**Vendor:** **ALCO**

**Doc #:** **-**

**Vendor Rev #:** **-**

**Description:** **INSTRUMENT DATA SHEETS**

WorleyParsons
resources & energy

**REVIEW STAMP**

PROJECT NO. _____

1. REVIEWED & ACCEPTED. MANUFACTURE MAY PROCEED ☐
2. REVIEWED & ACCEPTED AS MARKED. REVISE & RE-SUBMIT. MANUFACTURE MAY PROCEED ☐
3. REVISE AS MARKED & RE-SUBMIT. MANUFACTURE SHALL NOT PROCEED ☐
4. REVIEW NOT REQUIRED. FOR INFORMATION ONLY. MANUFACTURE MAY PROCEED ☐

Acceptance in any of these categories in no way relieves the Contractor/Supplier of its responsibility for the due and proper performance of the Works in accordance with the Contract/Purchase Order.

Name ……

Signed …….. Date ……..

| DATE | JOB NO. | PURCHASE ORDER NO. |
|---|---|---|
| 04/24/2013 | 407014-00120 | ME-POD-0011 |
| **VTRI-2171** | DEVON MR. NO. | |
| | FE-CPF-M011 | |

| EQUIP. NO. | WORLEYPARSONS VP NO. | REV. |
|---|---|---|
| SEE DOCUMENT | 407014-00120-ME-POD-0011-0055 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-AIT -21-1000B |
| | 2 | Service | | 001-PK-21-1000 LEL GAS DET | |
| | 3 | Application | | | |
| | 4 | Line Number | Equipment Number | --- | 001-PK-21-1000 |
| | 5 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | FIELD |
| | 6 | Ambient Temperature Range | | -40 TO 35 °C | |
| | 7 | | | | |
| | 8 | | | | |
| | 9 | | | | |
| PROCESS CONDITIONS | 10 | Gas Components | | | |
| | 11 | Mole Weight or Specific Gravity | | | |
| | 12 | Distance From Source | | | |
| | 13 | Humidity | | | |
| | 14 | Vibration | | | |
| | 15 | Location | | | |
| | 16 | | | | |
| | 17 | | | | |
| SENSOR | 18 | Model | | | |
| | 19 | Enclosure | | | |
| | 20 | Mounting | | | |
| | 21 | Sensor Type | | CONTINUOUS DIFFUSION LOW TEMPERATURE CATALYTIC BEAD | |
| | 22 | Detection Range | | 0 TO 100% LEL | |
| | 23 | Calibration Gas | | CALIBRATE WITH 50% LEL OF PREDICTED GAS | |
| | 24 | Accuracy | | ±3% < 50% LEL; ±5% ≥ 50% LEL | |
| | 25 | Tag No. | | 001-AE-01-1000B | |
| MONITOR/ TRANSMITTER | 26 | Model | | S400CH-1-0-01-1 | |
| | 27 | Enclosure | | NEMA 4X | |
| | 28 | Mounting | | STANDARD | |
| | 29 | Type | | LEL GAS DETECTOR | |
| | 30 | Transmittance Integral With Sensor | | | |
| | 31 | Response Time | | <10 SECONDS | |
| | 32 | Calibration | | 1 HR POST START UP THEN EVERY 90 DAYS THEREAFTER | |
| | 33 | Analog Output | | 0-20 mA | |
| | 34 | Power supply | | 24 VDC | |
| | 35 | Local Indication | | (3) DIGIT LED | |
| | 36 | Zero Drift | | <5% OF SCALE PER YEAR | |
| | 37 | Alarm Relay | | 8A @ 30 VDC | |
| | 38 | Calibrated Range | | 0 TO 100 %LEL | |
| | 39 | | | | |
| OPTIONS | 40 | Calibration Kit | | NOT INCLUDED | |
| | 41 | Calibration Magnet | | | |
| | 42 | Dust Guard | | | |
| | 43 | Splash Guard | | | |
| | 44 | Separation Kit | | | |
| | 45 | Junction Box | | | |
| | 46 | | | | |
| PURCHASE | 47 | Manufacturer | | General Monitors | |
| | 48 | Model | | S4000CH-1-0-01-1 | |
| | 49 | Purchase Order Number | | FE-CPF-M011 | |
| | 50 | Price | | | |
| | 51 | Serial Number | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
| | | | |
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INSTRUMENT SPECIFICATION
Gas Detector
Code: 622

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-AIT-21-1000B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-AIT -21-1000B |
|---|---|---|---|---|---|
| | 2 | Service | | 001-PK-21-1000 LEL GAS DET | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Gas Detector<br>Code: 622 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-AIT-21-1000B-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-AIT -21-1000C |
| | 2 | Service | | 001-PK-21-1000 LEL GAS DET | |
| | 3 | Application | | | |
| | 4 | Line Number | Equipment Number | --- | 001-PK-21-1000 |
| | 5 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | FIELD |
| | 6 | Ambient Temperature Range | | -40 TO 35 °C | |
| | 7 | | | | |
| | 8 | | | | |
| | 9 | | | | |
| PROCESS CONDITIONS | 10 | Gas Components | | | |
| | 11 | Mole Weight or Specific Gravity | | | |
| | 12 | Distance From Source | | | |
| | 13 | Humidity | | | |
| | 14 | Vibration | | | |
| | 15 | Location | | | |
| | 16 | | | | |
| | 17 | | | | |
| SENSOR | 18 | Model | | | |
| | 19 | Enclosure | | | |
| | 20 | Mounting | | | |
| | 21 | Sensor Type | | CONTINUOUS DIFFUSION LOW TEMPERATURE CATALYTIC BEAD | |
| | 22 | Detection Range | | 0 TO 100% LEL | |
| | 23 | Calibration Gas | | CALIBRATE WITH 50% LEL OF PREDICTED GAS | |
| | 24 | Accuracy | | ±3% < 50% LEL; ±5% ≥ 50% LEL | |
| | 25 | Tag No. | | 001-AE-01-1000C | |
| MONITOR/ TRANSMITTER | 26 | Model | | S400CH-1-0-01-1 | |
| | 27 | Enclosure | | NEMA 4X | |
| | 28 | Mounting | | STANDARD | |
| | 29 | Type | | LEL GAS DETECTOR | |
| | 30 | Transmittance Integral With Sensor | | | |
| | 31 | Response Time | | <10 SECONDS | |
| | 32 | Calibration | | 1 HR POST START UP THEN EVERY 90 DAYS THEREAFTER | |
| | 33 | Analog Output | | 0-20 mA | |
| | 34 | Power supply | | 24 VDC | |
| | 35 | Local Indication | | (3) DIGIT LED | |
| | 36 | Zero Drift | | <5% OF SCALE PER YEAR | |
| | 37 | Alarm Relay | | 8A @ 30 VDC | |
| | 38 | Calibrated Range | | 0 TO 100 %LEL | |
| | 39 | | | | |
| OPTIONS | 40 | Calibration Kit | | NOT INCLUDED | |
| | 41 | Calibration Magnet | | | |
| | 42 | Dust Guard | | | |
| | 43 | Splash Guard | | | |
| | 44 | Separation Kit | | | |
| | 45 | Junction Box | | | |
| | 46 | | | | |
| PURCHASE | 47 | Manufacturer | | General Monitors | |
| | 48 | Model | | S4000CH-1-0-01-1 | |
| | 49 | Purchase Order Number | | FE-CPF-M011 | |
| | 50 | Price | | | |
| | 51 | Serial Number | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
| | | | |

INSTRUMENT SPECIFICATION
Gas Detector
Code:622

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet 1 of 1

Dwg. No.: FER-001.1102039085-J-DSH-AIT-21-1000C-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-AIT -21-1000C |
|---|---|---|---|---|---|
| | 2 | Service | | 001-PK-21-1000 LEL GAS DET | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Gas Detector<br>Code:622 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-AIT-21-1000C-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-BE -21-1010 |
| | 2 | Service | | 001-H-21-1010 HM HTR | |
| | 3 | Line Number | Equipment Number | --- | 001-H-21-1010 |
| | 4 | | Location | | FIELD |
| | 5 | | | | |
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| | 49 | | | | |
| PURCHASE | 50 | Manufacturer | | St. Johnston | |
| | 51 | Model | | FD98G300M-LN | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | |
| | 53 | Price | | | |
| | 54 | CRN Number | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION

Custom Datasheet
Code: 999

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet 1 of 1

Dwg. No.: FER-001.1102039085-J-DSH-BE-21-1010-01 Rev.: 1

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-BE -21-1010 |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | INSTRUMENT SPECIFICATION<br>Custom Datasheet<br>Code: 999 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-BE-21-1010-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | FER-001.1102039085-A-PID-4002-01 | 001-FCV -21-1010 | |
| | 2 | Service | | | UHM DIST | | |
| | 3 | Line Number | | | 114-UHMS-A11a-21052-38H | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | FIELD | |
| | 5 | Ambient Temperature Range | | | -40 TO 35 °C | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | | | |
| | 8 | Signal Failure Position | | | Open | | |
| | 9 | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | 4 in STD | 4 in STD | |
| | 11 | Pipe Material | Pipe Insulation | | | | |
| PROCESS CONDITIONS | 12 | Process Fluid | Upstream Condition | | GLYCOL | Liquid | |
| | 13 | Max Differential Pressure At Shut Off | | | 550 kPa | | |
| | 14 | Critical Pressure | Critical Temperature | | | °C | |
| | 15 | Design Pressure | Design Temperature | | | °C | |
| | 16 | | | | Units | @ Max Flow | @ Norm Flow / @ Min Flow |
| | 17 | Flow Rate | | | AUS gal/min | | 250 |
| | 18 | Inlet Pressure | | | kPa-g | | 550 |
| | 19 | Pressure Drop | | | kPa | | 34 |
| | 20 | Inlet Temperature | | | °C | | 90 |
| | 21 | Inlet Density / Specific Gravity / Molecular Mass | | | kg/m³ | | |
| | 22 | Inlet Compressibility Factor | | | — | | |
| | 23 | Inlet Viscosity | | | cP | | 0.8 |
| | 24 | Inlet Specific Heat Ratio | | | — | | |
| | 25 | Inlet Vapour Pressure | | | | | |
| CALCULATED RESULTS | 26 | Flow Coefficient Cv | | | — | | 112.92 |
| | 27 | Travel | | | | | |
| | 28 | Sound Pressure Level | | | dBA | | |
| BODY AND TRIM | 29 | Manufacturer | | FISHER | | | |
| | 30 | Model | | ET | | | |
| | 31 | Body Type | | Single Seat Globe | | | |
| | 32 | Body Size | Trim Size | 4 in | 4 3/8" | | |
| | 33 | Rated Cv | Characteris. | 224 | | | |
| | 34 | End Connec. & Rating | | RF CL300 | | | |
| | 35 | Body Material | | WCC | | | |
| | 36 | Bonnet Type | Material | | WCC | | |
| | 37 | Flow Direc. | Action To | DOWN | | | |
| | 38 | Lubricator | Isolat. Valve | No | | | |
| | 39 | Guiding | No. of Ports | | 1 | | |
| | 40 | Trim Type | Rated Travel | | 2" | | |
| | 41 | Plug/ Ball/ Disk Material | | S41600 HT | | | |
| | 42 | Balanced / Unbalanced | | BALANCED | | | |
| | 43 | Seat Material | | PTFE | | | |
| | 44 | Cage | Stem Material | CB7Cu-1 HT | S31600 | | |
| | 45 | Packing Material | | PTFE | | | |
| | 46 | Packing Type | | | | | |
| ACTUATOR | 47 | Manufacturer | | FISHER | | | |
| | 48 | Model | | 657-45 | | | |
| | 49 | Type | | DIAPHRAGM | | | |
| | 50 | Size | Area | 45 | 667 cm2 | | |
| | 51 | | | | | | |
| | 52 | Handwheel Location | | | | | |
| | 53 | Bench Range / MAWP | | 41-179 kPaG | | | |
| | 54 | Action | | FAIL OPEN | | | |
| POSITIONER | 55 | Manufacturer | | | | | |
| | 56 | Model | | | | | |
| | 57 | Signal:Inlet | Outlet | | | | |
| | 58 | Increase Signal, Valve: | | | | | |
| | 59 | Cam Char. | Integral I/P | | | | |
| | 60 | Bypass | Gauges | | | | |
| | 61 | Tag Number | | | | | |
| SOLENOID VALVE | 62 | Manufacturer | | NONE | | | |
| | 63 | Model | | | | | |
| | 64 | Type | | | | | |
| | 65 | When De-Energ.Valve: | | | | | |
| | 66 | Solenoid Tag | | | | | |
| SWITCHES | 67 | Manufacturer | | NONE | | | |
| | 68 | Model | | | | | |
| | 69 | Type | Quantity | | | | |
| | 70 | Contacts / Rating | | | | | |
| | 71 | Switching Position | | | | | |
| | 72 | Switch Tags | | | | | |
| AIR SET | 73 | Manufacturer | | FISHER | | | |
| | 74 | Model | | 67 CFR | | | |
| | 75 | Set Press | Filter | Gauge | 0-241 kPaG | YES | YES |
| TESTS | 76 | Hydro. Pressure | | | | | |
| | 77 | Allowable Leakage | | ANSI IV (standard) | | | |
| | 78 | | | | | | |
| PURCHASE | 79 | Manufacturer | | Fisher | | | |
| | 80 | Model | | ET-657-45 | | | |
| | 81 | PO Number | | | | | |
| | 82 | Price | | | | | |
| | 83 | Valve CRN Number | | | | | |
| | 84 | Soft Tag | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Control Valve
Code: 111

