

V-110
VRU SUCTION SCRUBBER

Manufacturer: FOUR STAR RESOURCES
Size: 12.75" x 5" S/S
MAWP: 14 psig @ 300°F
MDMT: -20°F @ 14 psig
NO RADIOGRAPHY
NON-CODE

P-610
VRU LIQUID DISPOSAL PUMP

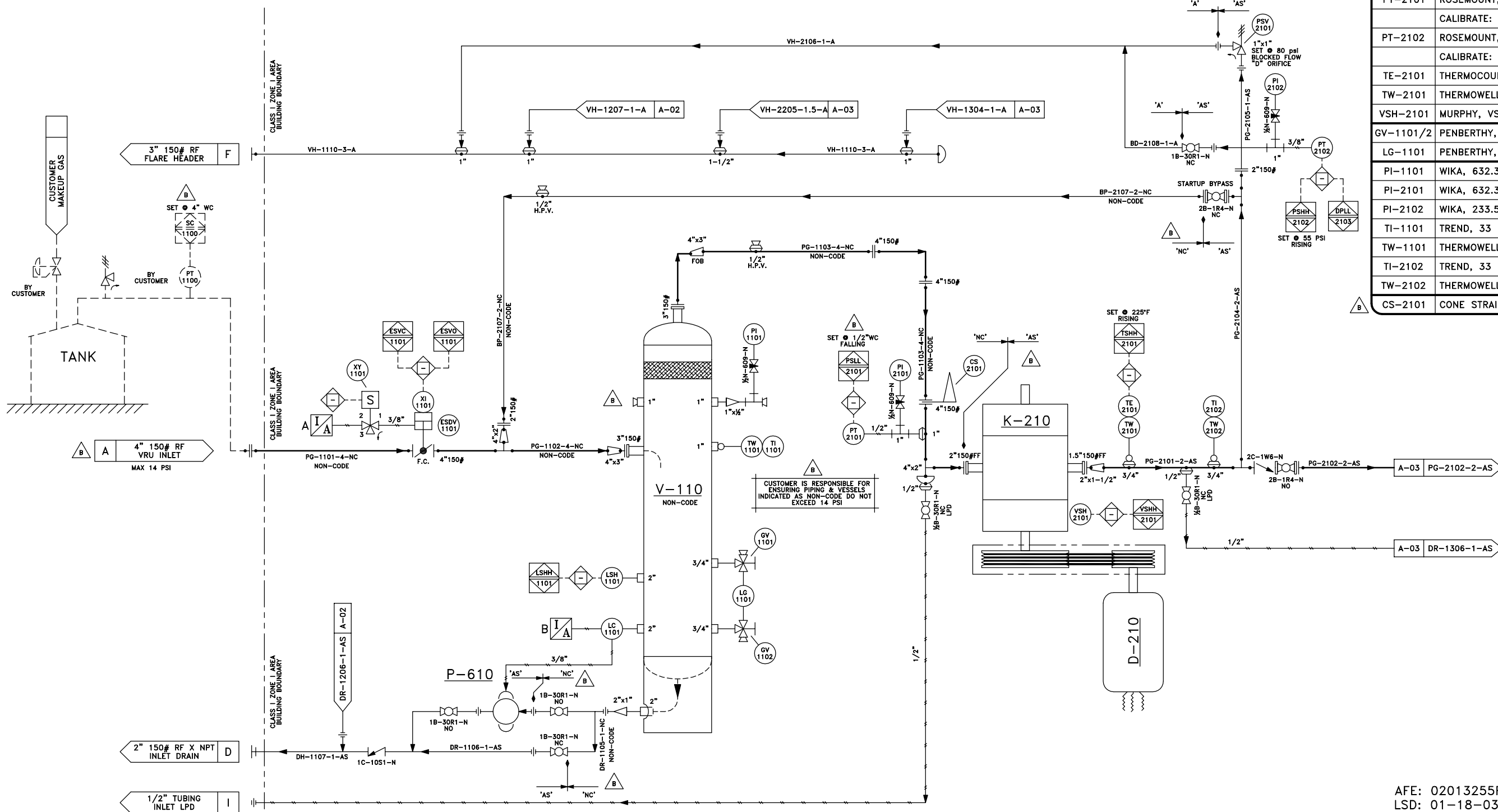
Manufacturer: SANDPIPER
Model: S1FB1SGTANS700
Flow Rate: 5usgpm @ 50psi
7 SCFM @ 60psi AIR
316SS c/w PTFE Diaphragms
AIR ONLY
Serial No:

K-210
VRU COMPRESSOR

Manufacturer: RO-FLO
Model: 5CC
CYL MAWP: 80 psig @ 350°F
OP MAWP: 50 psig @ 350°F
Speed: 865 - 1765 RPM
Serial No:

D-210
VRU DRIVE MOTOR

Manufacturer: TECO-WESTINGHOUSE
Model: XH0204
Rating: 575VAC/3Ph/60Hz
20HP @ 1765RPM
TEXP, NEMA 'B' DESIGN
CSA CLASS I ZONE I INVERTER DUTY
VFD RATED 10:1 CT
Serial No:



BILL of MATERIAL

| ITEM TAG | DESCRIPTION |
|-----------|--|
| PSV-2101 | TAYLOR, 82D234, 1"x1"NPT, 'D' ORIFICE, SET @ 80PSI |
| ESDV-1101 | EL-O-MATIC ES0350, SPRING RETURN, F.C., 80PSI |
| | c/w FISHER 8580 CONTROL DISC, 4"150#, NACE |
| XI-1101 | TOPWORX, DXP-L21GNEB C/W (2) SPDT GO SWITCHES |
| XY-1101 | ASCO, EF8320G202, 24VDC, 1/4" NPT, 115 PSI |
| LC-1101 | WELLMARK, W1200DVO-SS, 2"NPT, 30 to 70 PSI, NACE |
| LSH-1101 | WELLMARK, 790SF-2A, 2" NPT, SPDT, NACE |
| PT-2101 | ROSEMOUNT, 2051CG2A72A1A-K6M5, 250"WC, 4-20mA |
| | CALIBRATE: -30 to 60" WC |
| PT-2102 | ROSEMOUNT, 2088G2S22A1-C6M5, 150PSI, 4-20mA |
| | CALIBRATE: 0 to 100 PSI |
| TE-2101 | THERMOCOUPLE, TYPE K, 6" PROBE, 72" LEAD |
| TW-2101 | THERMOWELL, 3/4"NPT X 2.5" LONG, 316SS |
| VSH-2101 | MURPHY, VS2EX |
| GV-1101/2 | PENBERTHY, 330J-N, 3/4"x1/2" NPT, NACE |
| LG-1101 | PENBERTHY, 1RM-9, 1/2" NPT, NACE |
| PI-1101 | WIKA, 632.34, 60"WC, 1/2" NPT, 316SS |
| PI-2101 | WIKA, 632.34, 60"WC, 1/2" NPT, 316SS |
| PI-2102 | WIKA, 233.54, 100 PSI, 1/2" NPT, 316SS |
| TI-1101 | TREND, 33 SERIES, 1/2" NPT, 6" STEM, -40°F to 160°F |
| TW-1101 | THERMOWELL, 1"NPT X 6" LONG, 316SS |
| TI-2102 | TREND, 33 SERIES, 1/2" NPT, 2.5" STEM, 50°F to 500°F |
| TW-2102 | THERMOWELL, 3/4"NPT X 2.5" LONG, 316SS |
| CS-2101 | CONE STRAINER, 4"150#, CS, 300%, #20 SCREEN |

AFE: 02013255FC
LSD: 01-18-03-28 W1M

Drawn by: GDB
Date: JUL 06-13
Checked by:
Approved by: Company: TUNDRA OIL & GAS PARTNERSHIP

