

PROJECT INFORMATION LIST*An ISO 9001:2000 Company***1.25 MMBTU/HR LINEHEATER PACKAGE**

Customer: Encana Corporation
11040 78th Avenue
Grande Prairie, Alberta, T8W 2M2

Attention: Mike Dalgleish, Robert Holt

Reference: Stock Line heaters

Shop Order No.: 8727

Date: Sept 5, 2007

Natco Contacts:

Commercial:	Technical:
Darren Semotiuk	Jim Fortin
(780) 232-2640	(780) 986-9803
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We appreciate this opportunity to quote on your equipment requirements. We offer this quotation in accordance with NATCO's standard terms and conditions. Prices, specifications, etc. are given in the body of this quotation.

If you have any comments or questions, please do not hesitate to call. We can be reached by phone 403-236-1850 or fax 403-236-0488 or at any branch location

Leduc	3902-82 nd Avenue	Phone 780-986-9803	Fax 780-986-7568
Grande Prairie	11236-91 st Avenue	Phone 780-539-0389	Fax 780-539-4508
Bonnyville	5615-50 th Avenue	Phone 780-573-1777	Fax 780-826-2674
Fort St. John	11429 Alaska Road	Phone 250-787-0161	Fax 250-787-0162

IMPORTANT DESIGN NOTES:

- Standard stock unit

ONE (1) SOUR PROCESS WELLSITE HEATERS (H-600):**SIZE**

1.25 MMBTU x 48" OD x 15'-0" Heater Package

DESIGN CONDITIONS:

SERVICE: Sour Process / Sweet Fuel

	Maximum	Minimum
Gas Flow rate (MMSCFD)	N/A	N/A
Condensate Flow rate (BPD)	N/A	N/A
Water Flow rate (BPD)	N/A	N/A
Inlet Pressure (PSIG)	N/A	N/A
Outlet Pressure (PSIG)	N/A	N/A
Gas Inlet Temperature (F)	N/A	N/A
Gas Outlet Temperature (F)	N/A	N/A
Gas Specific Gravity	N/A	N/A
Condensate Specific Gravity	N/A	N/A
Service	Sweet	
Design Pressure (PSIG)	Preheat	3100 @ 200F
	Reheat	3100 @ 200F
Heat capacity of heater (MM BTU/Hr)	1.25	
Heater Bath Temperature, (F)	185	
Heater Bath Chemical 50/50	Ethylene glycol/Water	
Sweet Fuel Gas	By Customer	
Instrument Gas	By Customer	

INDIRECT FIRED HEATER (H-600):**HEATER:**

- One (1) 48" OD x 15'-0" S/S x 1,250,000 BTU/HR
- Insulated with 1-1/2" insulation c/w aluminium jacket, o/s building only
- 1,250,000 BTU/HR Flameco removable flame arrestor with gas firing equipment
- Removable fire tube 14" OD
- 24" x 2'2" Integral Expansion Reservoir
- S10 Thief Hatch

PREHEAT COIL:

- Four (4) passes of 3" SCH 160 coil
- Design pressure 3100 PSIG @ 200F w/ 1/8" internal C.A.

REHEAT COIL:

- Four (4) passes of 3" SCH 160 coil
- Design pressure 3100 PSIG @ 200F w/ 1/8" internal C.A.

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QUOTATION

NOZZLES:

N1	Expansion Tank/Fill	24" fabricated
C1	Drain	2" 3000# NPT
C2	TC	1" 3000# NPT
C3	TSH	1" 3000# NPT
C4 A/B	F.G. Preheat	1" 3000# NPT
C6	TI	1" 3000# NPT
C7	Stack connection	1/2" 3000# NPT
C8	LLSD (coil end)	2" 3000# NPT
C9 A/B	Level gauge	1/2" 6000# NPT

FUEL GAS SCRUBBER (V-110):

- NATCO Standard. (48162513)
- One (1) 10.750" OD x 29" S/S x 260 PSIG @ 100/-20F
- CRN Registered