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-FCV-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | FER-001.1102039085-A-PID-4002-01 | **001-FCV -21-1010** |
| | 2 | Service | | UHM DIST | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Control Valve<br>Code: 111 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-FCV-21-1010-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | 001-FCV -21-1015 | |
| | 2 | Service | | | | 001-FL-21-1015 HM PRCT FTR OUT | | | |
| | 3 | Line Number | | | | 89-HMR-A11a-21101-38H | | | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | Ambient Temperature Range | | | | -40 TO 35 °C | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | | | |
| | 7 | Available Air Supply Pressure: | | Min. | Max. | kPa-g | | kPa-g | |
| | 8 | Signal Failure Position | | | | Open | | | |
| | 9 | Valve Fail Position | Certificate | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | | Inlet | Outlet | 3 in STD | | 3 in STD | |
| | 11 | Pipe Material | Pipe Insulation | | | | | | |
| PROCESS CONDITIONS | 12 | Process Fluid | Upstream Condition | | | GLYCOL | | Liquid | |
| | 13 | Max Differential Pressure At Shut Off | | | | 550 kPa | | | |
| | 14 | Critical Pressure | Critical Temperature | | | kPa-a | | °C | |
| | 15 | Design Pressure | Design Temperature | | | kPa-g | | °C | |
| | 16 | | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 17 | Flow Rate | | | | AUS gal/min | | 73 | |
| | 18 | Inlet Pressure | | | | kPa-g | | 550 | |
| | 19 | Pressure Drop | | | | kPa | | 69 | |
| | 20 | Inlet Temperature | | | | °C | | 65 | |
| | 21 | Inlet Density / Specific Gravity / Molecular Mass | | | | kg/m³ | | | |
| | 22 | Inlet Compressibility Factor | | | | — | | | |
| | 23 | Inlet Viscosity | | | | cP | | 0.8 | |
| | 24 | Inlet Specific Heat Ratio | | | | — | | | |
| | 25 | Inlet Vapour Pressure | | | | kPa-a | | | |
| CALCULATED RESULTS | 26 | Flow Coefficient Cv | | | | — | | 23.314 | |
| | 27 | Travel | | | | % | | | |
| | 28 | Sound Pressure Level | | | | dBA | | | |
| BODY AND TRIM | 29 | Manufacturer | | FISHER | | | | | |
| | 30 | Model | | D4 | | | | | |
| | 31 | Body Type | | Single Seat Globe | | | | | |
| | 32 | Body Size | Trim Size | 2 in | 1 1/4" | | | | |
| | 33 | Rated Cv | Characteris. | 33.2 | Equal % | | | | |
| | 34 | End Connec. & Rating | | 2" CL300 | | | | | |
| | 35 | Body Material | | SA 352 LCC | | | | | |
| | 36 | Bonnet Type | Material | Bolted | Same as Body | | | | |
| | 37 | Flow Direc. | Action To | Up | N/A | | | | |
| | 38 | Lubricator | Isolat. Valve | No | No | | | | |
| | 39 | Guiding | No. of Ports | | 1 | | | | |
| | 40 | Trim Type | Rated Travel | Metal | 3/4" | | | | |
| | 41 | Plug/ Ball/ Disk Material | | S41600 | | | | | |
| | 42 | Balanced / Unbalanced | | Unbalanced | | | | | |
| | 43 | Seat Material | | S17400 | | | | | |
| | 44 | Cage | Stem Material | N/A | | | | | |
| | 45 | Packing Material | | PTFE | | | | | |
| | 46 | Packing Type | | V-ring | | | | | |
| ACTUATOR | 47 | Manufacturer | | | | | | | |
| | 48 | Model | | INTEGRAL TO D4 | | | | | |
| | 49 | Type | | Diaphragm Spring Return | | | | | |
| | 50 | Size | Area | | | | | | |
| | 51 | Sizing | | | | | | | |
| | 52 | Handwheel Location | | | | | | | |
| | 53 | Bench Range / MAWP | | 41 - 207 kPag / 29302 kPag | | | | | |
| | 54 | Action | | Fail Open | | | | | |
| POSITIONER | 55 | Manufacturer | | NONE | | | | | |
| | 56 | Model | | | | | | | |
| | 57 | Signal:Inlet | Outlet | | | | | | |
| | 58 | Increase Signal, Valve: | | | | | | | |
| | 59 | Cam Char. | Integral I/P | | | | | | |
| | 60 | Bypass | Gauges | | | | | | |
| | 61 | Tag Number | | | | | | | |
| SOLENOID VALVE | 62 | Manufacturer | | NONE | | | | | |
| | 63 | Model | | | | | | | |
| | 64 | Type | | | | | | | |
| | 65 | When De-Energ.Valve: | | | | | | | |
| | 66 | Solenoid Tag | | | | | | | |
| SWITCHES | 67 | Manufacturer | | NONE | | | | | |
| | 68 | Model | | | | | | | |
| | 69 | Type | Quantity | | | | | | |
| | 70 | Contacts / Rating | | | | | | | |
| | 71 | Switching Position | | | | | | | |
| | 72 | Switch Tags | | | | | | | |
| AIR SET | 73 | Manufacturer | | FISHER | | | | | |
| | 74 | Model | | 67 CFR | | | | | |
| | 75 | Set Press | Filter | Gauge | 0-241 kPaG | YES | YES | | |
| TESTS | 76 | Hydro. Pressure | | | | | | | |
| | 77 | Allowable Leakage | | ANSI IV (standard) | | | | | |
| | 78 | Valve Testing | | | | | | | |
| PURCHASE | 79 | Manufacturer | | Fisher | | | | | |
| | 80 | Model | | D4 | | | | | |
| | 81 | PO Number | | FE-CPF-M011 | | | | | |
| | 82 | Price | | | | | | | |
| | 83 | Valve CRN Number | | 0C3862.2C | | | | | |
| | 84 | Soft Tag | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Control Valve
Code: 111

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-FCV-21-1015-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-FCV -21-1015** |
| | 2 | Service | | 001-FL-21-1015 HM PRCT FTR OUT | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Control Valve<br>Code: 111 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-FCV-21-1015-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | | | 001-FE -21-1010 | |
| | 2 | Service | | | | 001-H-21-1010 HM HTR | | | | | |
| | 3 | Line Number | | | | 168-HMS-A11a-21100-38H | | | | | |
| | 4 | Line | Size | Sched. | I.D. | 6 | in | Schedule | STD | 6.065 | in |
| | 5 | Ambient Temp. Range | Location | | | -40 TO 35 ºC | | | FIELD | | |
| | 6 | | | | | | | | | | |
| PROCESS CONDITIONS | 7 | Fluid | State | | | GLYCOL | | | Liquid | | |
| | 8 | Flow | Min. | Oper. | Max. | | | | | | |
| | 9 | Pressure | Min. | Oper. | Max. | 480 | kPa-g | 550 | kPa-g | 650 | kPa-g |
| | 10 | Temperature | Min. | Oper. | Max. | 80 | ºC | 90 | ºC | 100 | ºC |
| | 11 | Base Pressure | Base Temperature | | | | kPa | | | ºC | |
| | 12 | Design Pressure | Design Temperature | | | | | | | ºC | |
| | 13 | Oper. Specific Gravity | Oper. Density | | | 1 | | | | | |
| | 14 | Molecular Mass | Specific Heat Ratio | | | | | | | | |
| | 15 | Oper. Viscosity | Vapor Pressure | | | 0.8 | cP | | | | |
| | 16 | Quality | Superheat | | | | | | | | |
| | 17 | Compressibility | | | | | | | | | |
| | 18 | Maximum Allowable Pressure Loss | | | | | inH2O | | | | |
| | 19 | Sizing Flow Rate | Sizing Pressure Drop | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | | | | | | | | | | |
| ORIFICE PLATE | 22 | Type | | | | Square Edge Orifice | | | | | |
| | 23 | Material | | | | 304 S.S. | | | | | |
| | 24 | Thickness | | | | 1/8 | in | | | | |
| | 25 | Bore Diameter | | | | 2.75 | in | | | | |
| | 26 | Beta Ratio | | | | 0.45 | | | | | |
| | 27 | Drain or Vent Hole | | | | | | | | | |
| | 28 | RTJ Ring Material and Type | | | | | | | | | |
| | 29 | | | | | | | | | | |
| ORIFICE FLANGES | 30 | Size | | | | NPS 6 | | | | | |
| | 31 | Type | | | | ORIFICE FLANGE | | | | | |
| | 32 | Rating | | | | CL300 | | | | | |
| | 33 | Facing | | | | RFWN | | | | | |
| | 34 | Flange Material | | | | SA-105N | | | | | |
| | 35 | Gasket Material | | | | 316SS | | | | | |
| | 36 | | | | | | | | | | |
| | 37 | | | | | | | | | | |
| | 38 | | | | | | | | | | |
| | 39 | | | | | *** THERE ARE NO MODEL # FOR ORIFICE FLANGES, ORDER FROM A | | | | | |
| | 40 | | | | | FLANGE SUPPLIER (COMCO, TRANS-AM ETC) | | | | | |
| | 41 | | | | | | | | | | |
| PURCHASE | 42 | Manufacturer | | | | * | | | | | |
| | 43 | Model | | | | | | | | | |
| | 44 | Purchase Order Number | | | | FE-CPF-M011 | | | | | |
| | 45 | Price | | | | | | | | | |
| | 46 | CRN Number | | | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Restriction Orifice
Code: 201