20HP VRU & 30HP BOOSTER PACKAGE
RO-FLO 5CC w 20HP / RO-FLO 5CC w 30HP
SOUR NAUTRAL GAS SERVICE



2308-8th Street
Nisku Alberta
T9E 7Z2
Office: 780.955.4292
Fax: 780.955.4294
Toll Free: 866.955.4292

| REV. | DESCRIPTION | BY | DATE | CHKD | APPD |
|------|--|-----|----------|------|------|
| B | REVISED PER CUSTOMER COMMENTS, ISSUED FOR APPROVAL | GDB | 07-30-13 | | |
| A | ISSUED FOR APPROVAL | GDB | 07-10-13 | SDC | GDB |

| Scale: | Quote/Ref. NO.: | JOB NO.: | Unit NO.: | Drawing NO.: | Rev.: |
|--------|-----------------|----------|-----------|------------------|-------|
| N.T.S. | Q-13019 R1 | PC-512 | RF-13018 | PID-RF13018-A-01 | B |

P:\PC Compression\Drafting\Work\PC-512 RF-13018 5CC w20hp Tundra Oil and Gas\A-PID-RF13018 Rev E.dwg, 07/30/13 4:41:16 PM, Drawing, Property of PC Compression Inc. Duplication or Transmission without Permission

P:\PC Compression\Drafting\Work\PC-512 RF-13018 5CC w20hp 5CC w30hp Tundra Oil and Gas\A-PID-RF13018 Rev E.dwg, 07/30/13 4:41:26 PM, Drawing, Property of PC Compression Inc., Duplication or Transmission without Permission

V-120 BOOSTER SUCTION SCRUBBER

Manufacturer: FOUR STAR RESOURCES
 Size: 12.75" x 5' S/S
 MAWP: 230 psig @ 300°F
 MDMT: -20°F @ 230 psig
 Corrosion Allowance: 0.125"
 CRN: AB + MB
 100% RADIOGRAPHY
 Serial No: (A)

K-210 BOOSTER COMPRESSOR

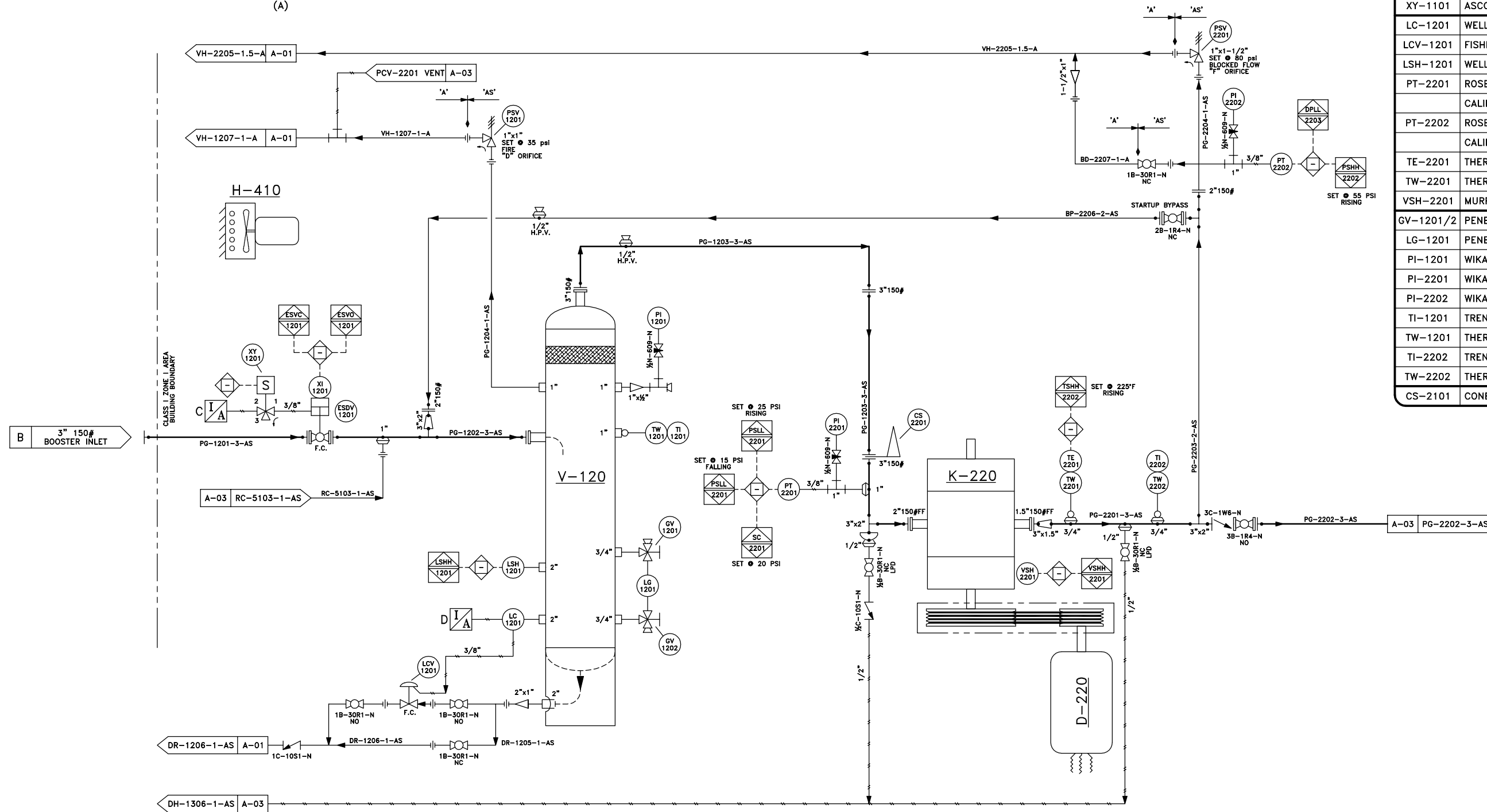
Manufacturer: RO-FLO
 Model: 5CC
 CYL MAWP: 80 psig @ 350°F
 OP MAWP: 50 psig @ 350°F
 Speed: 865 - 2200 RPM
 Serial No:

D-210 BOOSTER DRIVE MOTOR

Manufacturer: TECO-WESTINGHOUSE
 Model: XH0304
 Rating: 575VAC/3PH/60Hz
 30HP @ 1765RPM
 TEMP. NEMA 'B' DESIGN
 CSA CLASS I ZONE I INVERTER DUTY
 VFD RATED 10:1 CT
 Serial No:

H-410 BUILDING HEATER

Manufacturer: HAZLOC
 Model: XEU1-100-600360-BTA
 Rated: 10 kW/hr
 575VAC/3Ph/60Hz
 c/w Thermostat
 Serial No:



BILL of MATERIAL

| ITEM TAG | DESCRIPTION |
|-----------|--|
| PSV-1201 | TAYLOR, 82D234, 1"x1"NPT, 'D' ORIFICE, SET @ 35PSI |
| PSV-2201 | TAYLOR, 82F366, 1"x1.5"NPT, 'F' ORIFICE, SET @ 80PSI |
| ESDV-1201 | EL-O-MATIC ES0350, SPRING RETURN, F.C., 80PSI c/w 'KF' BALL VALVE, 3"150#, FP, NACE |
| XI-1201 | TOPWORX, DXP-L21GNEB C/W (2) SPDT GO SWITCHES |
| XY-1101 | ASCO, EF8320G202, 24VDC, 1/4" NPT, 115 PSI |
| LC-1201 | WELLMARK, W1200DVO-SS, 2"NPT, 30 to 70 PSI, NACE |
| LCV-1201 | FISHER, D2-X1, 1" NPT, 35 PSI, F.C. |
| LSH-1201 | WELLMARK, 790SF-2A, 2" NPT, SPDT, NACE |
| PT-2201 | ROSEMOUNT, 2088G2S22A1-C6M5, 150PSI, 4-20mA CALIBRATE: 0 to 50 PSI |
| PT-2202 | ROSEMOUNT, 2088G2S22A1-C6M5, 150PSI, 4-20mA CALIBRATE: 0 to 100 PSI |
| TE-2201 | THERMOCOUPLE, TYPE K, 6" PROBE, 72" LEAD |
| TW-2201 | THERMOWELL, 3/4"NPT X 4" LONG, 316SS |
| VSH-2201 | MURPHY, VS2EX |
| GV-1201/2 | PENBERTHY, 330J-N, 3/4"x1/2" NPT, NACE |
| LG-1201 | PENBERTHY, 1RM-9, 1/2" NPT, NACE |
| PI-1201 | WIKA, 233.54, 60 PSI, 1/2" NPT, 316SS |
| PI-2201 | WIKA, 233.54, 60 PSI, 1/2" NPT, 316SS |
| PI-2202 | WIKA, 233.54, 100 PSI, 1/2" NPT, 316SS |
| TI-1201 | TREND, 33 SERIES, 1/2" NPT, 6" STEM, -40°F to 160°F |
| TW-1201 | THERMOWELL, 1"NPT X 6" LONG, 316SS |
| TI-2202 | TREND, 33 SERIES, 1/2" NPT, 4" STEM, 50°F to 500°F |
| TW-2202 | THERMOWELL, 3/4"NPT X 4" LONG, 316SS |
| CS-2101 | CONE STRAINER, 3"150#, CS, 150%, #20 SCREEN |

