NWP INDUSTRIES LP
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ORIGINAL

Project Data List Rev 0
Work Orders 11605-001
P&ID:11605-001-P-000 Rev 0

Project Coordinator: Lexi Tole

Oct 31, 2023

NWP Stock

1.0 GENERAL DESCRIPTION

Quantity	Description
1	**2.0 MM BTU / Hr Lineheater Package, Sour Service**

- 62" x 20'-0" Horizontal Lineheater
- 4" 2500# RTJ x 4" 2500# RTJ Split Process Coil, 8 pass each
- Fuel Gas Scrubber
- Skidded, insulated with all B149.3 compliant instrumentation
- Ex Works: Innisfail, Alberta

2.0 VESSEL

1.1 GENERAL DESCRIPTION

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Tag #: **H-200**

- 62" OD x 20'-0" Long
- Horizontal design
- 20" Sch 10, 0.25" SA-53-ERW removable non code firetube, Flux Rate: 10,000 BTU/hr/ft2
- Rated at 2,000,000 BTU / Hr
- 20" Ø x 0.25" wall firetube stack
- 20" Ø x 0.25" wall 120" Surge Tank.
- Two support saddles

3.0 COILS

- **COIL A** - 4" Sch. XXH, SA-333-Gr6, eight pass preheat coil with 2500# ANSI RTJ flanged outer ends, 5171 PSIG @ -20° to 200° F, 100% Radiography, Post Weld Heat Treat, 1/16" C.A., constructed in accordance with ASME B31.3 Normal Fluid Service. ABSA Registration
- **COIL B** - 4" Sch. XXH, SA-333-Gr6, eight pass reheat coil with 2500# ANSI RTJ flanged outer ends, 5171 PSIG @ -20° to 200° F, 100% Radiography, Post Weld Heat Treat, 1/16" C.A., constructed in accordance with ASME B31.3 Normal Fluid Service. ABSA Registration

4.0 INSTRUMENTATION

Tag #	Quantity	Description
BE 200	**(1)**	**Flame Arrested Burner** Enardo Model FAH32/18-18A 2,000,000 BTU/Hr c/w 32" flame cell element ACL-M200 air/gas mixer ACL 1500 Ignitor rod 2' Pilot/flame rod ACL-ON20020-15P High Efficiency burner nozzle. ACL-B20016 Venturi Burner barrel 2" x 16" NPT Two piece aluminium construction to fit 20" tube
BMS-200	**(1)**	**Burner Ignition Controller** - ACL Model CSC400 ACL-CSC400-B - ACL CSC400 12/24 VDC Controller Bronze version includes Modbus Communication, Individual Shutdown Inputs. Three Thermocouple Inputs, Single Burner Controls. Ignition Module not included. ACL-IGN400-PM ACL Ignition module-1 Try 12VDC, 5 sec trial for Igniiton. Flame Signal Display. CAN/CSA C22.2 No. 60730-2-5-14 with wiring harness ACL-CSET Ignition cable set with connectors. 10' ignition and 10' ground pwire sleeved in 6.5' non metallic flex
TE/TW-202	**(1)**	ACL-DUALTYPE K-TC ACL Dual type K thermocouple - 1/2" NPT - 8.5" insertion length with explosion proof head ACL-1" NPT TW ACL 1" Thermowell only - SS - 1" NPT - 8.5" insertion length
LG-200	**(1)**	**Level Gauge** – Rate/Indicator Gauge

		Plainsman 16" OAL 1/2" NPT conn's Rate & Height Indication Pressure Rating 140 psi

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LSL-200	**(1)**	**Level Switch – SOR** 1510=Side Mounted, Float Operated C=316SS 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 c/w 2 Inch x 3 Inch SS float
PI-200	**(1)**	**Pressure Gauge –Wika (PI-352898)** 2-1/2" F 1/4" BM 0-200 psi Brass Internals
PI-107	**(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-200	**(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
PRV-201	**(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
PSV-200	**(1)**	**Relief Valve** – Taylor Model 8200, 1" MNPT x 1" FNPT Size "D" Orifice (0.128 sq. in.) set @ 150 psi, std service
TI-201/TW-201	**(1)**	**Temperature Indicator** - Trend Model 33060 Temperature Gauge, 1/2" NPT Back Mount connection, 0-250 F dual scale 3" dial, 6" stem c/w 304 SS thermowell 1/2" FNPT x 1" MNPT x 6" "U" dimension length 304 SST thermowell
TH-200	**(1)**	**Thief Hatch** – c/w Wenco 16 oz pressure 0.4 oz vacuum

