for any omissions made in our quotations which are not in compliance. We require that customers review the quotation for compliance to their specifications and request a revision for any errors / omissions which may have been made.
- Engineering review is not done at time of quotation. If material and / or specifications change due to engineering review, price adjustment will apply.

14.0 SHIP LOOSE MATERIALS

- Smoke stack c/w gasket and bolt up
- (1) 2" Vent header extension
- (1) ¾" Vent line extension for PRV-101