AFE: 02013255FC
 LSD: 01-18-03-28 W1M

| REV. | DESCRIPTION | BY | DATE | CHKD | APPD |
|------|--|-----|----------|------|------|
| B | REVISED PER CUSTOMER COMMENTS, ISSUED FOR APPROVAL | GDB | 07-30-13 | | |
| A | ISSUED FOR APPROVAL | GDB | 07-10-13 | | |

2308-8th Street
 Nisku Alberta
 T9E 7Z2
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 Fax: 780.955.4294
 Toll Free: 866.955.4292

| | | | | |
|--------------------|---|------------------------------|-----------|------------------|
| Drawn by: GDB | 20HP VRU & 30HP BOOSTER PACKAGE | | | |
| Date: JUL 06-13 | RO-FLO 5CC w/ 20HP & RO-FLO 5CC w/ 30HP | | | |
| Checked by: | SOUR NAUTRAL GAS SERVICE | | | |
| Approved by: | Company: | TUNDRA OIL & GAS PARTNERSHIP | | |
| Scale: | Quote/Ref. NO.: | JOB NO.: | Unit NO.: | Drawing NO.: |
| N.T.S. | Q-13019 R1 | PC-512 | RF-13018 | PID-RF13018-A-02 |

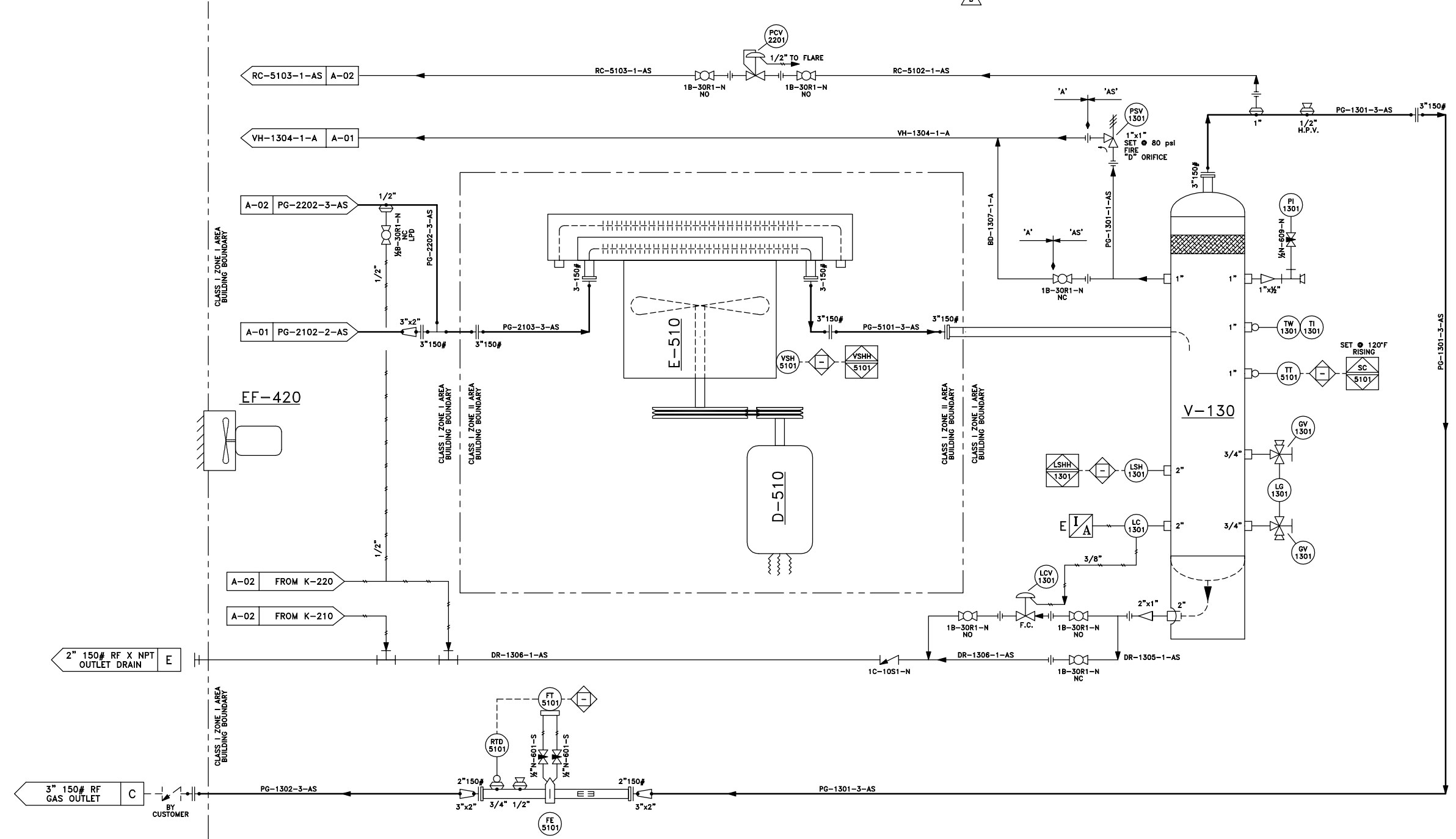
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V-130 DISCHARGE SCRUBBER
 Manufacturer: FOUR STAR RESOURCES
 Size: 12.75" x 5' S/S
 MAWP: 230 psig @ 300°F
 MDMT: -20°F @ 230 psig
 Corrosion Allowance: 0.125"
 CRN: AB + MB
 100% RADIOGRAPHY
 Serial No: (A)

EF-420 EXHAUST FAN
 Manufacturer: ENERTECH
 Model: ET12-1
 Rating: 120 VAC/1Ph/60Hz

E-510 AIR COOLED EXCHANGER
 Manufacturer: AIR-X
 Model: 36ZF
 A/C MAWP: 215psi @ 350°F
 A/C MDMT: -20°F @ 215psi
 A/C CORROSION: 0.125"
 100% UT & 100% X-RAY (BW)
 A/C Serial No:
 A/C CRN: AB+MB
 JW MAWP: 14psig @ 250°F
 JW Serial No:
 c/w 36" 5 BLADE MOORE 1k-S16
 FAN SPEED: 870 RPM
 BUG SCREEN (B)

D-510 EXCHANGER FAN DRIVE MOTOR
 Manufacturer: TECO-WESTINGHOUSE
 Model: TBA
 Rating: 575VAC/3Ph/60Hz
 SHP @ 1800RPM
 TEXP, NEMA 'B' DESIGN
 CSA CLASS I ZONE I INVERTER DUTY
 VFD RATED 10:1 CT
 Serial No:



BILL of MATERIAL

| ITEM TAG | DESCRIPTION |
|-----------|---|
| PSV-1301 | TAYLOR, 82D234, 1"x1"NPT, 'D' ORIFICE, SET @ 80PSI |
| FE-5101 | CAMERON, JUNIOR METER RUN, 2"150# X 49"LG, AGA2000 |
| | FLOW CONDITIONER, 1/2" & 3/4" NPT TAPS |
| FT-5101 | NUFLO SCANNER 2000, c/w MVT ADAPTER, 1/4"NPT |
| | 300PSIA MAWP, 200"WC D.P., NACE |
| RTD-5101 | RTD, 5' CABLE, 2.5" PROBE c/w FT-5101 |
| TT-5101 | ROSEMOUNT, 644KAH6-J6M5F6 c/w 2.5" RTD |
| | CALIBRATE: -50 to 350°F |
| LC-1201 | WELLMARK, W1200DVO-SS, 2"NPT, 30 to 70 PSI, NACE |
| LCV-1201 | FISHER, D2-X1, 1" NPT, 35 PSI, F.C. |
| LSH-1201 | WELLMARK, 790SF-2A, 2" NPT, SPDT, NACE |
| PCV-2201 | FISHER, 627, 1"NPT, 1/2" ORIFICE, 5-20 PSI, SOUR |
| VSH-5101 | MURPHY, VS2EX |
| GV-1301/2 | PENBERTHY, 330J-N, 3/4"x1/2" NPT, NACE |
| LG-1301 | PENBERTHY, 1RM-9, 1/2" NPT, NACE |
| PI-1201 | WIKA, 233.54, 100 PSI, 1/2" NPT, 316SS |
| TI-1201 | TREND, 33 SERIES, 1/2" NPT, 6" STEM, -40°F to 160°F |
| TW-1201 | THERMOWELL, 1"NPT X 6" LONG, 316SS |

AFE: 02013255FC
 LSD: 01-18-03-28 W1M

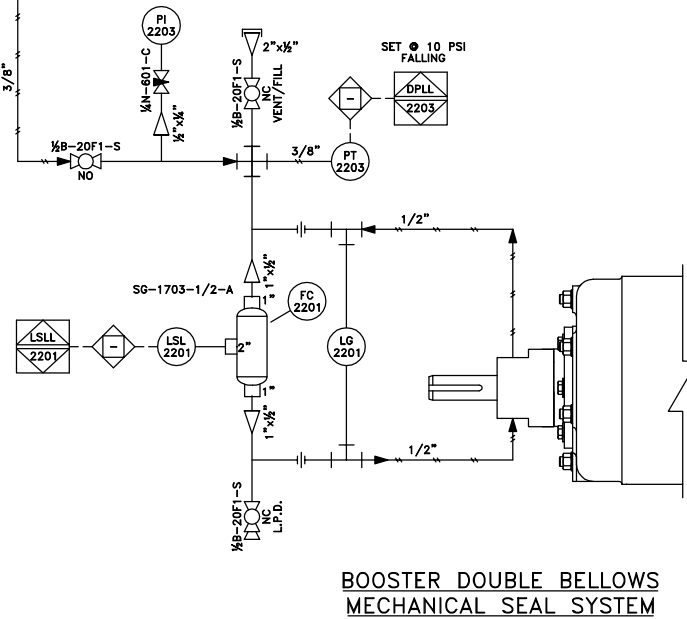
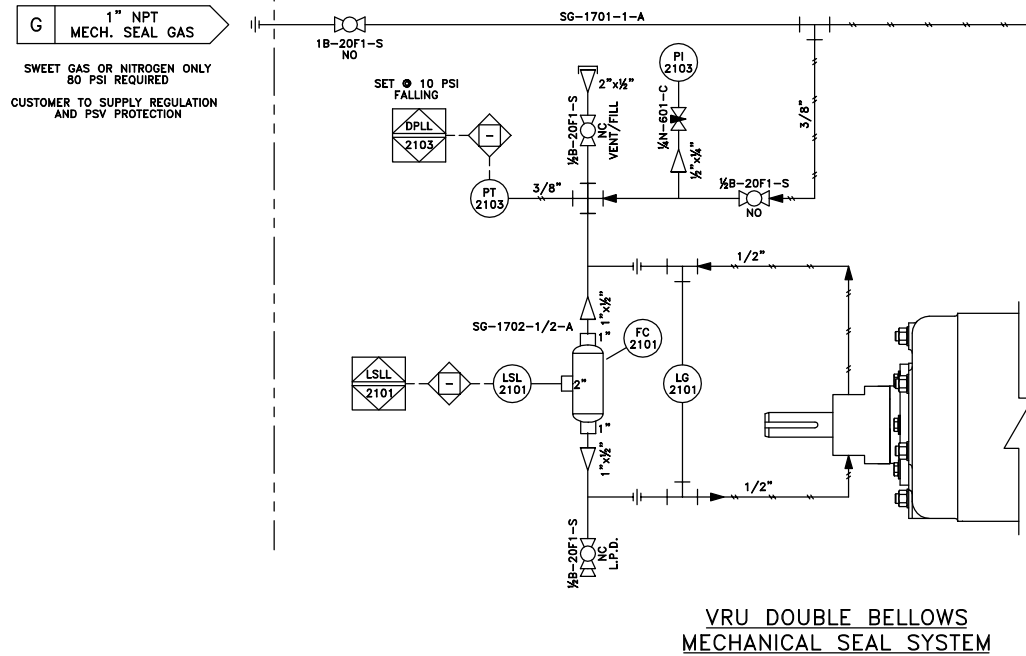
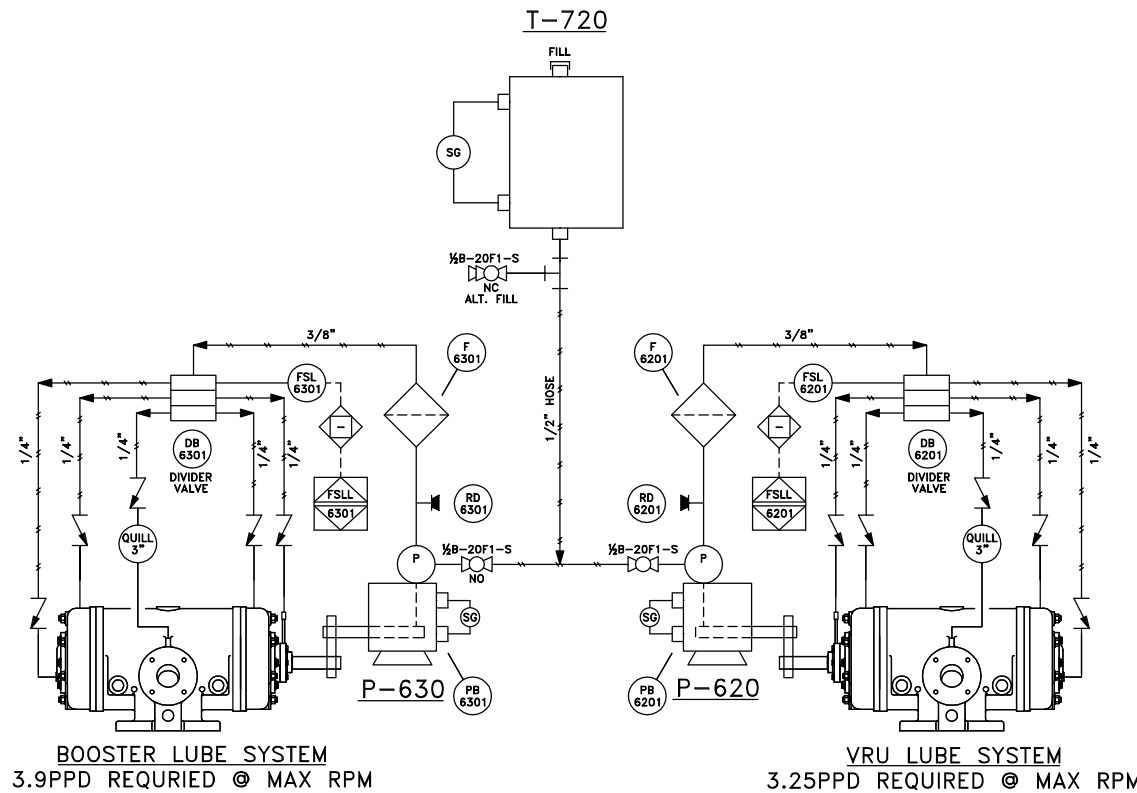
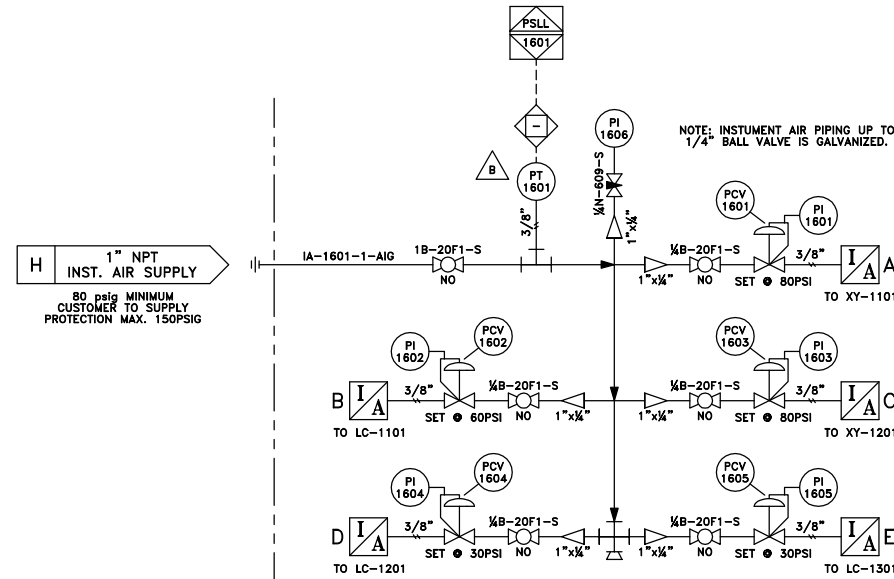
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|---|------------------------------|---|--|
| Drawn by: GDB Date: JUL 06-13 Checked by: | | 20HP VRU & 30HP BOOSTER PACKAGE RO-FLO 5CC w 20HP / RO-FLO 5CC w 30HP SOUR NAUTRAL GAS SERVICE | |
| Approved by: | | Company: TUNDRA OIL & GAS PARTNERSHIP | |
| Scale: N.T.S. | | Quote/Ref. NO.: Q-13019 R1 | JOB NO.: PC-512 |
| REV. DESCRIPTION | | Unit NO.: RF-13018 | Drawing NO.: PID-RF13018-A-03 |
| B REVISED PER CUSTOMER COMMENTS, ISSUED FOR APPROVAL A ISSUED FOR APPROVAL | GDB 07-30-13 GDB 07-10-13 | 2308-8th Street Nisku Alberta T9E 7Z2 | Office: 780.955.4292 Fax: 780.955.4294 Toll Free: 866.955.4292 |