Setting Sour Service c/w Base Gasket

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SC-200/101	**(2)**	**Speed Control Valve**, Model NAS4000-No2 1/4" NPT, 150 Psi MAWP

5.0 VALVE TRAIN

Tag #	Quantity	Description
BF025G	**(4)**	**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
NM025G	**(2)**	**Huber Magnum**, ¼" Needle Valve 6000#, Model # MF25SS ¼" M x ¼" F STRAIGHT, 316SS BODY
PI 104/105	**(2)**	**Pressure Gauges** 2-1/2" Dial, SS ¼" NPT, 0 - 30 psi Liquid Filled/ Dual Scale Center Back Mount Wika Model 233.53
PSHH 100	**(1)**	**High Fuel Pressure Shutdown Switch** CCS Dual Snap Model 6900GZE12 1/2" NPT, SS CONSTRUCTION, CSA APPROVED SET @ 11.25 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 @ 4.5 psi Falling CALIBRATION CERTIFICATE IS REQUIRED
PRV 102	**(1)**	**Main Regulator - Fisher 627R** 5-20psi Outlet Pressure Spring Range, 1" FNPT, Orifice Size 1/2" , 3/4" Tapped Bonnet Body Material: Ductile Iron, c/w internal relief
PRV/PI 103	**(1)**	**Pilot Regulator – Fisher 67CFR** c/w PI ¼" NPT Tapped-Bonnet Maximum Inlet Pressure 250 psig Outlet Pressure Range 0-35 psig / c/w gauge Adjustable spring range, 5 micron filter Adjustable screw with closing cap Temperature Range: -40 to 180 Deg F
SDV-UY 100	**(1)**	**Fossil Main Gas Safety Valve**, Pneumatic Actuator Valve 1" Fossil Proof of Closure Pneumatic Actuator 24 VDC C/W solenoid and Quick Exhaust Valve CSA 6.5-2000 C/I Approved /w 8320 series Solenoid

Fossil Series 1" ESD 24 VDC
Series 88-Explosion Proof Class 1 Div 1-Fail Closed
Connection: 1" NPT
CV: 34
Body Type: 3 Piece Design, Reduced Port
Body Material: CF8M
Ball and Trim: 316 S/S
Seats: PTFE
End Connection: NPT
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, Class 1,Div 1
Solenoid: ASCO EF8320G202 24 VDC (11.6 watts), Hazardous Area Classified, Class 1, Div 1
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
LIMIT SWITCH MUST HAVE CLASS 1 DIV 1 CLASSIFICATION

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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
UY 101	**(1)**	**ASCO 2-Way Solenoid** Asco 24VDC Solenoid C/I Rated ANSI Z21.21 & CSA 6.5 Certification 1/4" NPT 10.6 Watts 2 WAY
UY 102	**(1)**	**ASCO 3-Way Solenoid** Model # EF8320G202-24V 1/4" SST Body N/C 1.4 Watts 24VDC

6.0 SKID/ENCLOSURE

SK-200	**(1)**	**Wide Flange 12" @ 26 Skid** 7'-0" wide, 25'-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

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7.0 FUEL GAS SYSTEM

V-200	**(1)**	**Vertical Fuel Gas Scrubber** - Lotech 8" x 36", 285 psi, CRN. AB, SK, BC -20 to 650 F, 1/8" CA -ASME Code Designed and Registered - Radiography: None per UW-11c
HLSD-200	**(1)**	**PVC float construction**