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-FE-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-FE -21-1010** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Restriction Orifice<br>Code: 201 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-FE-21-1010-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | | | 001-FIT -21-1010 | | |
| | 2 | Service | | | | 001-H-21-1010 HM HTR | | | | | | |
| | 3 | Line Number | Equipment Number | | | 168-HMS-A11a-21100-38H | | | | 001-H-21-1010 | | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | | | FIELD | | |
| | 5 | Ambient Temperature Range | | | | -40 TO 35 ºC | | | | | | |
| | 6 | Function | Mounting | | | | | | | | | |
| | 7 | | | | | | | | | | | |
| | 8 | | | | | | | | | | | |
| PROCESS CONDITIONS | 9 | Fluid | State | | | GLYCOL | | | | Liquid | | |
| | 10 | Pressure | Min. | Oper. | Max. | 480 | kPa-g | 550 | kPa-g | 650 | kPa-g | |
| | 11 | Temperature | Min. | Oper. | Max. | 80 | ºC | 90 | ºC | 100 | ºC | |
| | 12 | Design Pressure | Design Temperature | | | | | | | | ºC | |
| | 13 | Oper. Spec. Gravity | Oper. Viscosity | | | 1 | | | | 0.8 | cP | |
| | 14 | Vacuum | Over Pressure | | | | | | | | | |
| TRANSMITTER | 15 | Application | | | | FLOW OUTPUT OF HEAT MEDIUM PACKAGE | | | | | | |
| | 16 | Type | | | | DIFFERENTIAL PRESSURE | | | | | | |
| | 17 | Instrument Differential Pressure Range Limits | | | | 0.0622 | TO | 0.0622 | bar | | | |
| | 18 | Calibrated Differential Pressure Range | | | | | TO | | | | | |
| | 19 | Calibrated Flow Range | | | | | TO | | | | | |
| | 20 | Elevation | Suppression | | | | | | | | | |
| | 21 | Element Type | | | | ORIFICE FLANGES | | | | | | |
| | 22 | Element Material | Body Material | | | SA-105N | | | | ALUMINUM | | |
| | 23 | Max. Static Pressure | Body Rating | | | 4316 kPaG | | | | | | |
| | 24 | Process Flanges Material | | | | COPLANAR SST | | | | | | |
| | 25 | Wetted O - Ring Material | | | | GLASS FILLED PTFE | | | | | | |
| | 26 | Fill Fluid and Rated Temperature Range | | | | SILICONE -40 TO 121 ºC | | | | | | |
| | 27 | Bolts | Enclosure | | | SA-197 B7 | | | | NEMA 4X | | |
| | 28 | Process Connection | Electrical Connection | | | 1/2" NPT | | | | 1/2" NPT | | |
| | 29 | Accuracy | Response Time | | | +- 0.065% OF SPAN | | | | 130 ms | | |
| | 30 | Allow.Oper. Pressure | Allow.Oper.Temp. | | | 4316 kPaG | | | | -40 TO 121 ºC | | |
| DIAPHRAGM SEAL | 31 | Process Connection & Rating | | | | NONE | | | | | | |
| | 32 | Diaphragm Material | Seal Construction | | | | | | | | | |
| | 33 | Housing Material: Upper / Lower | | | | | | | | | | |
| | 34 | Fill Fluid and Rated Temperature Range | | | | | | | | | | |
| | 35 | Capillary Armour Material | | | | | | | | | | |
| | 36 | Capillary Type | Capillary Length | | | | | | | | | |
| | 37 | Flush Ring Material | No. of Flush Rings | | | | | | | | | |
| | 38 | Flushing Conn. Size | No. of Connections | | | | | | | | | |
| | 39 | | | | | | | | | | | |
| | 40 | | | | | | | | | | | |
| OPTIONS | 41 | Integral Meter | Scale | | | | | | | | | |
| | 42 | Mounting Brackets | | | | | | | | | | |
| | 43 | | | | | | | | | | | |
| | 44 | | | | | | | | | | | |
| | 45 | | | | | | | | | | | |
| COMMUNICATION | 46 | Communication Type / Output | | | | HART 4-20 mA | | | | | | |
| | 47 | Power Supply | | | | 24 VDC | | | | | | |
| | 48 | | | | | | | | | | | |
| | 49 | | | | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Rosemount | | | | | | |
| | 51 | Model | | | | 2051CD2A22A1AB1E6M5 | | | | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | | | | |
| | 53 | Price | | | | | | | | | | |
| | 54 | CRN Number | | | | | | | | | | |

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| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
DP Flow Transmitter
Code: 352

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-FIT-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-FIT -21-1010** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>DP Flow Transmitter<br>Code: 352 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-FIT-21-1010-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | | | 001-FIT -21-1015 | |
| | 2 | Service | | | | 001-FL-21-1015 HM PRCT FTR | | | | | |
| | 3 | Line Number | | | | 89-HMR-A11a-21101-38H | | | | | |
| | 4 | Line | Size | Sched. | I.D. | 3 | in | Schedule | STD | 3.068 | in |
| | 5 | Area Classification | Location | | | | | | FIELD | | |
| | 6 | Ambient Temperature Range | | | | | | | | | |
| | 7 | | | | | | | | | | |
| PROCESS CONDITIONS | 8 | Fluid | State | | | | | | Liquid | | |
| | 9 | Flow | Min. | Oper. | Max. | | AUS gal/mir | 73 | AUS gal/mir | | AUS gal/mir |
| | 10 | Pressure | Min. | Oper. | Max. | 480 | kPa-g | 550 | kPa-g | 650 | kPa-g |
| | 11 | Temperature | Min. | Oper. | Max. | 55 | ºC | 65 | ºC | 75 | ºC |
| | 12 | Base Pressure | Base Temperature | | | kPa | | | ºC | | |
| | 13 | Design Pressure | Design Temperature | | | | | | ºC | | |
| | 14 | Oper. Specific Gravity | Oper. Viscosity | | | 1 | | | 0.8 | cP | |
| | 15 | Coefficient of Expansion | | | | | | | | | |
| | 16 | | | | | | | | | | |
| METER | 17 | Type of Element | | | | TURBINE METER | | | | | |
| | 18 | Size | End Connection | | | NPS 2 | | | CL300 WAFER | | |
| | 19 | Temperature & Pressure Rating | | | | 4380 kPaG @ -29 TO 204 °C | | | | | |
| | 20 | Meter Flow Range Limits | | | | 15 | TO | 180 | US gal/min | | |
| | 21 | Calibrated Flow Range | | | | | TO | | | | |
| | 22 | Totalized Unit | | | | | | | | | |
| | 23 | Enclosure | Power Supply | | | NEMA 4 | | | 6-30 VDC | | |
| | 24 | Materials of Construction | Outer Housing | | | 316L SS | | | | | |
| | 25 | | Main Body Cover | | | | | | | | |
| | 26 | | Piston Element | | | | | | | | |
| | 27 | | Shaft | | | TUNGSTEN CARBIDE | | | | | |
| | 28 | | Blades | | | CD-4MCu | | | | | |
| | 29 | | O-Ring | | | | | | | | |
| | 30 | | Packing | | | | | | | | |
| | 31 | | | | | | | | | | |
| | 32 | Bearings: Type & Material | | | | TUNGSTEN CARBIDE | | | | | |
| | 33 | Type of Coupling | | | | | | | | | |
| COUNTER | 34 | Register Type | | | | | | | | | |
| | 35 | Totalizer | | | | | | | | | |
| | 36 | Reset | | | | | | | | | |
| | 37 | Capacity | | | | | | | | | |
| | 38 | Set Stop | | | | | | | | | |
| | 39 | | | | | | | | | | |
| OPTIONS | 40 | Shut-Off Valve | | | | | | | | | |
| | 41 | Switch: Single / 2-Stage | | | | | | | | | |
| | 42 | Temperature Compensator | | | | | | | | | |
| | 43 | Transmitter Type | | | | FLOW ANALYZER | | | | | |
| | 44 | Transmitter Output | | | | 4-20 mA | | | | | |
| | 45 | Air Eliminator | | | | | | | | | |
| | 46 | Strainer: Size & Mesh | | | | | | | | | |
| | 47 | | | | | | | | | | |
| | 48 | | | | | | | | | | |
| | 49 | | | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | NuFlo | | | | | |
| | 51 | Model | | | | 2" CL300 EZ-IN WAFER x 1 1/2" INTERNALS c/w MC-III ANALYZER | | | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | | | |
| | 53 | Price | | | | | | | | | |
| | 54 | CRN Number | | | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Turbine Flowmeter
Code: 317

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-FIT-21-1015-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-FIT -21-1015** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-FL-21-1015 HM PRCT FTR | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Turbine Flowmeter<br>Code: 317 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-FIT-21-1015-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-FSLL -21-1010A | |
| | 2 | Service | | | 001-H-21-1010 HM HTR | | | |
| | 3 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 4 | Application | | | | | | |
| | 5 | Enclosure | | | ALUMINUM | | | |
| | 6 | Mounting | | | | | | |
| | 7 | Closes | | | | | | |
| | 8 | 550 | | | | | | |
| | 9 | | | | | | | |
| SERVICE CONDITIONS | 10 | Ambient Temperature Range | | | -40 TO 35 °C | | | |
| | 11 | Humidity | | | | | | |
| | 12 | Corrosive Agent | | | | | | |
| | 13 | Submersion | | | | | | |
| | 14 | <=85 dBA within 1 meter, at any flow condition | | | | | | |
| | 15 | kPa-g | | | | | | |
| | 16 | 2 in | | | | | | |
| SWITCH | 17 | Contacts Material | | | | | | |
| | 18 | SPDT | DPDT | TPDT | Other | | DPDT RELAY | | N/A |
| | 19 | Contacts Type | | | | | | |
| | 20 | Rating | | | CSA CL1D1 BCD T6 XP | | | |
| | 21 | Gravity Return | | | | | | |
| | 22 | Killed Carbon Steel | | | | | | |
| | 23 | Yes - 38H | | | | | | |
| | 24 | Certificate | | | | | | |
| | 25 | Valve Testing | | | | | | |
| BODY | 26 | Material | | | 316 SS | | | |
| | 27 | Coating | Sealing | | | | | |
| | 28 | Cable Connection | | | | | | |
| | 29 | External Wiring Connection | | | | | | |
| | 30 | Spring Material | | | | | | |
| | 31 | Bolts Material | | | | | | |
| | 32 | Yes - See Note 8 | | | | | | |
| LEVER | 33 | Type | | | | | | |
| | 34 | Trip Position | | | | | | |
| | 35 | Material | | | | | | |
| | 36 | Roller Material | | | | | | |
| | 37 | Trip Travel | | | | | | |
| | 38 | Reset Travel | | | | | | |
| | 39 | Operating Torque | | | | | | |
| | 40 | Rotation: CW | CCW | CW & CCW | | | | |
| | 41 | Catalog Number | | | | | | |
| | 42 | | | | | | | |
| DIMENSIONS | 43 | Mounting Plate | | | | | | |
| | 44 | Light Indicator | | | | | | |
| | 45 | High Temperature Components | | | | | | |
| | 46 | Low temperature Components | | | | | | |
| | 47 | N/A / 860 kPa-g | | | | | | |
| | 48 | N/A | | | | | | |
| | 49 | 657 | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Magnetrol | | | |
| | 51 | Model | | | TD2-7D01-130 c/w TEB-A1100-003 | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | Serial Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Limit Switch
Code: 771

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-FSLL-21-1010A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-FSLL -21-1010A** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Limit Switch<br>Code: 771 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-FSLL-21-1010A-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | 001-LG -21-1010A | |
| | 2 | Service | | | | 001-H-21-1010 HM HTR | | | |
| | 3 | Line Number | Equipment Number | | | TANK/VESSEL NOZZLE | | 001-H-21-1010 | |
| | 4 | Area Classification | Location | | | Class 1, Zone 2, Group IIA, T3 | | FIELD | |
| | 5 | 2 in | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | | |
| | 7 | Pressure | Min. | Oper. | Max. | | | | |
| | 8 | Temperature | Min. | Oper. | Max. | °C | | °C | °C |
| | 9 | Design Pressure | Design Temperature | | | | | °C | |
| | 10 | Oper. Specific Gravity | | | | | | | |
| | 11 | kPa-g | | | | | | | |
| | 12 | Certificate | | | | | | | |
| GAUGE | 13 | Type | | | | VIEWING GLASS | | | |
| | 14 | Center To Center Distance | | | | mm | | | |
| | 15 | Sections Required | | | | | | | |
| | 16 | Connection Size | Rating | | | 1" NPT | | | |
| | 17 | Connection Arrangement | | | | | | | |
| | 18 | Body Material | | | | | | | |
| | 19 | Cover Material | | | | | | | |
| | 20 | Gasket Material | | | | | | | |
| | 21 | Float Material | | | | | | | |
| | 22 | Shield | | | | | | | |
| | 23 | Illuminator | Power Supply | | | | | | |
| | 24 | Jacket or Internal Tracer | | | | | | | |
| | 25 | Frost Extension | Length | | | | | | |
| | 26 | Calibrated Scale | | | | | | | |
| | 27 | Yes as per Fisher FMP-2C6 | | | | | | | |
| | 28 | | | | | | | | |
| | 29 | | | | | | | | |
| VALVES | 30 | Type | | | | | | | |
| | 31 | Number Required | | | | | | | |
| | 32 | Body Material | | | | | | | |
| | 33 | Trim Material | | | | | | | |
| | 34 | Packing Material | | | | | | | |
| | 35 | Ball Check | | | | | | | |
| | 36 | Vessel | Size | Rating | | | | | |
| | 37 | Connection | Union | | | | | | |
| | 38 | Gauge | Size | Rating | | | | | |
| | 39 | Connection | Union | | | | | | |
| | 40 | Drain | Size | Rating | | | | | |
| | 41 | Connection | | | | | | | |
| | 42 | Vent | Size | Rating | | | | | |
| | 43 | Connection | | | | | | | |
| | 44 | N/A | | | | | | | |
| | 45 | 391 | | | | | | | |
| OPTIONS | 46 | | | | | | | | |
| | 47 | N/A / 860 kPa-g | | | | | | | |
| | 48 | N/A | | | | | | | |
| | 49 | See Note 6 | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Auburn | | | |
| | 51 | Model | | | | P-1000 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Level Gauge
Code: 820