P-620 VRU LUBRICATOR PUMP
 Manufacturer: PREMIER
 MODEL: 91211
 3/8" PLUNGER

P-630 BOOSTER LUBRICATOR PUMP
 Manufacturer: PREMIER
 MODEL: 91211
 3/8" PLUNGER

T-720 OIL DAY TANK
 Manufacturer: KENCO ENGINEERING
 Part No: 30G
 Volume: 30 usgal



BILL of MATERIAL

| ITEM TAG | DESCRIPTION |
|----------|--|
| PT-1601 | ROSEMOUNT, 2088G3S22A1-C6M5, 800PSI, 4-20mA CALIBRATE: 0 to 200 PSI |
| PT-2103 | AST, 4600 SERIES, 0-100 PSI, 1/4" NPT |
| PT-2203 | AST, 4600 SERIES, 0-100 PSI, 1/4" NPT |
| LSL-2101 | WELLMARK, 790SF-2A, 2" NPT, SPDT, NACE |
| LSL-2201 | WELLMARK, 790SF-2A, 2" NPT, SPDT, NACE |
| FC-2101 | MURPHY, FLOAT CHAMBER, 2" NPT |
| FC-2201 | MURPHY, FLOAT CHAMBER, 2" NPT |
| LG-2101 | PENBERTHY, 1RM-4, 1/2" NPT, NACE |
| LG-2201 | PENBERTHY, 1RM-4, 1/2" NPT, NACE |
| PCV-1601 | FISHER, 67CFR-601SPEC, 0 to 125PSI, 1/4" NPT |
| PCV-1602 | FISHER, 67CFR-601SPEC, 0 to 125PSI, 1/4" NPT |
| PCV-1603 | FISHER, 67CFR-601SPEC, 0 to 125PSI, 1/4" NPT |
| PCV-1604 | FISHER, 67CFR-362SPEC, 0 to 35PSI, 1/4" NPT |
| PCV-1605 | FISHER, 67CFR-362SPEC, 0 to 35PSI, 1/4" NPT |
| FSL-6201 | WHITLOK, DNFT-PS-LED, 3-MIN NO-FLOW |
| FSL-6301 | WHITLOK, DNFT-PS-LED, 3-MIN NO-FLOW |
| PB-6201 | PREMIER, 802300, 60:1GR, 1/2" SHAFT |
| PB-6301 | PREMIER, 802300, 60:1GR, 1/2" SHAFT |
| RD-6201 | BURST PLATE, BLACK, 509-230-060 |
| RD-6301 | BURST PLATE, BLACK, 509-230-060 |
| F-6201 | LUBE FILTER, 1/4" NPT, 2183 |
| F-6301 | LUBE FILTER, 1/4" NPT, 2183 |
| DB-6201 | MH-3 DIVIDER BLOCK c/w (2) 12T & (1) 6S VALVES |
| DB-6301 | MH-3 DIVIDER BLOCK c/w (2) 12T & (1) 6S VALVES |
| PI-1601 | WIKA, 233.53, 160 PSI, 1/4" NPT, 316SS |
| PI-1602 | WIKA, 233.53, 160 PSI, 1/4" NPT, 316SS |
| PI-1603 | WIKA, 233.53, 160 PSI, 1/4" NPT, 316SS |
| PI-1604 | WIKA, 233.53, 60 PSI, 1/4" NPT, 316SS |
| PI-1605 | WIKA, 233.53, 60 PSI, 1/4" NPT, 316SS |
| PI-1606 | WIKA, 233.53, 160 PSI, 1/4" NPT, 316SS |
| PI-2103 | WIKA, 233.53, 100 PSI, 1/4" NPT, 316SS |
| PI-2203 | WIKA, 233.53, 100 PSI, 1/4" NPT, 316SS |

AFE: 02013255FC
 LSD: 01-18-03-28 W1M

| REV. | DESCRIPTION | BY | DATE | CHKD | APPD |
|------|--|-----|----------|------|------|
| B | REVISED PER CUSTOMER COMMENTS, ISSUED FOR APPROVAL | GDB | 07-30-13 | | |
| A | ISSUED FOR APPROVAL | GDB | 07-10-13 | | |

2308-8th Street
 Nisku Alberta
 T9E 7Z2

Office: 780.955.4292
 Fax: 780.955.4294
 Toll Free: 866.955.4292

| | | | | | |
|--------------------|--|----------|-----------|------------------|-------|
| Drawn by: GDB | 20HP VRU & 30HP BOOSTER PACKAGE | | | | |
| Date: JUL 06-13 | RO-FLO 5CC w 20HP / RO-FLO 5CC w 30HP | | | | |
| Checked by: | SOUR NAUTRAL GAS SERVICE | | | | |
| Approved by: | Company: TUNDRA OIL & GAS PARTNERSHIP | | | | |
| Scale: N.T.S. | Quote/Ref. NO.: | JOB NO.: | Unit NO.: | Drawing NO.: | Rev.: |
| | Q-13019 R1 | PC-512 | RF-13018 | PID-RF13018-A-04 | B |