NOZZLES:

C1	Inlet	1" 3000# NPT CPLG
C2	Gas outlet	2" 3000# NPT CPLG
C3	Drain	1/2" 6000# NPT CPLG
C4	Inspection	3/4" 6000# NPT CPLG

INSTRUMENTATION:

BMS-120	1	ZIRCO BURNER MANAGEMENT SYSTEM
	-	Model ACL 5500-P
	-	12-24 Volt
	-	CSA approved as combustion controller, B149.3 compliant
	-	Proof of closure
	-	System on, pilot on and alarm indicating LEDs
	-	10' ignition cable
	-	Flame ignitor rod assembly
	-	Speed control valve (SCV-120)
	-	Flameco pilot nozzle
ESDV-100	1	ACL GAS SAFETY SHUT-OFF VALVE
	-	Model ASSV-1P-24
	-	24 volt power source (0.85 Watt)
	-	SS valve, actuator, solenoid and quick dump valve
	-	CSA approved, factory assembled and tested
	-	-40 degree celcius using instrument air
	-	CSA B149.3 compatible

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QUOTATION

PCV-110	1	BAKER CHOKE VALVE
	-	3" CL1500 RTJ Top Entry
	-	Model 952EAK78JCON
	-	Samson 3278 Actuator, 80 PSIG
	-	Samson Positioner # 3780-3 (FY-104)
	-	4-20ma Signal input
PIC-104	1	FISHER PRESSURE CONTROLLER
	-	Model 4160K
	-	Direct acting
	-	0-30 Psig Output
AMS-100	1	FISHER AUTO MANUAL STATION
	-	C/w manual selector valve
	-	Two (2) Gauges
	-	Fisher 67CFR with hand wheel
PY-100	1	FISHER THREE WAY SWITCHING VALVE
	-	Model 167A
	-	5 to 18 PSIG Spring Range
PSHL-101	1	FISHER 4660XB PRESSURE CONTROL
	-	Dual set point
	-	0-1500 Set range
PSL-101B	1	CCS PRESSURE SWITCH
	-	Model 6900GZE14
	-	3-69 PSIG Set Range (Decreasing)
PSL-112	1	CCS PRESSURE SWITCH
	-	Model 6900GZE16
	-	6-138 PSIG Set Range (Decreasing)
TSH-120	1	CCS TEMPERATURE SWITCH
	-	Model 6900TUE-14
	-	C/w thermowell & 5' Capillary
TC-100	1	KIMRAY TEMPERATURE CONTROLLER
	-	Model HT-12
	-	Sweet service
	-	-30 to 750F Range
	-	Indirect throttle acting
	-	5-30 PSIG supply pressure
	-	Field Set @ 185F

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QUOTATION

	-	Part # P85003042
	-	C/w CS, 1" NPT x 12" separable socket
	-	Part # P85003044
TCV-100	1	KIMRAY TEMPERATURE CONTROL VALVE
	-	Model 130 SMT
	-	Ductile Iron Body
	-	300 PSIG MAWP
	-	ATO/FC
	-	Part # P85003070
EY-101/102	3	ASCO SOLINOID VALVE
120	-	Model EF8314 (Low Wattage)
	-	3 Way, Universal
	-	24 Volt
	-	Part # P8500xxxx
PSL-100	1	CCS PRESSURE SWITCH
	-	Model 6900GZE12
	-	1-18 PSIG Set Range (Decreasing)
PSH-100	1	CCS PRESSURE SWITCH
	-	Model 6900GZE14
	-	9-75 PSIG Set Range (Increasing)
PI-150	1	WIKA PRESSURE GAUGE:
	-	Model 233.53 Stainless Steel liquid fill
	-	2 1/2" face x 1/4" NPT, BTM
	-	0-300 PSI dual scale
	-	Part # P85005004-022
PI-120/121	2	WIKA PRESSURE GAUGES:
	-	Model 233.54 Stainless Steel liquid fill
	-	4" dial. face x 1/2" NPT, BTM
	-	0-5000 PSI dual scale
	-	Part # P8500xxxx
PI-100/103	2	WIKA PRESSURE GAUGE
	-	Model 233.53 Liquid Fill gauge
	-	2 1/2" face x 1/4" NPT, Bottom Mount
	-	0-30 PSIG dual scale
	-	Part # P85005000