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-I-DSH-LG-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-LG -21-1010A |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Level Gauge<br>Code: 820 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-LG-21-1010-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | 001-LG -21-1010B | |
| | 2 | Service | | | | 001-H-21-1010 HM HTR | | | |
| | 3 | Line Number | Equipment Number | | | TNK/VESL NZZL 3/4" | | 001-H-21-1010 | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | | |
| | 7 | Pressure | Min. | Oper. | Max. | | | | |
| | 8 | Temperature | Min. | Oper. | Max. | °C | °C | °C | |
| | 9 | Design Pressure | Design Temperature | | | | °C | | |
| | 10 | Oper. Specific Gravity | | | | | | | |
| | 11 | | | | | | | | |
| | 12 | | | | | | | | |
| GAUGE | 13 | Type | | | | VIEWING GLASS | | | |
| | 14 | Center To Center Distance | | | | mm | | | |
| | 15 | Sections Required | | | | | | | |
| | 16 | Connection Size | Rating | | | 1" NPT | | | |
| | 17 | Connection Arrangement | | | | | | | |
| | 18 | Body Material | | | | | | | |
| | 19 | Cover Material | | | | | | | |
| | 20 | Gasket Material | | | | | | | |
| | 21 | Float Material | | | | | | | |
| | 22 | Shield | | | | | | | |
| | 23 | Illuminator | Power Supply | | | | | | |
| | 24 | Jacket or Internal Tracer | | | | | | | |
| | 25 | Frost Extension | Length | | | | | | |
| | 26 | Calibrated Scale | | | | | | | |
| | 27 | | | | | | | | |
| | 28 | | | | | | | | |
| | 29 | | | | | | | | |
| VALVES | 30 | Type | | | | | | | |
| | 31 | Number Required | | | | | | | |
| | 32 | Body Material | | | | | | | |
| | 33 | Trim Material | | | | | | | |
| | 34 | Packing Material | | | | | | | |
| | 35 | Ball Check | | | | | | | |
| | 36 | Vessel | Size | Rating | | | | | |
| | 37 | Connection | Union | | | | | | |
| | 38 | Gauge | Size | Rating | | | | | |
| | 39 | Connection | Union | | | | | | |
| | 40 | Drain | Size | Rating | | | | | |
| | 41 | Connection | | | | | | | |
| | 42 | Vent | Size | Rating | | | | | |
| | 43 | Connection | | | | | | | |
| | 44 | | | | | | | | |
| | 45 | | | | | | | | |
| OPTIONS | 46 | | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | St. Johnston | | | |
| | 51 | Model | | | | 70305 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Level Gauge
Code: 820

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-LG-21-1010B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-LG -21-1010B |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Level Gauge<br>Code: 820 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-LG-21-1010B-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-001/003 | | 001-LG -21-1016A | | |
| | 2 | Service | | | | 001-V-21-1016 HM EXP VESL | | | | |
| | 3 | Line Number | Equipment Number | | | TNK/VESL NZZL 3/4" | | 001-V-21-1016 | | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | FIELD | | |
| | 5 | | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | | | |
| | 7 | Pressure | Min. | Oper. | Max. | kPa-g | 380 | kPa-g | | kPa-g |
| | 8 | Temperature | Min. | Oper. | Max. | ºC | 65 | ºC | | ºC |
| | 9 | Design Pressure | Design Temperature | | | 1689 kPa-g | | 120 ºC | | |
| | 10 | Oper. Specific Gravity | | | | | | | | |
| | 11 | | | | | | | | | |
| | 12 | | | | | | | | | |
| GAUGE | 13 | Type | | | | REFLEX | | | | |
| | 14 | Center To Center Distance | | | | 26.75 in | | | | |
| | 15 | Sections Required | | | | 2 | | | | |
| | 16 | Connection Size | Rating | | | 3/4" FNPT | | 12411 kPag @ 38 ºC | | |
| | 17 | Connection Arrangement | | | | TOP/BOTTOM | | | | |
| | 18 | Body Material | | | | BOROSILICATE GLASS | | | | |
| | 19 | Cover Material | | | | | | | | |
| | 20 | Gasket Material | | | | | | | | |
| | 21 | Float Material | | | | | | | | |
| | 22 | Shield | | | | No | | | | |
| | 23 | Illuminator | Power Supply | | | NONE | | | | |
| | 24 | Jacket or Internal Tracer | | | | NONE | | | | |
| | 25 | Frost Extension | Length | | | NONE | | | | |
| | 26 | Calibrated Scale | | | | | | | | |
| | 27 | | | | | | | | | |
| | 28 | | | | | | | | | |
| | 29 | | | | | | | | | |
| VALVES | 30 | Type | | | | PENBERTHY 330J GAUGE COCKS | | | | |
| | 31 | Number Required | | | | 2 | | | | |
| | 32 | Body Material | | | | | | | | |
| | 33 | Trim Material | | | | | | | | |
| | 34 | Packing Material | | | | | | | | |
| | 35 | Ball Check | | | | | | | | |
| | 36 | Vessel | Size | | Rating | | | | | |
| | 37 | Connection | Union | | | | | | | |
| | 38 | Gauge | Size | | Rating | | | | | |
| | 39 | Connection | Union | | | | | | | |
| | 40 | Drain | Size | | Rating | | | | | |
| | 41 | Connection | | | | | | | | |
| | 42 | Vent | Size | | Rating | | | | | |
| | 43 | Connection | | | | | | | | |
| | 44 | | | | | | | | | |
| | 45 | | | | | | | | | |
| OPTIONS | 46 | | | | | | | | | |
| | 47 | | | | | | | | | |
| | 48 | | | | | | | | | |
| | 49 | | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Penberthy | | | | |
| | 51 | Model | | | | 2RL9 | | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | | |
| | 53 | Price | | | | | | | | |
| | 54 | CRN Number | | | | | | | | |

Notes: See Notes Page

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INSTRUMENT SPECIFICATION
Level Gauge
Code: 820

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-LG-21-1016A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-LG -21-1016A |
|---|---|---|---|---|---|
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | |

Notes:

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INSTRUMENT SPECIFICATION
Level Gauge
Code: 820

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-LG-21-1016A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-003/003 | | 001-LG -21-1017 | |
| | 2 | Service | | | | 001-T-21-1017 POP TNK | | | |
| | 3 | Line Number | Equipment Number | | | --- | | 001-T-21-1017 | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | | |
| | 7 | Pressure | Min. | Oper. | Max. | kPa-g | | kPa-g | kPa-g |
| | 8 | Temperature | Min. | Oper. | Max. | ºC | | ºC | ºC |
| | 9 | Design Pressure | Design Temperature | | | | | ºC | |
| | 10 | Oper. Specific Gravity | | | | | | | |
| | 11 | | | | | ATMOSPHERE | | | |
| | 12 | | | | | | | | |
| GAUGE | 13 | Type | | | | TANK LEVEL GAUGE BOARD | | | |
| | 14 | Center To Center Distance | | | | mm | | | |
| | 15 | Sections Required | | | | | | | |
| | 16 | Connection Size | Rating | | | | | | |
| | 17 | Connection Arrangement | | | | | | | |
| | 18 | Body Material | | | | ALUMINUM | | | |
| | 19 | Cover Material | | | | | | | |
| | 20 | Gasket Material | | | | | | | |
| | 21 | Float Material | | | | SS | | | |
| | 22 | Shield | | | | | | | |
| | 23 | Illuminator | Power Supply | | | | | | |
| | 24 | Jacket or Internal Tracer | | | | | | | |
| | 25 | Frost Extension | Length | | | | | | |
| | 26 | Calibrated Scale | | | | | | | |
| | 27 | | | | | | | | |
| | 28 | | | | | | | | |
| | 29 | | | | | | | | |
| VALVES | 30 | Type | | | | | | | |
| | 31 | Number Required | | | | | | | |
| | 32 | Body Material | | | | | | | |
| | 33 | Trim Material | | | | | | | |
| | 34 | Packing Material | | | | | | | |
| | 35 | Ball Check | | | | | | | |
| | 36 | Vessel | Size | | Rating | | | | |
| | 37 | Connection | Union | | | | | | |
| | 38 | Gauge | Size | | Rating | | | | |
| | 39 | Connection | Union | | | | | | |
| | 40 | Drain | Size | | Rating | | | | |
| | 41 | Connection | | | | | | | |
| | 42 | Vent | Size | | Rating | | | | |
| | 43 | Connection | | | | | | | |
| | 44 | | | | | | | | |
| | 45 | | | | | | | | |
| OPTIONS | 46 | | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | TankSafe | | | |
| | 51 | Model | | | | 30bbl tank level gauge board | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | | | | |

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INSTRUMENT SPECIFICATION
Level Gauge
Code: 820

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-LG-21-1017-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-003/003 | **001-LG -21-1017** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-T-21-1017 POP TNK | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Level Gauge<br>Code: 820 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-LG-21-1017-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-001/003 | | 001-LIT -21-1016 | |
| | 2 | Service | | | 001-V-21-1016 HM EXP VESL | | | |
| | 3 | Line Number | Equipment Number | | TANK/VESSEL NOZZLE | | 001-V-21-1016 | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | Ambient Temperature Range | | | Outside, -40°C to +35°C | | | |
| | 6 | Application | | | Expansion Tank Level | | | |
| | 7 | Type | | | Guided Wave Radar | | | |
| PROCESS CONDITIONS | 8 | Upper Fluid | State | | Glycol | | Liquid | |
| | 9 | Upper Fluid Dielectric Const. | | Density/SG/MM | | | | kg/m³ |
| | 10 | Lower Fluid | State | | | | | |
| | 11 | Lower Fluid Dielectric Const. | | Density/SG | | | | kg/m³ |
| | 12 | Pressure | Min. | Oper. Max. | kPa-g | 380 | kPa-g | kPa-g |
| | 13 | Temperature | Min. | Oper. Max. | °C | 65 | °C | °C |
| | 14 | Design Pressure | Design Temperature | | 1698 kPa-g | | 120 °C | |
| | 15 | Oper. Viscosity | | | cP | | | |
| | 16 | Material Build - Up | Vibration | | | | | |
| | 17 | | | | | | | |
| PROBE | 18 | Tag Number | | | LIT-1016 | | | |
| | 19 | Measurement Range | | | | | | |
| | 20 | Temperature Range | | | | | | |
| | 21 | Max. Temperature | Max. Pressure | | 150 °C | | -103 kPag TO 4000 kPag | |
| | 22 | *Beam Angle / Process Connection* | | | | | | |
| | 23 | Frequency | | | | | | |
| | 24 | Temperature Compensation | | | | | | |
| | 25 | Power Supply | | | 24 VDC | | | |
| | 26 | Cable Type | Length | | | | 3'-10" | |
| | 27 | Mounting Type | | | | | | |
| | 28 | *Sensor Positioner / Probe Type* | | | COAXIAL, PERFORATED | | | |
| | 29 | *Materials: Probe / O-Ring* | | | 316L SST | | | |
| | 30 | *Overall Probe Length* | | | 3'-10" | | | |
| | 31 | Enclosure | | | NEMA 4X | | | |
| | 32 | Model Number | | | | | | |
| TRANSMITTER | 33 | Instrument Range Limits | | | TO | | | |
| | 34 | Calibrated Level Range | | | TO | | CALIBRATE IN FIELD | |
| | 35 | Output | Communications | | 4-20 mA | | HART | |
| | 36 | Power Supply | Indicator | | 24 VDC | | DIGITAL DISPLAY | |
| | 37 | Span | | | | | | |
| | 38 | Minimum Level (LRU) | Maximum Level (URU) | | | | | |
| | 39 | Distance Between Max. Level / Conn. | | | | | | |
| | 40 | *Housing Material / Enclosure* | | | NEMA 4X, IP 66, IP 67 | | | |
| | 41 | Accuracy | | | Greatest of ± 0.12 in. (3 mm) or 0.03% of measured distance | | | |
| | 42 | Ambient Temperature Range | | | -50 to 70 °C | | | |
| | 43 | Temperature Compensation | | | | | | |
| | 44 | Temperature Error | | | | | | |
| | 45 | *Connection to Probe* | | | | | | |
| | 46 | Electrical Connection | | | | | | |
| | 47 | *CSA / CEC Single-Dual Seal* | | | | | | |
| PURCHASE | 48 | Manufacturer | | | Rosemount | | | |
| | 49 | Model | | | 5302HA1S1E3BE00310RAE6M1B2 | | | |
| | 50 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 51 | Price | | | | | | |
| | 52 | CRN Number | | | | | | |

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INSTRUMENT SPECIFICATION
Ultrasonic/Radar Level Instr
Code: 321