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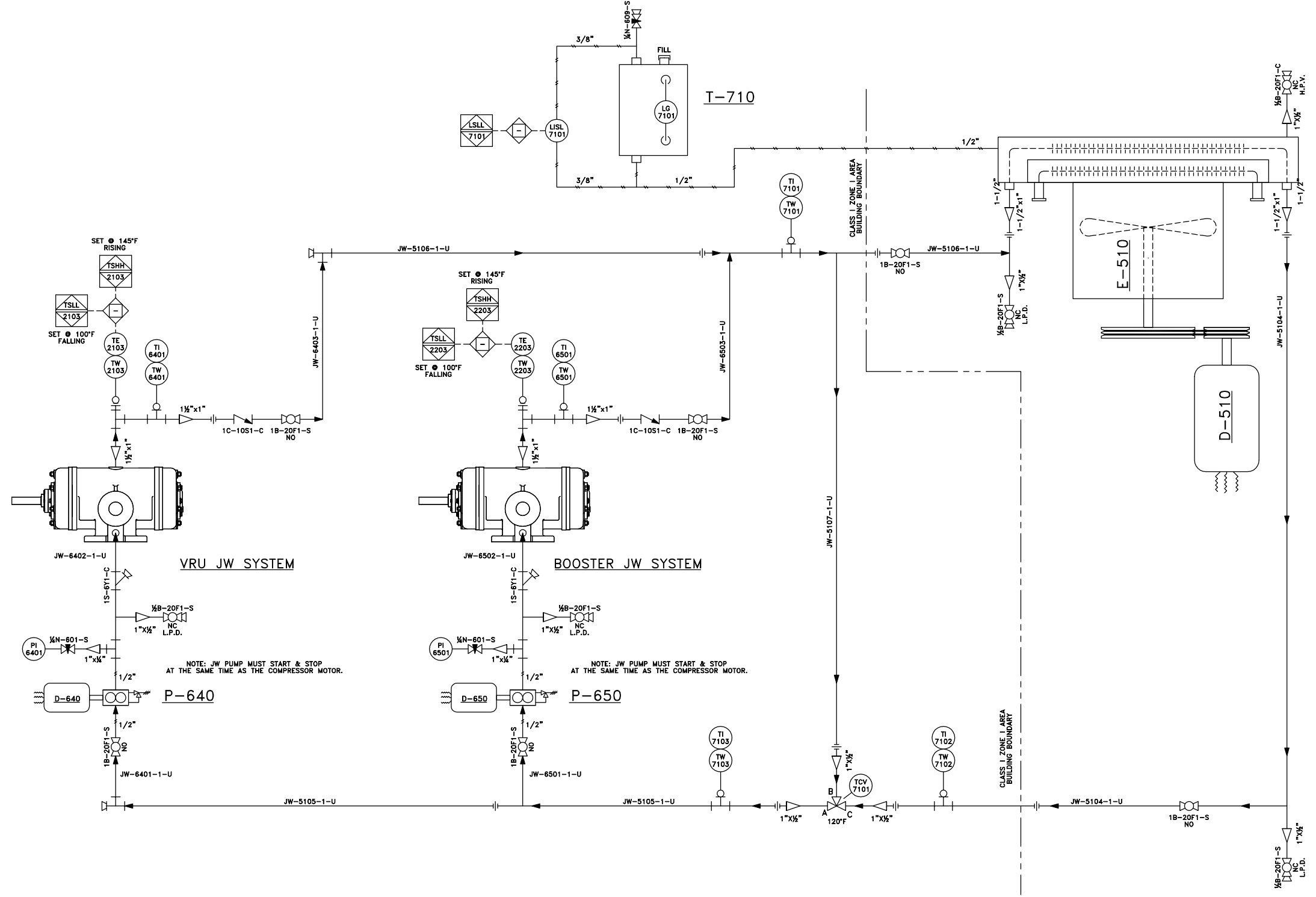
P-640
VRU JW PUMP
 Manufacturer: TUTHILL
 Model: OLEV-C-7
 Flow Rate: 1.6GPM @ 1750RPM
 CAST IRON
 C/W INTERNAL RELIEF @ 50PSI
 Serial No:

D-640
VRU JW PUMP MOTOR
 Manufacturer: BALDOR
 Model:
 Rating: 575VAC/3PH/60HZ
 1/2HP @ 1725RPM
 TEXP, CSA CLASS 1 ZONE 1
 Serial No:

T-710
EXPANSION TANK
 Manufacturer: PC COMPRESSION
 VOLUME: 5 usgal
 8"x8"x24"LG

P-650
BOOSTER JW PUMP
 Manufacturer: TUTHILL
 Model: 1LEV-C-7
 Flow Rate: 2.7GPM @ 1750RPM
 CAST IRON
 C/W INTERNAL RELIEF @ 50PSI
 Serial No:

D-650
BOOSTER PUMP MOTOR
 Manufacturer: BALDOR
 Model:
 Rating: 575VAC/3PH/60HZ
 1/2HP @ 1725RPM
 TEXP, CSA CLASS 1 ZONE 1
 Serial No:



| BILL of MATERIAL | |
|------------------|---|
| ITEM TAG | DESCRIPTION |
| TCV-7101 | FPE, A1210-120, 1/2" NPT, 120°F, CAST IRON |
| TE-2103 | THERMOCOUPLE, TYPE K, 6" PROBE, 72" LEAD |
| TW-2103 | THERMOWELL, 1"NPT X 2.5" LONG, 316SS |
| TE-2203 | THERMOCOUPLE, TYPE K, 6" PROBE, 72" LEAD |
| TW-2203 | THERMOWELL, 1"NPT X 2.5" LONG, 316SS |
| LISL-7103 | MURPHY, EL150-EX |
| LG-7101 | KENCO, 4400 SERIES, 6" REDLINE GAUGE |
| PI-6401 | WIKA, 233.53, 60 PSI, 1/4" NPT, 316SS |
| PI-6501 | WIKA, 233.53, 60 PSI, 1/4" NPT, 316SS |
| TI-6401 | TREND, 33 SERIES, 1/2" NPT, 2.5" STEM, -40°F to 160°F |
| TW-6401 | THERMOWELL, 1"NPT X 2.5" LONG, 316SS |
| TI-6501 | TREND, 33 SERIES, 1/2" NPT, 2.5" STEM, -40°F to 160°F |
| TW-6501 | THERMOWELL, 1"NPT X 2.5" LONG, 316SS |
| TI-7101 | TREND, 33 SERIES, 1/2" NPT, 2.5" STEM, -40°F to 160°F |
| TW-7101 | THERMOWELL, 1"NPT X 2.5" LONG, 316SS |
| TI-7102 | TREND, 33 SERIES, 1/2" NPT, 2.5" STEM, -40°F to 160°F |
| TW-7102 | THERMOWELL, 1"NPT X 2.5" LONG, 316SS |
| TI-7103 | TREND, 33 SERIES, 1/2" NPT, 2.5" STEM, -40°F to 160°F |
| TW-7103 | THERMOWELL, 1"NPT X 2.5" LONG, 316SS |

AFE: 02013255FC
 LSD: 01-18-03-28 W1M

| | | | | |
|---|--|---|---|---|
| | | Drawn by: GDB Date: JUL 06-13 Checked by: Approved by: | 20HP VRU & 30HP BOOSTER PACKAGE RO-FLO 5CC w 20HP / RO-FLO 5CC w 30HP SOUR NAUTRAL GAS SERVICE | |
| B REVISED PER CUSTOMER COMMENTS, ISSUED FOR APPROVAL A ISSUED FOR APPROVAL REV. DESCRIPTION | | GDB 07-30-13 GDB 07-10-13 BY DATE [CHKD] [APPD] | Company: TUNDRA OIL & GAS PARTNERSHIP Scale: N.T.S. Quote/Ref. NO.: Q-13019 R1 JOB NO.: PC-512 Unit NO.: RF-13018 Drawing NO.: PID-RF13018-A-05 Rev.: B | 2308-8th Street Nisku Alberta T9E 7Z2 Office: 780.955.4292 Fax: 780.955.4294 Toll Free: 866.955.4292 |