8.0 MANUAL VALVES

BF025	**(2)**	¼" NPT, 3000#, Nutron Ball Valve, FP, CS, Std Trim Model: T3F02S30LZ
BF050	**(2)**	1/2" T115-NGV-G class 1500 NPT, Ball Valve Starline, 3-pce body A350 LF2 FP, Floating, stem/ball AISI 316, Devlon-V seat, graphite packing, Viton Seal ,acc.to NACE, 5AP015GAA3AAB02
BR075	**(1)**	¾" NPT RP, 3000#, Nutron Ball Valve, FP, CS, Std Trim Model: T3F07S30BZ
BF100	**(1)**	1" 2M Ball Valve NAVCO, S20, FP Thrd, CF8M SS Body NACE Trim, 2PC Threaded Body
BR200	**(1)**	2" NPT RP, 2000#, Haitima Barstock Ball Valve, WOG Thrd A105 Body 304SS Ball & Stem
NM025	**(2)**	¼" NPT M x F, WGI Needle Valve, 6000#, SS Body Model: WN1432P

9.0 PACKAGE MATERIALS

Coils

Flanges:	SA 350 LF2 RTJWN
Piping:	SA 333-Gr6 Sch XXH
Fittings:	SA 420-WPL6
Bolts/Nuts:	SA 193-B7M / SA 194-2HM
Gaskets:	Gasket R38 316SS (Not Included)
Structural Material:	SA 36

Firetube SA 53 ERW Sch 10, 0.25"

Threaded Piping

Pipe Fuel gas:	SA-106-B, Sch 80 SMLS
Threaded Fittings:	SA-105-N, 3000#

Welded Piping

Pipe:	NA
Flanges:	NA
Weld Fittings:	NA
Threadolets and Couplings:	NA

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Gaskets:	1/8-inch, 316 S.S. Flex.
Bolting:	SA-193-B7M, SA-194-2HM
Tubing:	316 SS
Fittings:	316 SS
Ferrules:	316 SS

10.0 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:	Exempt as per UW11(c)
	Piping:	S.W. 10% for Gap P.H line
	Process Coil:	100%
	Firetube:	None
PWHT:	Process Coil:	Yes
	Piping:	N/A
Ultrasonic Test:	None Included	
Hardness Test:	None Included	

11.0 PAINT

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

12.0 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

13.0 ELECTRICAL

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

14.0 DOCUMENTATION

- Two Equipment Manuals (Documents per Document Index) on Flash Drive are supplied. Hard copies are available at $500 per copy.
- P&ID, skid and general arrangement drawing (with one revision) are included. Extra charges Apply for additional changes and revisions at $95.00 per hour.
- Documentation provided as per NWP's Standard Document Index **only.**

15.0 ADDITIONAL NOTES

- ***Due to the volatility in the steel industry and general supply chain, pricing on materials are subject to supplier / mill increases / availability and review at time of order.***
- Packages will be dismantled only to the extent required for shipping.
- Terms & Conditions: NWP Terms and Conditions apply.
- 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.

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- Engineering review is not done at time of quotation. If material and / or specifications change due to engineering review, price adjustment will apply.
- A Project Management Fee of $85.00 / Hr shall be charged for any Customer changes to project design, drawings, scope of work, or specifications above and beyond those required for fabrication of the product as submitted and proposed in this quotation.

- All instrument Documentation and Data Sheets provided from our vendors shall be included in the Document Manual.
- Completion of Instrumentation Data Sheets has not been allowed for and additional charges would apply.
- Any P. Eng stamped drawings such as Skid or P & ID which may be required shall be an additional charge and have not been allowed for.
- Fugitive Emission Study has not been allowed for.
- Structural steel skid welded in accordance with CSA W59.
- Stainless Steel Tagging of Instruments – not included.
- No recommended Spare Parts are required at this time.
- Cancellation Terms:
    - If order is cancelled prior to commencement of work; a cancellation fee of 10% of the PO value shall apply.
    - If order is cancelled after commencement of work; a cancellation fee of 20% of the contract / invoice amount plus all costs incurred up to date of cancellation (including applicable vendor restocking fees) shall apply.

16.0 SHIP LOOSE MATERIALS

- Smoke Stack 1-20" NPS c/w gasket & bolt up
- (3) Instrument Venting Spools