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-LIT-21-1016-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-LIT -21-1016 |
|---|---|---|---|---|---|
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Ultrasonic/Radar Level Instr<br>Code: 321 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-LIT-21-1016-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | **D-2013-8426-50F-003/003** | **001-LSH -21-1017** |
| | 2 | Service | | 001-T-21-1017 POP TNK | |
| | 3 | Line No. | Equipment No. | --- | 001-T-21-1017 |
| | 4 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | FIELD |
| | 5 | | | | |
| | 6 | | | | |
| | 7 | | | | |
| PROCESS CONDITIONS | 8 | Fluid | | GLYCOL | |
| | 9 | Pressure Max | Oper. | kPa-g | kPa-g |
| | 10 | Temperature Max. | Oper. | ºC | ºC |
| | 11 | | | ATMOSPHERE | |
| | 12 | | | | |
| | 13 | | | | |
| ELEMENT | 14 | Type | | BI-STABLE REED SWITCH | |
| | 15 | Temperature Range Deg. C | | -50 TO 162 ºC | |
| | 16 | Maximum Pressure Rating | | N/A | |
| | 17 | Element Materials | | | |
| | 18 | Mounting | | MOUNTED TO LEVEL GAUGE BOARD | |
| | 19 | Insertion Length | | | |
| | 20 | Maximum Mechanical Load on Element | | | |
| | 21 | LSH Switch Sensing Point | | ADJUSTABLE | |
| | 22 | LSL Switch Sensing Point | | | |
| | 23 | | | | |
| | 24 | | | | |
| | 25 | | | | |
| | 26 | | | | |
| | 27 | | | | |
| | 28 | | | | |
| | 29 | | | | |
| SWITCH | 30 | Type | | BI-STABLE REED SWITCH | |
| | 31 | Output Relay Rating | | 1 amp AC/DC max | |
| | 32 | Input Voltage Requirement | | 120 VAC | |
| | 33 | Power Consumption | | 25 watt AC/DC max | |
| | 34 | On Measurement Increase: LSH | | | |
| | 35 | Indication of Switching | | | |
| | 36 | Conduit Connection Size | | 3/4" NPT | |
| | 37 | | | | |
| | 38 | | | | |
| | 39 | | | | |
| | 40 | | | | |
| | 41 | | | | |
| PURCHASE | 42 | Manufacturer | | Magnetrol | |
| | 43 | Model | | ORS-A11C-001 | |
| | 44 | Purchase Order Number | | FE-CPF-M011 | |
| | 45 | Price | Item Number | | |
| | 46 | Serial Number | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Level Switch
Code: 218

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-LSL-21-1017-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-003/003 | **001-LSH -21-1017** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-T-21-1017 POP TNK | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Level Switch<br>Code: 218 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-LSL-21-1017-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | **D-2013-8426-50F-002/003** | **001-LSLL -21-1010** |
| | 2 | Service | | 001-H-21-1010 HM HTR | |
| | 3 | Line No. | Equipment No. | 48-FG-A11-20090 | 001-H-21-1010 |
| | 4 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | FIELD |
| | 5 | 2 in | | | |
| | 6 | kPa-g | | | |
| | 7 | | | | |
| PROCESS CONDITIONS | 8 | Fluid | | GLYCOL | |
| | 9 | Pressure Max | Oper. | | |
| | 10 | Temperature Max. | Oper. | | |
| | 11 | 550 | | | |
| | 12 | <=85 dBA within 1 meter, at any flow condition | | | |
| | 13 | Direct Acting | | | |
| ELEMENT | 14 | Type | | | |
| | 15 | Temperature Range Deg. C | | | |
| | 16 | Maximum Pressure Rating | | | |
| | 17 | Element Materials | | | |
| | 18 | Mounting | | | |
| | 19 | Insertion Length | | | |
| | 20 | Maximum Mechanical Load on Element | | | |
| | 21 | LSH Switch Sensing Point | | | |
| | 22 | LSL Switch Sensing Point | | | |
| | 23 | 4-20 mA | | | |
| | 24 | DVC 6200 | | | |
| | 25 | Fisher | | | |
| | 26 | | | | |
| | 27 | Killed Carbon Steel | | | |
| | 28 | Yes - 38H | | | |
| | 29 | Certificate | | | |
| SWITCH | 30 | Type | | | |
| | 31 | Output Relay Rating | | | |
| | 32 | Input Voltage Requirement | | | |
| | 33 | Power Consumption | | | |
| | 34 | On Measurement Increase: LSH | | | |
| | 35 | Indication of Switching | | | |
| | 36 | Conduit Connection Size | | | |
| | 37 | 391 | | | |
| | 38 | | | | |
| | 39 | Open | | | |
| | 40 | kPa-g | | | |
| | 41 | | | | |
| PURCHASE | 42 | Manufacturer | | Warrick | |
| | 43 | Model | | 26C1A0F LOW LEVEL CUT OFF RELAY | |
| | 44 | Purchase Order Number | | FE-CPF-M011 | |
| | 45 | Price | Item Number | | |
| | 46 | Serial Number | | | |

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INSTRUMENT SPECIFICATION
Level Switch
Code: 218

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-LSLL-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-LSLL -21-1010** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Level Switch<br>Code: 218 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-LSLL-21-1010-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-001/003 | | 001-PCV -21-1000 | |
| | 2 | Service | | | FG SPLY | | | |
| | 3 | Line Number | Location | | 60-FG-A11-20090 | | FIELD | |
| | 4 | Line Size and Schedule | Inlet | Outlet | 2 in STD | | | |
| | 5 | Ambient Temp. Range | Flange Face to Face | | -40 TO 35 °C | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | | FUEL GAS | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | | kPa | | | |
| | 8 | Critical Pressure | Critical Temperature | | | | °C | |
| | 9 | Design Pressure | Design Temperature | | kPa-g | | °C | |
| | 10 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | | |
| | 12 | Inlet Pressure | | | | | | |
| | 13 | Pressure Drop | | | kPa | | | |
| | 14 | Inlet Temperature | | | °C | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | | kg/m³ | | | |
| | 16 | Inlet Compressibility Factor | | | — | | | |
| | 17 | Inlet Viscosity | | | cP | | | |
| | 18 | Inlet Specific Heat Ratio | | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | | |
| | 22 | Sound Pressure Level | | | dBA | | | |
| BODY | 23 | Size | Trim Size | Cv | 1 in | 3/8 in | 3.42 | |
| | 24 | Form or Type | | | | | | |
| | 25 | End Connections & Rating | | | 1" NPT | | | |
| | 26 | *Material: Body / Flange* | | | Ductile Iron Body | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | | 6895 kPag 82°C | | | |
| | 28 | Stem Material | Packing Material | | | | | |
| | 29 | | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | | |
| | 32 | Trim Form | | | | | | |
| | 33 | Trim Material | Seat Material | | Aluminum | | | |
| | 34 | Gasket Material | Bushing Material | | | | | |
| | 35 | Required Seat Tightness | | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | | |
| | 37 | Pilot | | | | | | |
| | 38 | Supply to Pilot | | | | | | |
| | 39 | Self Connection | External Connection | | | | | |
| | 40 | Diaphragm Material | | | Nitrile | | | |
| | 41 | Spring Range | | | 241 to 552 kPag | | | |
| | 42 | Set Point | | | 345 kPag | | | |
| | 43 | Max Allowable Inlet Pressure | | | 6895 kPag | | | |
| | 44 | | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | | |
| | 46 | Line Strainer | | | | | | |
| | 47 | Housing Vent | | | | | | |
| | 48 | Internal Relief | | | | | | |
| | 49 | *Owner Tag Plate* | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Fisher | | | |
| | 51 | Model | | | 627 | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1000-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | **001-PCV -21-1000** |
|---|---|---|---|---|---|
| | 2 | Service | | FG SPLY | |

Notes:

| | | | | | | |
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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1000-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-001/003 | | 001-PCV -21-1000C | |
| | 2 | Service | | | I/A SPLY | | | |
| | 3 | Line Number | Location | | 33-FG-A11-22010 | | FIELD | |
| | 4 | Line Size and Schedule | Inlet | Outlet | 1 in STD | | | |
| | 5 | Ambient Temp. Range | Flange Face to Face | | -40 TO 35 °C | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | | INSTRUMENT AIR | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | | 1034 kPa | | | |
| | 8 | Critical Pressure | Critical Temperature | | | | ºC | |
| | 9 | Design Pressure | Design Temperature | | kPa-g | | ºC | |
| | 10 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | | |
| | 12 | Inlet Pressure | | | | | | |
| | 13 | Pressure Drop | | | kPa | | | |
| | 14 | Inlet Temperature | | | ºC | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | | kg/m³ | | | |
| | 16 | Inlet Compressibility Factor | | | — | | | |
| | 17 | Inlet Viscosity | | | cP | | | |
| | 18 | Inlet Specific Heat Ratio | | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | | |
| | 22 | Sound Pressure Level | | | dBA | | | |
| BODY | 23 | Size | Trim Size | Cv | 1/4 | | 0.36 | |
| | 24 | Form or Type | | | | | | |
| | 25 | End Connections & Rating | | | 1/4" NPT | | | |
| | 26 | *Material: Body / Flange* | | | ALUMINUM | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | | 1724 kPag 82°C | | | |
| | 28 | Stem Material | Packing Material | | SS | | | |
| | 29 | | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | | |
| | 32 | Trim Form | | | | | | |
| | 33 | Trim Material | Seat Material | | | | | |
| | 34 | Gasket Material | Bushing Material | | | | | |
| | 35 | Required Seat Tightness | | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | | |
| | 37 | Pilot | | | | | | |
| | 38 | Supply to Pilot | | | | | | |
| | 39 | Self Connection | External Connection | | | | | |
| | 40 | Diaphragm Material | | | | | | |
| | 41 | Spring Range | | | 0 to 241 kPag | | | |
| | 42 | Set Point | | | 207 kPag | | | |
| | 43 | Max Allowable Inlet Pressure | | | | | | |
| | 44 | | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | | |
| | 46 | Line Strainer | | | | | | |
| | 47 | Housing Vent | | | | | | |
| | 48 | Internal Relief | | | | | | |
| | 49 | *Owner Tag Plate* | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Fisher | | | |
| | 51 | Model | | | 67CFR | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | 0C8768.52ADD1 | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1000C-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | **001-PCV -21-1000C** |
|---|---|---|---|---|---|
| | 2 | Service | | I/A SPLY | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1000C-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | | 001-PCV -21-1010 | |
| | 2 | Service | | I/A SPLY TO 001-FCV-21-1010 | | | |
| | 3 | Line Number | Location | --- | | FIELD | |
| | 4 | Line Size and Schedule | Inlet / Outlet | | | | |
| | 5 | Ambient Temp. Range | Flange Face to Face | -40 TO 35 °C | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | INSTRUMENT AIR | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | 1034 kPa | | | |
| | 8 | Critical Pressure | Critical Temperature | | | ºC | |
| | 9 | Design Pressure | Design Temperature | | | ºC | |
| | 10 | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | |
| | 12 | Inlet Pressure | | | | | |
| | 13 | Pressure Drop | | kPa | | | |
| | 14 | Inlet Temperature | | ºC | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | kg/m³ | | | |
| | 16 | Inlet Compressibility Factor | | — | | | |
| | 17 | Inlet Viscosity | | cP | | | |
| | 18 | Inlet Specific Heat Ratio | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | |
| | 22 | Sound Pressure Level | | dBA | | | |
| BODY | 23 | Size | Trim Size / Cv | 1/4 | | 0.36 | |
| | 24 | Form or Type | | | | | |
| | 25 | End Connections & Rating | | 1/4" NPT | | | |
| | 26 | *Material: Body / Flange* | | ALUMINUM | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | 1724 kPag 82°C | | | |
| | 28 | Stem Material | Packing Material | SS | | | |
| | 29 | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | |
| | 32 | Trim Form | | | | | |
| | 33 | Trim Material | Seat Material | | | | |
| | 34 | Gasket Material | Bushing Material | | | | |
| | 35 | Required Seat Tightness | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | |
| | 37 | Pilot | | | | | |
| | 38 | Supply to Pilot | | | | | |
| | 39 | Self Connection | External Connection | | | | |
| | 40 | Diaphragm Material | | | | | |
| | 41 | Spring Range | | 0 to 241 kPag | | | |
| | 42 | Set Point | | 179 kPag | | | |
| | 43 | Max Allowable Inlet Pressure | | | | | |
| | 44 | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | |
| | 46 | Line Strainer | | | | | |
| | 47 | Housing Vent | | | | | |
| | 48 | Internal Relief | | | | | |
| | 49 | *Owner Tag Plate* | | | | | |
| PURCHASE | 50 | Manufacturer | | Fisher | | | |
| | 51 | Model | | 67CFR | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | 0C8768.52ADD1 | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PCV -21-1010** |
|---|---|---|---|---|---|
| | 2 | Service | | I/A SPLY TO 001-FCV-21-1010 | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-PCV -21-1010C | |
| | 2 | Service | | | FG SPLY TO 001-H-21-1010 | | | |
| | 3 | Line Number | Location | | 48-FG-A11-20090 | | FIELD | |
| | 4 | Line Size and Schedule | Inlet | Outlet | 1 1/2 in STD | | Class 1, Zone 2, Gr | |
| | 5 | Ambient Temp. Range | Flange Face to Face | | Outside, -40°C to +35°C | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | | FUEL GAS | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | | 345 kPa | | | |
| | 8 | Critical Pressure | Critical Temperature | | | | °C | |
| | 9 | Design Pressure | Design Temperature | | | | °C | |
| | 10 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | | |
| | 12 | Inlet Pressure | | | | | | |
| | 13 | Pressure Drop | | | kPa | | | |
| | 14 | Inlet Temperature | | | °C | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | | kg/m³ | | | |
| | 16 | Inlet Compressibility Factor | | | — | | | |
| | 17 | Inlet Viscosity | | | cP | | | |
| | 18 | Inlet Specific Heat Ratio | | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | | |
| | 22 | Sound Pressure Level | | | dBA | | | |
| BODY | 23 | Size | Trim Size | Cv | 1 1/2 in | 1/2 in | | |
| | 24 | Form or Type | | | | | | |
| | 25 | End Connections & Rating | | | 1 1/2" NPT | | | |
| | 26 | *Material: Body / Flange* | | | Ductile Iron | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | | 1207 kPag 66 °C | | | |
| | 28 | Stem Material | Packing Material | | | | | |
| | 29 | | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | | |
| | 32 | Trim Form | | | | | | |
| | 33 | Trim Material | Seat Material | | | | | |
| | 34 | Gasket Material | Bushing Material | | | | | |
| | 35 | Required Seat Tightness | | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | | |
| | 37 | Pilot | | | | | | |
| | 38 | Supply to Pilot | | | | | | |
| | 39 | Self Connection | External Connection | | | | | |
| | 40 | Diaphragm Material | | | | | | |
| | 41 | Spring Range | | | 19 to 41 kPag | | | |
| | 42 | Set Point | | | 35 kPag | | | |
| | 43 | Max Allowable Inlet Pressure | | | | | | |
| | 44 | | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | | |
| | 46 | Line Strainer | | | | | | |
| | 47 | Housing Vent | | | | | | |
| | 48 | Internal Relief | | | | | | |
| | 49 | *Owner Tag Plate* | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Fisher | | | |
| | 51 | Model | | | 299H | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010C-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PCV -21-1010C** |
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010C-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-PCV -21-1010D | |
| | 2 | Service | | | FG SPLY TO 001-H-21-1010 | | | |
| | 3 | Line Number | Location | | 48-FG-A11-20090 | | FIELD | |
| | 4 | Line Size and Schedule | Inlet | Outlet | 1 1/2 in STD | | Class 1, Zone 2, Gr | |
| | 5 | Ambient Temp. Range | Flange Face to Face | | Outside, -40°C to +35°C | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | | Fuel Gas | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | | 345 kPa | | | |
| | 8 | Critical Pressure | Critical Temperature | | | | | |
| | 9 | Design Pressure | Design Temperature | | | | °C | |
| | 10 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | | |
| | 12 | Inlet Pressure | | | | | | |
| | 13 | Pressure Drop | | | | | | |
| | 14 | Inlet Temperature | | | | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | | | | | |
| | 16 | Inlet Compressibility Factor | | | — | | | |
| | 17 | Inlet Viscosity | | | | | | |
| | 18 | Inlet Specific Heat Ratio | | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | | |
| | 22 | Sound Pressure Level | | | dBA | | | |
| BODY | 23 | Size | Trim Size | Cv | 1/2 in | | | |
| | 24 | Form or Type | | | | | | |
| | 25 | End Connections & Rating | | | | | | |
| | 26 | *Material: Body / Flange* | | | | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | | 34.5 kPag 96 °C | | | |
| | 28 | Stem Material | Packing Material | | | | | |
| | 29 | | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | | |
| | 32 | Trim Form | | | | | | |
| | 33 | Trim Material | Seat Material | | | | | |
| | 34 | Gasket Material | Bushing Material | | | | | |
| | 35 | Required Seat Tightness | | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | | |
| | 37 | Pilot | | | | | | |
| | 38 | Supply to Pilot | | | | | | |
| | 39 | Self Connection | External Connection | | | | | |
| | 40 | Diaphragm Material | | | | | | |
| | 41 | Spring Range | | | 152 to 254 mm H2O | | | |
| | 42 | Set Point | | | 178 mm H2O | | | |
| | 43 | Max Allowable Inlet Pressure | | | 34.5 kPag | | | |
| | 44 | | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | | |
| | 46 | Line Strainer | | | | | | |
| | 47 | Housing Vent | | | | | | |
| | 48 | Internal Relief | | | | | | |
| | 49 | *Owner Tag Plate* | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Maxitrol | | | |
| | 51 | Model | | | 325-5A-44-0002 | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010D-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PCV -21-1010D** |
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010D-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-PCV -21-1010E | |
| | 2 | Service | | | FG SPLY TO 001-H-21-1010 | | | |
| | 3 | Line Number | Location | | 48-FG-A11-20090 | | FIELD | |
| | 4 | Line Size and Schedule | Inlet | Outlet | 1 1/2 in STD | | | |
| | 5 | Ambient Temp. Range | Flange Face to Face | | | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | | | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | | | | | |
| | 8 | Critical Pressure | Critical Temperature | | | | | |
| | 9 | Design Pressure | Design Temperature | | | | ºC | |
| | 10 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | | |
| | 12 | Inlet Pressure | | | | | | |
| | 13 | Pressure Drop | | | | | | |
| | 14 | Inlet Temperature | | | | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | | | | | |
| | 16 | Inlet Compressibility Factor | | | — | | | |
| | 17 | Inlet Viscosity | | | | | | |
| | 18 | Inlet Specific Heat Ratio | | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | | |
| | 22 | Sound Pressure Level | | | dBA | | | |
| BODY | 23 | Size | Trim Size | Cv | 1 1/2 in | | | |
| | 24 | Form or Type | | | | | | |
| | 25 | End Connections & Rating | | | | | | |
| | 26 | *Material: Body / Flange* | | | | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | | | | | |
| | 28 | Stem Material | Packing Material | | | | | |
| | 29 | | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | | |
| | 32 | Trim Form | | | | | | |
| | 33 | Trim Material | Seat Material | | | | | |
| | 34 | Gasket Material | Bushing Material | | | | | |
| | 35 | Required Seat Tightness | | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | | |
| | 37 | Pilot | | | | | | |
| | 38 | Supply to Pilot | | | | | | |
| | 39 | Self Connection | External Connection | | | | | |
| | 40 | Diaphragm Material | | | | | | |
| | 41 | Spring Range | | | 152 to 1219 mm H2O | | | |
| | 42 | Set Point | | | Field Set | | | |
| | 43 | Max Allowable Inlet Pressure | | | | | | |
| | 44 | | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | | |
| | 46 | Line Strainer | | | | | | |
| | 47 | Housing Vent | | | | | | |
| | 48 | Internal Relief | | | | | | |
| | 49 | *Owner Tag Plate* | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Siemens | | | |
| | 51 | Model | | | | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010E-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PCV -21-1010E** |
|---|---|---|---|---|---|
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
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| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1010E-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-001/003 | | 001-PCV -21-1016D | |
| | 2 | Service | | | FROM 001-V-21-1016 TO VRU HDR | | | |
| | 3 | Line Number | Location | | 33-FG-A11-20091 | | FIELD | |
| | 4 | Line Size and Schedule | Inlet | Outlet | 1 in STD | | | |
| | 5 | Ambient Temp. Range | Flange Face to Face | | | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | | | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | | kPa | | | |
| | 8 | Critical Pressure | Critical Temperature | | | | ºC | |
| | 9 | Design Pressure | Design Temperature | | | | ºC | |
| | 10 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | | |
| | 12 | Inlet Pressure | | | | | | |
| | 13 | Pressure Drop | | | kPa | | | |
| | 14 | Inlet Temperature | | | ºC | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | | kg/m³ | | | |
| | 16 | Inlet Compressibility Factor | | | — | | | |
| | 17 | Inlet Viscosity | | | cP | | | |
| | 18 | Inlet Specific Heat Ratio | | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | | |
| | 22 | Sound Pressure Level | | | dBA | | | |
| BODY | 23 | Size | Trim Size | Cv | 1 in | 3/16 in | 1.01 | |
| | 24 | Form or Type | | | | | | |
| | 25 | End Connections & Rating | | | 1" NPT | | | |
| | 26 | *Material: Body / Flange* | | | Ductile Iron Body | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | | 6895 kPag 82°C | | | |
| | 28 | Stem Material | Packing Material | | | | | |
| | 29 | | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | | |
| | 32 | Trim Form | | | | | | |
| | 33 | Trim Material | Seat Material | | Aluminum | | | |
| | 34 | Gasket Material | Bushing Material | | | | | |
| | 35 | Required Seat Tightness | | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | | |
| | 37 | Pilot | | | | | | |
| | 38 | Supply to Pilot | | | | | | |
| | 39 | Self Connection | External Connection | | | | | |
| | 40 | Diaphragm Material | | | Nitrile | | | |
| | 41 | Spring Range | | | 241 to 552 kPag | | | |
| | 42 | Set Point | | | 276 kPag | | | |
| | 43 | Max Allowable Inlet Pressure | | | 6895 kPag | | | |
| | 44 | | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | | |
| | 46 | Line Strainer | | | | | | |
| | 47 | Housing Vent | | | | | | |
| | 48 | Internal Relief | | | | | | |
| | 49 | *Owner Tag Plate* | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Fisher | | | |
| | 51 | Model | | | 627 | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1016D-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | **001-PCV -21-1016D** |
|---|---|---|---|---|---|
| | 2 | Service | | FROM 001-V-21-1016 TO VRU HDR | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1016D-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-001/003 | | 001-PCV -21-1016E | |
| | 2 | Service | | | FROM 001-V-21-1016 TO VRU HDR | | | |
| | 3 | Line Number | Location | | 33-FG-A11-20091 | | FIELD | |
| | 4 | Line Size and Schedule | Inlet | Outlet | 1 in STD | | | |
| | 5 | Ambient Temp. Range | Flange Face to Face | | | | | |
| PROCESS CONDITIONS | 6 | Process Fluid | Upstream Condition | | | | Gas/Vapor | |
| | 7 | Max Differential Pressure At Shut Off | | | kPa | | | |
| | 8 | Critical Pressure | Critical Temperature | | | | ºC | |
| | 9 | Design Pressure | Design Temperature | | | | ºC | |
| | 10 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow |
| | 11 | Flow Rate | | | | | | |
| | 12 | Inlet Pressure | | | | | | |
| | 13 | Pressure Drop | | | kPa | | | |
| | 14 | Inlet Temperature | | | ºC | | | |
| | 15 | Inlet Density / Spec. Gravity / Molecular Mass | | | kg/m³ | | | |
| | 16 | Inlet Compressibility Factor | | | — | | | |
| | 17 | Inlet Viscosity | | | cP | | | |
| | 18 | Inlet Specific Heat Ratio | | | — | | | |
| | 19 | Inlet Vapour Pressure | | | | | | |
| CALCULATED RESULTS | 20 | Flow Coefficient Cv | | | — | | | |
| | 21 | Wide Open Flow - Calculated | | | | | | |
| | 22 | Sound Pressure Level | | | dBA | | | |
| BODY | 23 | Size | Trim Size | Cv | 1 in | 3/16 in | 1.01 | |
| | 24 | Form or Type | | | | | | |
| | 25 | End Connections & Rating | | | 1 NPT | | | |
| | 26 | *Material: Body / Flange* | | | Ductile Iron Body | | | |
| | 27 | *Max. Pressure / Max. Temp.* | | | 6895 kPag 82°C | | | |
| | 28 | Stem Material | Packing Material | | | | | |
| | 29 | | | | | | | |
| | 30 | Lubricator | Iso. Valve | | | | | |
| TRIM | 31 | Guiding | No. Ports | | | | | |
| | 32 | Trim Form | | | | | | |
| | 33 | Trim Material | Seat Material | | Aluminum | | | |
| | 34 | Gasket Material | Bushing Material | | | | | |
| | 35 | Required Seat Tightness | | | | | | |
| ACTUATOR / PILOT | 36 | Type | | | | | | |
| | 37 | Pilot | | | | | | |
| | 38 | Supply to Pilot | | | | | | |
| | 39 | Self Connection | External Connection | | | | | |
| | 40 | Diaphragm Material | | | Nitrile | | | |
| | 41 | Spring Range | | | 241 to 552 kPag | | | |
| | 42 | Set Point | | | 310 kPag | | | |
| | 43 | Max Allowable Inlet Pressure | | | 6895 kPag | | | |
| | 44 | | | | | | | |
| ACCESSORIES | 45 | Filter Regulator | Supply Gauge | | | | | |
| | 46 | Line Strainer | | | | | | |
| | 47 | Housing Vent | | | | | | |
| | 48 | Internal Relief | | | | | | |
| | 49 | *Owner Tag Plate* | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Fisher | | | |
| | 51 | Model | | | 627 | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Regulator
Code: 141