A-GENERAL NOTES:

- | | |
|------------------------|------------------|
| 1. REFERENCE DRAWINGS: | ISO-RF13018-C-03 |
| GA-RF13018-B-01 | ISO-RF13018-C-05 |
| GA-RF13018-B-02 | ISO-RF13018-C-06 |
| GA-RF13018-B-03 | ISO-RF13018-C-04 |
| GA-RF13018-B-04 | SKD-RF13018-D-01 |
| ISO-RF13018-C-01 | BLD-RF13018-H-01 |
| ISO-RF13018-C-02 | |

B-DESIGN & MATERIAL NOTES:

1. PROCESS PIPING CONSTRUCTED TO ASME B31.3-2012, NORMAL SERVICE
2. SPEC 'U' UTILITY PIPING (NON-CODE):
- DESIGN: MAWP: 50psig @ 350°F (345kPag @ 177°C)
MDMT: -20°F @ 50psig (-29°C @ 345kPag)
LEAK TEST: 75psig @ AMBIENT TEMPERATURE (>40°F)
w/ HYDRO
- CORROSION ALLOWANCE: 0.0625", UNLESS NOTED OTHERWISE
- PIPE/NIPPLES: NPT: ¼" TO ¾", A-106-B, SCH.80 @ ½"C.A.
NPT: ½" TO 2", A-106-B, SCH.80
- FITTINGS: NPT: ¼" TO 2", cl.3000, A-105N
- BUSHINGS: ALLOWED ALL SIZES.
- TUBE: ¼" TO ¾", @ 0.035" WALL, 316SS
½" @ 0.049" WALL, 316SS
- TUBE FITTINGS: ¼" TO ½", 316SS, SWAGELOK

3. SPEC 'AS' PIPING: - SOUR GAS
- DESIGN: MAWP: 150psig @ 350°F (1034kPag @ 177°C)
MDMT: -20°F @ 150psig (-29°C @ 1034kPag)
LEAK TEST: 225psig @ AMBIENT TEMPERATURE (>40°F)
w/ HYDRO
- CORROSION ALLOWANCE: 0.125", UNLESS NOTED OTHERWISE
- PIPE/NIPPLES: NPT: ¼" TO ¾", 316SS ONLY
NPT: ½", A-106-B, SCH.XXS
NPT: ¾" TO 2", A-106-B, SCH.160
BW: 1½" TO 2", A-106-B, SCH.80
BW: 3", A-106-B, SCH.40
- FITTINGS: NPT: ¼" TO 2", cl.3000, A-105N
BW: 1½" TO 2", A-234-WPB, SCH.80
BW: 3", A-234-WPB, SCH.40
- FLANGES: BW: 1½" TO 3", A-105N, ASME cl.150 RF, BORED TO SUIT
BW: 1½" TO 2", A-105N, ASME cl.150 FF,
BORED TO SUIT (K-210 & K-220 ONLY)
- 'O'-LETS: TOL: ½", cl.6000, A-105N
TOL: ¾" TO 1½" cl.3000, A-105N
- BUSHINGS: BUSHINGS ALLOWED IF 2 PIPE SIZES SMALLER.
- STUDS: ALL SIZES, A-193-B7M
- NUTS: ALL SIZES, A-194-2HM, HEAVEY HEX HEAD
- GASKETS: 316SS SPIRAL WOUND, FLEXICARB (GRAPHITE) FILLER
- TUBE: ¼" TO ¾", @ 0.035" WALL, 316SS
½" @ 0.049" WALL, 316SS
- TUBE FITTINGS: ¼" TO ½", 316SS, SWAGELOK

4. SPEC 'A' PIPING: - FLARE, SWEET GAS
- DESIGN: MAWP: 150psig @ 350°F (1034kPag @ 177°C)
MDMT: -20°F @ 150psig (-29°C @ 1034kPag)
LEAK TEST: 225psig @ AMBIENT TEMPERATURE (>40°F)
w/ HYDRO
- CORROSION ALLOWANCE: 0.0625", UNLESS NOTED OTHERWISE
- PIPE/NIPPLES: NPT: ¼" TO ¾", A-106-B, SCH.80 @ ½"C.A.
NPT: ½" TO 2", A-106-B, SCH.80
BW: 1½" TO 2", A-106-B, SCH.80
BW: 3", A-106-B, SCH.40
- FITTINGS: NPT: ¼" TO 2", cl.3000, A-105N
BW: 1½" TO 2", A-234-WPB, SCH.80
BW: 3", A-234-WPB, SCH.40
- FLANGES: BW: 1½" TO 3", A-105N, ASME cl.150 RF, BORED TO SUIT
- 'O'-LETS: TOL: ½" TO 1½", cl.3000, A-105N
- BUSHINGS: BUSHINGS ALLOWED IF 2 PIPE SIZES SMALLER.
- STUDS: ALL SIZES, A-193-B7M
- NUTS: ALL SIZES, A-194-2HM, HEAVEY HEX HEAD
- GASKETS: 316SS SPIRAL WOUND, FLEXICARB (GRAPHITE) FILLER
- TUBE: ¼" TO ¾", @ 0.035" WALL, 316SS
½" @ 0.049" WALL, 316SS
- TUBE FITTINGS: ¼" TO ½", 316SS, SWAGELOK

5. SPEC 'NC' PIPING: - NON-CODE
- DESIGN: MAWP: 14psig @ 350°F (97kPag @ 177°C)
MDMT: -20°F @ 14psig (-29°C @ 97kPag)
LEAK TEST: 75psig @ AMBIENT TEMPERATURE (>40°F)
w/ HYDRO
- CORROSION ALLOWANCE: 0.125", UNLESS NOTED OTHERWISE
- PIPE/NIPPLES: NPT: ¼" TO ¾", 316SS ONLY
NPT: ½", A-106-B, SCH.XXS
NPT: ¾" TO 2", A-106-B, SCH.160
BW: 2", A-106-B, SCH.80
BW: 4", A-106-B, SCH.40
- FITTINGS: NPT: ¼" TO 2", cl.3000, A-105N
BW: 2", A-234-WPB, SCH.80
BW: 4", A-234-WPB, SCH.40
- FLANGES: BW: 4", A-105N, ASME cl.150 RF, BORED TO SUIT
BW: 2", A-105N, ASME cl.150 FF,
BORED TO SUIT (K-210 & K-220 ONLY)
- 'O'-LETS: TOL: ½", cl.6000, A-105N
TOL: ¾" TO 1½" cl.3000, A-105N
- BUSHINGS: BUSHINGS ALLOWED IF 2 PIPE SIZES SMALLER.
- STUDS: ALL SIZES, A-193-B7M
- NUTS: ALL SIZES, A-194-2HM, HEAVEY HEX HEAD
- GASKETS: 316SS SPIRAL WOUND, FLEXICARB (GRAPHITE) FILLER
- TUBE: ¼" TO ¾", @ 0.035" WALL, 316SS
½" @ 0.049" WALL, 316SS
- TUBE FITTINGS: ¼" TO ½", 316SS, SWAGELOK