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QUOTATION

- | | | |
|------------|---|--|
| PI-120 | 1 | WIKA PRESSURE GAUGES: |
| | - | Model 233.54 Stainless Steel liquid fill |
| | - | 4" dial x 1/2" NPT, BTM |
| | - | 0-5000 PSI dual scale |
| | - | Part # P8500xxxx |
| PI-121 | 1 | WIKA PRESSURE GAUGES: |
| | - | Model 233.54 Stainless Steel liquid fill |
| | - | 4" dial x 1/2" NPT, BTM |
| | - | 0-2000 PSI dual scale |
| | - | Part # P8500xxxx |
| PI-600/601 | 2 | WIKA PRESSURE GAUGE |
| | - | Model 233.53 Liquid Fill gauge |
| | - | 2 1/2" dial x 1/4" NPT, Bottom Mount |
| | - | 0-60 PSIG dual scale |
| | - | Part # P8500xxxx |
| PRV-100 | 1 | FISHER PRESSURE REGULATOR |
| | - | 1" NPT Model 627 |
| | - | Sweet service |
| | - | Ductile iron body |
| | - | 3/8" orifice |
| | - | 5-20 PSIG Range |
| | - | Set @ 14 PSIG |
| | - | Part # P8500xxxx |
| PRV-xxx | 2 | FISHER PRESSURE REGULATOR |
| | - | 1/4" NPT Model 67CFR |
| | - | 0-35 PSIG Range, |
| | - | C/w Pressure Indicator |
| PRV-xxx | 1 | FISHER PRESSURE REGULATOR |
| | - | 1/4" NPT Model 67CFR |
| | - | 0-60 PSIG Range, |
| | - | C/w Pressure Indicator |
| PRV-xxx | 4 | FISHER PRESSURE REGULATOR |
| | - | 1/4" NPT Model 67CFR |
| | - | 0-125 PSIG Range |
| | - | C/w Pressure Indicator |

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PRV-150	1	FISHER PRESSURE REGULATOR
	-	1" NPT Model 627
	-	Steel Body, 2000 PSIG MAWP
	-	1/8" orifice, 70-150 PSIG Range
	-	Set @ 100 PSIG
	-	Part # P8500xxxx
PRV-601	1	FISHER PRESSURE REGULATOR
	-	1/4" NPT Model 912
	-	2.5-7 PSIG Range
	-	Set @ 5 PSIG
PX-2/3	2	AMOT SWITCHING VALVE
	-	Model 4057CPD032H2
	-	1/4" NPT Connections
	-	Manual reset latch
PX-4	1	AMOT SWITCHING VALVE
	-	Model 4057CPD025H2
	-	1/4" NPT Connections
LSLL-120	1	SOR LEVEL SWITCH
	-	Model 1510C-G2A-C-W9-ES-CS-NC-CU
	-	1500 PSIG MAWP
PSV-120 130	1	NUPRO PRESSURE SAFETY VALVE
	-	1/4" MNPT x 1/4" FNPT
	-	Model SS-4R3
PSV-150	1	MERCER 9100 PRESSURE RELIEF VALVE
	-	Model 9100 Series
	-	1" MNPT inlet x 1" FNPT outlet
	-	0.122 in2 "D" Orifice
	-	150 PSIG @ 60F set pressure
TI-100	1	TREND TEMPERATURE INDICATOR
	-	Model 33090
	-	3" dial, 0 to 250F dual scale
	-	Part # P85006024-036
	-	C/w 1/2" FNPT x 1" MNPT x 9" LG 304SS Thermowell
	-	Part # P85006025