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1016E-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | **001-PCV -21-1016E** |
|---|---|---|---|---|---|
| | 2 | Service | | FROM 001-V-21-1016 TO VRU HDR | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Regulator<br>Code: 141 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PCV-21-1016E-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | | 001-PDIT -21-1015 | |
| | 2 | Service | | | | 001-FL-21-1015 HM HTR | | | | |
| | 3 | Line Number | Equipment Number | | | TANK/VESSEL NOZZLE | | | 001-FL-21-1015 | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | | FIELD | |
| | 5 | Ambient Temperature Range | | | | | | | | |
| | 6 | Function | Mounting | | | | | | | |
| | 7 | | | | | | | | | |
| | 8 | | | | | | | | | |
| | 9 | | | | | | | | | |
| PROCESS CONDITIONS | 10 | Fluid | State | | | GLYCOL | | | Liquid | |
| | 11 | Pressure | Min. | Oper. | Max. | kPa-g | | 550 | kPa-g | kPa-g |
| | 12 | Temperature | Min. | Oper. | Max. | ºC | | 65 | ºC | ºC |
| | 13 | Design Pressure | Design Temperature | | | | | | | ºC |
| | 14 | Oper. Spec. Gravity | Oper. Viscosity | | | | | | | cP |
| | 15 | | | | | | | | | |
| TRANSMITTER | 16 | Instrument Range Limits | | | | -249 | TO | 249 | kPa | |
| | 17 | Calibrated Differential Pressure Range | | | | | TO | | FIELD CALIBRATED | |
| | 18 | Elevation | Suppression | | | | | | | |
| | 19 | Element Type | | | | diaphragm | | | | |
| | 20 | Element Material | Body Material | | | 316 SS | | | Aluminum | |
| | 21 | Max Static Pressure | Body Rating | | | 25,000 kPag | | | 68,948 kPag burst limit | |
| | 22 | Process Flanges Material | | | | SST | | | | |
| | 23 | Wetted O-Rings Material | | | | Glass Filled PTFE | | | | |
| | 24 | Fill Fluid and Rated Temperature Range | | | | Silicone -40 to 121 ºC | | | | |
| | 25 | Bolts | Enclosure | | | A193 B7M | | | | |
| | 26 | Process Connection | | | | 1/2" NPT | | | | |
| | 27 | Electrical Connection | | | | 1/2" NPT | | | | |
| | 28 | Accuracy | | | | +-0.065% of span | | | | |
| | 29 | | | | | | | | | |
| | 30 | | | | | | | | | |
| DIAPHRAGM SEAL | 31 | Process Connection & Rating | | | | No diaphragm seal | | | | |
| | 32 | Diaphragm Material | Seal Construction | | | | | | | |
| | 33 | Housing Material: Upper / Lower | | | | | | | | |
| | 34 | Fill Fluid and Rated Temperature Range | | | | | | | | |
| | 35 | Capillary Armour Material | | | | | | | | |
| | 36 | Capillary Type | Capillary Length | | | | | | | |
| | 37 | Flush Ring Material | No. of Flush Rings | | | | | | | |
| | 38 | Flushing Conn. Size | No. of Connections | | | | | | | |
| | 39 | | | | | | | | | |
| | 40 | | | | | | | | | |
| OPTIONS | 41 | Integral Meter | Scale | | | | | | | |
| | 42 | Mounting Brackets | | | | | | | | |
| | 43 | | | | | | | | | |
| | 44 | | | | | | | | | |
| | 45 | | | | | | | | | |
| COMMUNICATION | 46 | Communication Type / Output | | | | 4-20 mA HART | | | | |
| | 47 | Power Supply | | | | | | | | |
| | 48 | | | | | | | | | |
| | 49 | | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Rosemount | | | | |
| | 51 | Model | | | | 2051CD3A22A1AB1E6M5 | | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | | |
| | 53 | Price | | | | | | | | |
| | 54 | CRN Number | | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Diff. Pressure Transmitter
Code: 351

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PDIT-21-1015-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PDIT -21-1015** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-FL-21-1015 HM HTR | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Diff. Pressure Transmitter<br>Code: 351 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PDIT-21-1015-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-PDS -21-1010J | |
| | 2 | Service | | | FG SPLY TO 001-H-21-1010 | | | |
| | 3 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 4 | Application | | | | | | |
| | 5 | Enclosure | | | | | | |
| | 6 | Mounting | | | | | | |
| | 7 | Closes | | | | | | |
| | 8 | 550 | | | | | | |
| | 9 | | | | | | | |
| SERVICE CONDITIONS | 10 | Ambient Temperature Range | | | | | | |
| | 11 | Humidity | | | | | | |
| | 12 | Corrosive Agent | | | | | | |
| | 13 | Submersion | | | | | | |
| | 14 | <=85 dBA within 1 meter, at any flow condition | | | | | | |
| | 15 | kPa-g | | | | | | |
| | 16 | 2 in | | | | | | |
| SWITCH | 17 | Contacts Material | | | | | | |
| | 18 | SPDT | DPDT | TPDT | Other | SPDT | | | |
| | 19 | Contacts Type | | | | | | |
| | 20 | Rating | | | | 10 amps | | |
| | 21 | Gravity Return | | | | | | |
| | 22 | Killed Carbon Steel | | | | | | |
| | 23 | Yes - 38H | | | | | | |
| | 24 | Certificate | | | | | | |
| | 25 | Valve Testing | | | | | | |
| BODY | 26 | Material | | | | | | |
| | 27 | Coating | Sealing | | | | | |
| | 28 | Cable Connection | | | | | | |
| | 29 | External Wiring Connection | | | | | | |
| | 30 | Spring Material | | | | | | |
| | 31 | Bolts Material | | | | | | |
| | 32 | Yes - See Note 8 | | | | | | |
| LEVER | 33 | Type | | | | | | |
| | 34 | Trip Position | | | | | | |
| | 35 | Material | | | | | | |
| | 36 | Roller Material | | | | | | |
| | 37 | Trip Travel | | | | | | |
| | 38 | Reset Travel | | | | | | |
| | 39 | Operating Torque | | | | | | |
| | 40 | Rotation: CW | CCW | CW & CCW | | | | |
| | 41 | Catalog Number | | | | | | |
| | 42 | | | | | | | |
| DIMENSIONS | 43 | Mounting Plate | | | | | | |
| | 44 | Light Indicator | | | | | | |
| | 45 | High Temperature Components | | | | | | |
| | 46 | Low temperature Components | | | | | | |
| | 47 | N/A / 860 kPa-g | | | | | | |
| | 48 | N/A | | | | | | |
| | 49 | 657 | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Antunes | | |
| | 51 | Model | | | | JD-2R #801111303 | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | |
| | 53 | Price | | | | | | |
| | 54 | Serial Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Limit Switch
Code: 771

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PDSL-21-1010J-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-PDS -21-1010J |
|---|---|---|---|---|---|
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Limit Switch<br>Code: 771 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PDSL-21-1010J-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-001/003 | | 001-PG -21-1000B | |
| | 2 | Service | | | | FG SPLY | | | |
| | 3 | Line Number | Equipment Number | | | 60-FG-A11-20090 | | 001-V-21-1016 | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | Gas/Vapor | |
| | 7 | Pressure | Min. | Norm. | Max. | | | | |
| | 8 | Temperature | Min. | Norm. | Max. | ºC | | ºC | ºC |
| | 9 | Design Pressure | Design Temperature | | | | | ºC | |
| | 10 | Pulsation | Vibration | | | | | | |
| | 11 | | | | | | | | |
| GAUGE | 12 | Type | | | | Direct Mount | | | |
| | 13 | Range | | | | 0 TO 100 psig | | | |
| | 14 | Figure Interval | | | | Mfr. Standard | | | |
| | 15 | Minor Graduation | | | | Mfr. Standard | | | |
| | 16 | Mounting | | | | Vertical | | | |
| | 17 | Dial Size | Dial Color | | | 4 1/2 in | | White w/ black lettering | |
| | 18 | Pointer Zero Adjustment | | | | | | | |
| | 19 | Case Material | | | | 304 SS | | | |
| | 20 | Ring Construction | Ring Material | | | Mfr. Standard | | SS | |
| | 21 | Blow-Out Protection | | | | | | | |
| | 22 | Lens Material | | | | Safety Glass | | | |
| | 23 | Pressure Element Type and Material | | | | Bourdon Tube, 316 Stainless Steel | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | GLYCERINE 100 ºC | | | |
| | 25 | Socket Material | | | | 316 Stainless Steel | | | |
| | 26 | Connection Size | | | | 1/2 in | | | |
| | 27 | Connection Location | | | | Bottom | | | |
| | 28 | Movement Material | | | | 316 Stainless Steel | | | |
| | 29 | Nominal Accuracy | | | | ±1% of Span | | | |
| | 30 | Rated Temperature Range | | | | -40ºC to +100ºC | | | |
| | 31 | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | NO DIAPHRAHM SEAL | | | |
| | 33 | Process Connection Size and Rating | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | |
| | 36 | Top Housing Material | | | | | | | |
| | 37 | Capillary Length | | | | | | | |
| | 38 | Capillary Material | | | | | | | |
| | 39 | Flushing Connection | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | |
| | 46 | Cooling Fins | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Wika | | | |
| | 51 | Model | | | | 233.34 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | 0F02026.2 | | | |

Notes: See Notes Page

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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1000B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | **001-PG -21-1000B** |
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| | 2 | Service | | FG SPLY | |

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1000B-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | 001-PG -21-1010 | |
| | 2 | Service | | | | 001-H-21-1010 HM HTR | | | |
| | 3 | Line Number | Equipment Number | | | 48-FG-A11-20090 | | 001-H-21-1010 | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | Liquid | |
| | 7 | Pressure | Min. | Norm. | Max. | | | | |
| | 8 | Temperature | Min. | Norm. | Max. | ºC | ºC | | ºC |
| | 9 | Design Pressure | Design Temperature | | | | | ºC | |
| | 10 | Pulsation | Vibration | | | No | | | |
| | 11 | | | | | | | | |
| GAUGE | 12 | Type | | | | Direct Mount | | | |
| | 13 | Range | | | | 0 TO 400 psig | | | |
| | 14 | Figure Interval | | | | Mfr. Standard | | | |
| | 15 | Minor Graduation | | | | Mfr. Standard | | | |
| | 16 | Mounting | | | | Vertical | | | |
| | 17 | Dial Size | Dial Color | | | 6 in | | White w/ black lettering | |
| | 18 | Pointer Zero Adjustment | | | | | | | |
| | 19 | Case Material | | | | Aluminum | | | |
| | 20 | Ring Construction | Ring Material | | | Mfr. Standard | | | |
| | 21 | Blow-Out Protection | | | | | | | |
| | 22 | Lens Material | | | | Safety Glass | | | |
| | 23 | Pressure Element Type and Material | | | | Bourdon Tube, 316 SS | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | Glycerine, 100 ºC | | | |
| | 25 | Socket Material | | | | 316 SS | | | |
| | 26 | Connection Size | | | | 1/2 in | | | |
| | 27 | Connection Location | | | | Back | | | |
| | 28 | Movement Material | | | | 304 SS | | | |
| | 29 | Nominal Accuracy | | | | ± 0.5 % | | | |
| | 30 | Rated Temperature Range | | | | -40ºC to +65ºC | | | |
| | 31 | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | No Diaphragm Seal | | | |
| | 33 | Process Connection Size and Rating | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | |
| | 36 | Top Housing Material | | | | | | | |
| | 37 | Capillary Length | | | | | | | |
| | 38 | Capillary Material | | | | | | | |
| | 39 | Flushing Connection | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | |
| | 46 | Cooling Fins | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Winters | | | |
| | 51 | Model | | | | PS36104B-6BF-400 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | 0F02026.2 | | | |