6. SPEC 'AIG' PIPING: - INSTRUMENT AIR
- DESIGN: MAWP: 150psig @ 350°F (1034kPag @ 177°C)
MDMT: -20°F @ 150psig (-29°C @ 1034kPag)
LEAK TEST: 225psig @ AMBIENT TEMPERATURE (>40°F)
w/ HYDRO
- CORROSION ALLOWANCE: 0.0625", UNLESS NOTED OTHERWISE
- PIPE/NIPPLES: NPT: ¼" TO ¾", A-106-B, SCH.80 @ ½"C.A., GALVANIZED
NPT: ½" TO 2", A-106-B, SCH.80, GALVANIZED
- FITTINGS: NPT: ¼" TO 2", cl.3000, A-105N, GALVANIZED
NOT ALLOWED.
- BUSHINGS: NOT ALLOWED.
- TUBE: ¼" TO ¾", @ 0.035" WALL, 316SS
½" @ 0.049" WALL, 316SS
- TUBE FITTINGS: ¼" TO ½", 316SS, SWAGELOK

C-MISCELLANEOUS NOTES:

- PACKAGE FOR USE WITH SOUR NATURAL GAS ONLY, MAX 3% H2S.
- EXTERIOR FINISH: COMMERCIAL SANDBLAST TO SSPC-SP6 (NACE#3)
FINISH ONE (1) COAT OF CLOVERDALE 835 DTM ENAMEL
SKID COLOUR: BLACK (ROLLED AFTER COMPLETION)
PIPE COLOUR: WARM GRAY
BANDING: GAS = YELLOW
DRAINS = GREEN
- BUILDING: SELF FRAMING GABLE, R12 ROOF, R12 WALLS,
6mil VAPOUR BARRIER
EXTERIOR COLOUR: 22GA. PRE-PAINTED SURF WHITE (QC8316)
TRIM & DOORS COLOUR: SLATE BLUE (QC8260)
INTERIOR COLOUR: 24GA. WHITE ALUMINUM
- SKID INSULATION: 3" (R-20), FIRE RETARDANT, SPRAY URETHANE FOAM
- SHOP RUN TEST: NO

D-ELECTRICAL NOTES:

- BUILDING AREA: CLASS I ZONE I
- CSA/QPS EQUIVALENCY INSPECTION: NO
- FES STUDY: PROVIDED BY END USER
- LOCAL PERMIT & INSPECTION: N/A
- CUSTOMER SUPPLIED POWER REQUIRED: 575VAC/3Ph/60Hz;
120VAC/1Ph/60Hz
24VDC
- WIRING OF END DEVICES, POWER, MOTOR & CONTROL WIRING BY OTHERS

E-INSPECTION AND TESTING NOTES:

- RADIOGRAPHY: 100% OF BUTTWELDS, SPEC AS
100% BUTTWELDS, SPEC NC & A
- MAGNETIC PARTICLE: 100% OF FILLETS, SPEC AS
- PWHT: NONE
- HARDNESS TESTING: NONE
- LEAK TEST TO PRESSURES INDICATED ABOVE
- CUSTOMER HOLD POINTS:
a) SKID WELDING: NO
b) B-PRESSURE: NO
c) VESSELS: NO
d) LEAK TESTS: NO
e) RUN TEST: NO
f) FINAL INSPECTION: NO

F-VRU OPERATING CONDITIONS:

- SUCTION PRESSURE: TANK <8oz
- DISCHARGE PRESSURE: 50psig (345kPag)
- COMPRESSOR OPERATING RANGE: 865 TO 1765 rpm
- FLUID SPECIFIC GRAVITY: 1.42 SOUR NATURAL GAS, 2.75% H2S
- COMPRESSOR MOTOR OPERATING RANGE: 865 TO 1765 rpm
(CONSULT WITH PC COMPRESSION INC. FOR OPERATION OUTSIDE THESE CONDITIONS.)

G-BOOSTER OPERATING CONDITIONS:

- SUCTION PRESSURE: 20psig (138kPag)
- DISCHARGE PRESSURE: 50psig (345kPag)
- COMPRESSOR OPERATING RANGE: 865 TO 2175 rpm
- FLUID SPECIFIC GRAVITY: 1.1 SOUR NATURAL GAS, 0.5% H2S
- COMPRESSOR MOTOR OPERATING RANGE: 700 TO 1765 rpm
(CONSULT WITH PC COMPRESSION INC. FOR OPERATION OUTSIDE THESE CONDITIONS.)

H-VALVES:

- ¼B-20F1-S, = MAS G-2 2000#, ¼"NPT, FULL PORT, STAINLESS STEEL, BALL VALVE
- ½B-20F1-S, = MAS G-2 2000#, ½"NPT, FULL PORT, STAINLESS STEEL, BALL VALVE
- 1B-20F1-S, = MAS G-2 2000#, 1"NPT, FULL PORT, STAINLESS STEEL, BALL VALVE
- ¼B-30R1-N = 'KF' ½"3000# NPT, REG PORT, BALL VALVE, NACE
- 1B-30R1-N = 'KF' 1"3000# NPT, REG PORT, BALL VALVE, NACE
- 2B-1R4-N, = 'KF' 2"150# RF, REG PORT, BALL VALVE, NACE
- 3B-1R4-N, = 'KF' 3"150# RF, REG PORT, BALL VALVE, NACE
- 1C-10S1-N, = WHEATLEY, 822-013100-766, 1000psi, 1" NPT, SWING CHECK VALVE, NACE
- 2C-1W6-N, = WHEATLEY, 973-030027-169, 2" 150#, WAFER CHECK VALVE, NACE
- 3C-1W6-N, = WHEATLEY, 973-040027-169, 3" 150#, WAFER CHECK VALVE, NACE
- ¼N-609-C, = AGCO H7VIC-22, ¼" Mx F CARBON STEEL, 6000psi NEEDLE VALVE
- ¼N-601-C, = AGCO H7VIC-2, ¼" Fx F CARBON STEEL, 6000psi NEEDLE VALVE
- ½N-609-N, = AGCO H7VIS-44Q-SG, ½" Mx F STAINLESS, 6000psi NEEDLE VALVE, NACE
- ½N-601-N, = AGCO H1VIS-4Q-SG, ½" Fx F STAINLESS, 6000psi NEEDLE VALVE, NACE
- 1S-6Y1-C, = COLTON Y660TST, 'Y' STRAINER, ASME 600, 1" NPT, c/w #40 SCREEN.


I-VRU LUBRICATION & COOLANT:

- BREAK-IN PERIOD: (300 HOURS) 6.5 PPD @ MAX SPEED
- NORMAL OPERATION: 3.25 PPD @ MAX SPEED
- OIL TYPE: MOBIL DELVAC 1300 SAE 30WT
- COOLANT: 50% ETHYLENE GLYCOL

J-BOOSTER LUBRICATION & COOLANT:

- BREAK-IN PERIOD: (300 HOURS) 7.8 PPD @ MAX SPEED
- NORMAL OPERATION: 3.9 PPD @ MAX SPEED
- OIL TYPE: MOBIL DELVAC 1300 SAE 30WT
- COOLANT: 50% ETHYLENE GLYCOL

AFE: 02013255FC
LSD: 01-18-03-28 W1M

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|---|--|-----|----------|--|---|--|---|-----------------|--------------------|-------------------------------|
|  | | | | | Drawn by: GDB Date: JUL 06-13 Checked by: | | 20HP VRU & 30HP BOOSTER PACKAGE RO-FLO 5CC w 20HP / RO-FLO 5CC w 30HP SOUR NAUTRAL GAS SERVICE | | | |
| | | | | | Approved by: | | Company: TUNDRA OIL & GAS PARTNERSHIP | | | |
| | | | | | Scale: N.T.S. | | Quote/Ref. NO.: Q-13019 R1 | JOB NO.: PC-512 | Unit NO.: RF-13018 | Drawing NO.: PID-RF13018-A-06 |
| B REVISED PER CUSTOMER COMMENTS, ISSUED FOR APPROVAL A ISSUED FOR APPROVAL REV. DESCRIPTION | | GDB | 07-30-13 | | 2308-8th Street Nisku Alberta T9E 7Z2 Office: 780.955.4292 Fax: 780.955.4294 Toll Free: 866.955.4292 | | | | | |