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TI-120/121	2	TREND TEMPERATURE INDICATOR
	-	Model 33025
	-	3" dial, 0 to 200F dual scale
	-	Part # P850060xx
	-	C/w 1/2" FNPT x 3/4" MNPT x 2.5" LG 316SS thermowell
LG-120	1	PENBERTHY TURBULAR LEVEL GAUGE
	-	Model N7A
	-	1/2" NPT w/ check ball shut off
	-	5/8" Pyrex Redline Site Glass
	-	C/w guard rods
	-	Part # P85004076
FE-100	1	CANALTA SIMPLEX METER RUN
	-	3" - 600# RF SCH 80
	-	AGA 2000
	-	Sour Trim
	-	(1) 1" T.O.L. on Downstream End
	-	(1) 3/4" T.O.L. on Downstream End
TT-103	1	ROSEMOUNT TEMPERATURE TRANSMITTER
	-	Model 3144PD1A1K6B4M5
	-	4-20 mA, 0 to 200 F
	-	C/w RTD, 0068R21C30A020T34E6 (TE-103)
	-	C/w Thermowell (3") (TW-103)
PT-103	1	ROSEMOUNT PRESSURE TRANSMITTER
	-	Model 3051TG4A2B21AB4C6M5
	-	14.7-4000 PSIG Range
AIT-110A	1	NET SAFETY MILLENIUM H2S DETECTOR
AE-110A	-	Model MLP-AR-ST1200-SEP
	-	C/w Calibration cup CCS-1

MANUAL VALVES:

BA-200	1	2" 2000# NPT RPBV, Navco
BA-100	6	1" 2000# NPT RPBV, Navco
BA-101	1	1" 3000# NPT RPBV, Nutron Sour
BA-050	7	1/2" 2000# NPT RPBV, Navco
BA-051	3	1" 3000# NPT RPBV, Nutron Sour
BA-025	1	1/4" 2000# NPT RPBV, Navco
NV-050	5	1/2" 6000# NPT FxF NV, SS, Phoenix
NV-051	2	3/4" x 1/2" 6000# NPT Multi-port NV, CS, Phoenix
NV-052	2	3/4" x 1/2" 6000# NPT Multi-port NV, SS, Phoenix

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NV-025 13 1/4" 6000# NPT FxF NV, CS, Phoenix
YSF-306 1 3" 600# RF ALTA "Y" Strainer, Sour Service,

METHANOL PUMP (P-130)

- Wilroy Pump Model U101-WRA-1-115MNNSEBB
- C/w Controller
- C/w Golden Rod 495 filter (F-130)
- C/w L/RG (L/R-130)

CHEMICAL PUMP (P-120)

- Wilroy Pump Model U101-CP250V225-CRBR
- C/w Controller
- C/w L/RG (L/R-120)

STRUCTURAL STEEL SKID:

- 8'-0" Wide x 23'-6" Long (Approx.)
- W10 x 22 main members
- 3" x 2" x 1/4" Angle floor supports
- 1/4" checker plate (under building only)
- One (1) 3" tow bar at either end
- Two (2) thick urethane insulation with fire retardant coating.

BUILDING (93):

- Width/Length/Low Eave: 8' x 16' x 8'-0" Low Eave (Approx)
- Self-framing shed roof metal building.
 - Exterior 22 Gauge Pre-painted (Encana colours)
 - Interior 24 gauge fluted aluminium
 - R-12 Wall and Roof Insulation, 6 mil. Vapour barrier
 - One (1) 38 x 36 double-glazed window with screen
 - One (1) 3' x 7' single man-door c/w check chain, locking panic hardware, weather-strip, sweep IWG
 - One (1) 6' x 7' double man-door c/w check chain, locking panic hardware, weather-strip, sweep IWG
 - Two (2) 12" x 12" sliding vents c/w screen

MATERIAL SPECIFICATIONS:

PIPING:

THREADED:

150# ANSI:

Pipe: SA-106B (Schedule XH)
Nipples: SA-106B (Schedule XH)
Fittings: SA-105 (3000# FS)

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600# ANSI:

Pipe: SA-106B (2" and under Schedule 160)
Nipples: SA-106B (2" and under Schedule 160)
Fittings: SA-105 (3000# FS)

1500# ANSI:

Pipe: SA-106B (Schedule XXH)
Nipples: SA-106B (Schedule XXH)
Fittings: SA-105 (6000# FS)

INSTRUMENT TUBING:

Size (W.T.): 3/8" (0.035") (0.065 pump) 1/2" (0.049)
Fitting brand name: Swagelok
Fitting material: 316SS
Ferrules material: SS
Tubing material: 316SS
Tubing clips: CS and/or Plastic

INSPECTION/TESTING:

RADIOGRAPHY:

V-110: Per code
Welded H.P. piping: 100% of pressure containing butt welds
(NOTE: RT acceptance to B31.3)

PRESSURE TESTING:

1500 ANSI Welded piping: 1.5 x 3100 = (4650 PSIG)
600 ANSI Welded piping: 1.5 x 1350 = (2025 PSIG)
Threaded piping: 1.5 x 1440 = (2160 PSIG)
H-600, 1500 ANSI Coils: 1.5 x 3100 = (4650 PSIG)
Instrument tubing: Air tested to 1.1 x normal operating pressure
Charted hydro-test: Not Included

POST-WELD HEAT TREATMENT: H-600 Coil per code.

ULTRASONICS: None

HARDNESS: None

MPI: None

PACKAGING:

- Instruments to common vent header(s)
- Unit to be disassembled only to the extent required for shipping.
- Piping to be securely supported on structural steel pipe supports welded to top of checker plate.

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QUOTATION

PAINTING AND SURFACE PREPARATION:

- Sandblast skid, H-600 & piping to SSPC-SP2
- Prime: One (1) coat Cloverdale shop primer
- Finish: One (1) coat of Cloverdale Industrial Enamel, Warm Grey

NOTE:

- 1.0 Fire-tube flange and stack to be painted with High Heat Aluminium only.

DELIVERY:

- Drawings 1 week after receipt of purchase order.
- Fabrication: 6-8 weeks after receipt of approved drawings.
- Delivery of subsequent orders is 6-8 weeks after receipt of purchase order.

MANUALS:

- One (1) hard copy of the operation manual is to be shipped with the unit.
- One (1) electronic copy of the operation manual will be provided.
- One (1) hard copy of the QC manual will be provided.
- One (1) electronic copy of the QC manual will be provided.
- NATCO will provide additional electronic copies only if requested.

CLARIFICATIONS & EXCEPTIONS

- 1.0 Site services may be required for commissioning and start-up. (Not included)
- 2.0 Price and delivery are based on quotations to Natco at time of inquiry.
- 3.0 Delivery is to be confirmed at time of order due to fluctuating shop loads.

VALIDITY:

- This quote is valid for 30 days from date of quote.

MATERIAL ESCALATION:

- Due to the volatility of steel prices at the present time, NATCO reserves the right to review material cost at time of order.

ELECTRICAL AND AUTOMATION CAPABILITIES:

- In addition to the products and services, NATCO can also provide a complete line of electrical and automation services which may be customized to suit your specific requirements. From fully packaged electrical installations on skid to a total automated solution on site. NATCO has the capability to assist you in meeting your I & E requirements. Please talk to our sales representative for further details.

FIELD SERVICES:

- NATCO can provide qualified assistance for start-up and commissioning of described equipment, either from the engineering staff or from any of our field service branches. For this service, charges will be based on NATCO's published rates in effect at the time service is performed.

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QUOTATION

CANCELLATION OF CONVENIENCE:

-Where cancellation of this Agreement or any work ordered under this Agreement is for the customer's sole convenience, the customer shall rateably reimburse NATCO for all work performed prior to NATCO's receipt of Customer's cancellation notice and all reasonable costs incurred in effecting cancellation.