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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-PG -21-1010 |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-PG -21-1010B | |
| | 2 | Service | | | 001-H-21-1010 HM HTR | | | |
| | 3 | Line Number | Equipment Number | | 21-FG-A11-20093 | | 001-H-21-1010 | |
| | 4 | Ambient Temp. Range | Location | | | | FIELD | |
| | 5 | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | Gas/Vapor | |
| | 7 | Pressure | Min. | Norm. Max. | | | | |
| | 8 | Temperature | Min. | Norm. Max. | °C | | °C | °C |
| | 9 | Design Pressure | Design Temperature | | | | °C | |
| | 10 | Pulsation | Vibration | | No | | | |
| | 11 | | | | | | | |
| GAUGE | 12 | Type | | | Direct Mount | | | |
| | 13 | Range | | | 0 TO 32 inch H2O | | | |
| | 14 | Figure Interval | | | Mfr. Standard | | | |
| | 15 | Minor Graduation | | | Mfr. Standard | | | |
| | 16 | Mounting | | | Vertical | | | |
| | 17 | Dial Size | Dial Color | | 2.5 in | | White w/ black lettering | |
| | 18 | Pointer Zero Adjustment | | | | | | |
| | 19 | Case Material | | | Steel | | | |
| | 20 | Ring Construction | Ring Material | | Mfr. Standard | | | |
| | 21 | Blow-Out Protection | | | | | | |
| | 22 | Lens Material | | | Safety Glass | | | |
| | 23 | Pressure Element Type and Material | | | Brass | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | Dry | | | |
| | 25 | Socket Material | | | Brass | | | |
| | 26 | Connection Size | | | 1/4 in | | | |
| | 27 | Connection Location | | | Back | | | |
| | 28 | Movement Material | | | Brass | | | |
| | 29 | Nominal Accuracy | | | ± 1.5 % | | | |
| | 30 | Rated Temperature Range | | | -40°C to +65°C | | | |
| | 31 | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | No Diaphragm Seal | | | |
| | 33 | Process Connection Size and Rating | | | | | | |
| | 34 | Diaphragm Material | | | | | | |
| | 35 | Bottom Housing Material | | | | | | |
| | 36 | Top Housing Material | | | | | | |
| | 37 | Capillary Length | | | | | | |
| | 38 | Capillary Material | | | | | | |
| | 39 | Flushing Connection | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | |
| | 42 | Connection to Instrument | | | | | | |
| | 43 | Rated Pressure Range | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | |
| | 45 | Snubber: Type | Material | | | | | |
| | 46 | Cooling Fins | | | | | | |
| | 47 | | | | | | | |
| | 48 | | | | | | | |
| | 49 | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Blue Ribbon | | | |
| | 51 | Model | | | BR5ØID | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1010B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-PG -21-1010B |
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| | 2 | Service | | 001-H-21-1010 HM HTR | |

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | | |
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| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1010B-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | 001-PG -21-1010G | |
| | 2 | Service | | | | FG TO 001-H-21-1010 | | | |
| | 3 | Line Number | Equipment Number | | | 48-FG-A11-20090 | | 001-H-21-1010 | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | Liquid | |
| | 7 | Pressure | Min. | Norm. | Max. | | | | |
| | 8 | Temperature | Min. | Norm. | Max. | °C | °C | | °C |
| | 9 | Design Pressure | Design Temperature | | | | | °C | |
| | 10 | Pulsation | Vibration | | | No | | | |
| | 11 | | | | | | | | |
| GAUGE | 12 | Type | | | | Direct Mount | | | |
| | 13 | Range | | | | 0 TO 32 inch H2O | | | |
| | 14 | Figure Interval | | | | Mfr. Standard | | | |
| | 15 | Minor Graduation | | | | Mfr. Standard | | | |
| | 16 | Mounting | | | | Vertical | | | |
| | 17 | Dial Size | Dial Color | | | 2.5 in | | White w/ black lettering | |
| | 18 | Pointer Zero Adjustment | | | | | | | |
| | 19 | Case Material | | | | Steel | | | |
| | 20 | Ring Construction | Ring Material | | | Mfr. Standard | | | |
| | 21 | Blow-Out Protection | | | | | | | |
| | 22 | Lens Material | | | | Safety Glass | | | |
| | 23 | Pressure Element Type and Material | | | | Brass | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | Dry | | | |
| | 25 | Socket Material | | | | Brass | | | |
| | 26 | Connection Size | | | | 1/4 in | | | |
| | 27 | Connection Location | | | | Back | | | |
| | 28 | Movement Material | | | | Brass | | | |
| | 29 | Nominal Accuracy | | | | ± 1.5 | | | |
| | 30 | Rated Temperature Range | | | | -40°C to +65°C | | | |
| | 31 | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | No Diaphragm Seal | | | |
| | 33 | Process Connection Size and Rating | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | |
| | 36 | Top Housing Material | | | | | | | |
| | 37 | Capillary Length | | | | | | | |
| | 38 | Capillary Material | | | | | | | |
| | 39 | Flushing Connection | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | |
| | 46 | Cooling Fins | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Blue Ribbon | | | |
| | 51 | Model | | | | BR501D | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | | | | |

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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1010G-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-PG -21-1010G |
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| | 2 | Service | | FG TO 001-H-21-1010 | |

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1010G-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-001/003 | | 001-PG -21-1011 | |
| | 2 | Service | | | | FROM 001-P-21-1011 | | | |
| | 3 | Line Number | Equipment Number | | | 168-HMR-A11a-21107-38H | | 001-P-21-1011 | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | Liquid | |
| | 7 | Pressure | Min. | Norm. | Max. | | | | |
| | 8 | Temperature | Min. | Norm. | Max. | ºC | | ºC | ºC |
| | 9 | Design Pressure | Design Temperature | | | | | ºC | |
| | 10 | Pulsation | Vibration | | | | | | |
| | 11 | | | | | | | | |
| GAUGE | 12 | Type | | | | Wika | | | |
| | 13 | Range | | | | 0 TO 100 psig | | | |
| | 14 | Figure Interval | | | | Mfr. Standard | | | |
| | 15 | Minor Graduation | | | | Mfr. Standard | | | |
| | 16 | Mounting | | | | Vertical | | | |
| | 17 | Dial Size | Dial Color | | | 4 1/2 in | | White w/ black lettering | |
| | 18 | Pointer Zero Adjustment | | | | | | | |
| | 19 | Case Material | | | | 304SS | | | |
| | 20 | Ring Construction | Ring Material | | | Mfr. Standard | | SS | |
| | 21 | Blow-Out Protection | | | | | | | |
| | 22 | Lens Material | | | | Safety Glass | | | |
| | 23 | Pressure Element Type and Material | | | | Bourdon Tube, 316 SS | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | Glycerine, 100 ºC | | | |
| | 25 | Socket Material | | | | 316 SS | | | |
| | 26 | Connection Size | | | | 1/2 in | | | |
| | 27 | Connection Location | | | | Bottom | | | |
| | 28 | Movement Material | | | | 316 SS | | | |
| | 29 | Nominal Accuracy | | | | ±1% of Span | | | |
| | 30 | Rated Temperature Range | | | | -40ºC to 100ºC | | | |
| | 31 | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | No Diaphragm Seal | | | |
| | 33 | Process Connection Size and Rating | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | |
| | 36 | Top Housing Material | | | | | | | |
| | 37 | Capillary Length | | | | | | | |
| | 38 | Capillary Material | | | | | | | |
| | 39 | Flushing Connection | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | |
| | 46 | Cooling Fins | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Wika | | | |
| | 51 | Model | | | | 233-34 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | 0F02026.2 | | | |

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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1011-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-PG -21-1011 |
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| | 2 | Service | | FROM 001-P-21-1011 | |

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | |
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Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

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|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-001/003 | | 001-PG -21-1011 | |
| | 2 | Service | | | | FROM 001-P-21-1011 | | | |
| | 3 | Line Number | Equipment Number | | | 168-HMR-A11a-21107-38H | | 001-P-21-1011 | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | Liquid | |
| | 7 | Pressure | Min. | Norm. | Max. | | | | |
| | 8 | Temperature | Min. | Norm. | Max. | ºC | | ºC | ºC |
| | 9 | Design Pressure | Design Temperature | | | | | ºC | |
| | 10 | Pulsation | Vibration | | | | | | |
| | 11 | | | | | | | | |
| GAUGE | 12 | Type | | | | Wika | | | |
| | 13 | Range | | | | 0 TO 100 psig | | | |
| | 14 | Figure Interval | | | | Mfr. Standard | | | |
| | 15 | Minor Graduation | | | | Mfr. Standard | | | |
| | 16 | Mounting | | | | Vertical | | | |
| | 17 | Dial Size | Dial Color | | | 4 1/2 in | | White w/ black lettering | |
| | 18 | Pointer Zero Adjustment | | | | | | | |
| | 19 | Case Material | | | | 304SS | | | |
| | 20 | Ring Construction | Ring Material | | | Mfr. Standard | | SS | |
| | 21 | Blow-Out Protection | | | | | | | |
| | 22 | Lens Material | | | | Safety Glass | | | |
| | 23 | Pressure Element Type and Material | | | | Bourdon Tube, 316 SS | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | Glycerine, 100 ºC | | | |
| | 25 | Socket Material | | | | 316 SS | | | |
| | 26 | Connection Size | | | | 1/2 in | | | |
| | 27 | Connection Location | | | | Bottom | | | |
| | 28 | Movement Material | | | | 316 SS | | | |
| | 29 | Nominal Accuracy | | | | ±1% of Span | | | |
| | 30 | Rated Temperature Range | | | | -40ºC to 100ºC | | | |
| | 31 | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | No Diaphragm Seal | | | |
| | 33 | Process Connection Size and Rating | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | |
| | 36 | Top Housing Material | | | | | | | |
| | 37 | Capillary Length | | | | | | | |
| | 38 | Capillary Material | | | | | | | |
| | 39 | Flushing Connection | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | |
| | 46 | Cooling Fins | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Wika | | | |
| | 51 | Model | | | | 233-34 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | 0F02026.2 | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1011-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-PG -21-1011 |
|---|---|---|---|---|---|
| | 2 | Service | | FROM 001-P-21-1011 | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1011-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-001/003 | | 001-PG -21-1016A | |
| | 2 | Service | | | | 001-V-21-1016 HM EXP VESL | | | |
| | 3 | Line Number | Equipment Number | | | 168-HMR-A11a-21100-38H | | 001-V-21-1016 | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | Liquid | |
| | 7 | Pressure | Min. | Norm. | Max. | | | | |
| | 8 | Temperature | Min. | Norm. | Max. | ºC | | ºC | ºC |
| | 9 | Design Pressure | Design Temperature | | | | | ºC | |
| | 10 | Pulsation | Vibration | | | | | | |
| | 11 | | | | | | | | |
| GAUGE | 12 | Type | | | | Direct Mount | | | |
| | 13 | Range | | | | 0 TO 100 psig | | | |
| | 14 | Figure Interval | | | | Mfr. Standard | | | |
| | 15 | Minor Graduation | | | | Mfr. Standard | | | |
| | 16 | Mounting | | | | Vertical | | | |
| | 17 | Dial Size | Dial Color | | | 4 1/2 in | | White w/ black lettering | |
| | 18 | Pointer Zero Adjustment | | | | | | | |
| | 19 | Case Material | | | | 304 SS | | | |
| | 20 | Ring Construction | Ring Material | | | Mfr. Standard | | | |
| | 21 | Blow-Out Protection | | | | | | | |
| | 22 | Lens Material | | | | Safety Glass | | | |
| | 23 | Pressure Element Type and Material | | | | Bourdon Tube, 316SS | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | Glycerine, 100°C | | | |
| | 25 | Socket Material | | | | 316 SS | | | |
| | 26 | Connection Size | | | | 1/2 in | | | |
| | 27 | Connection Location | | | | Bottom | | | |
| | 28 | Movement Material | | | | 316 SS | | | |
| | 29 | Nominal Accuracy | | | | ± 1% Span | | | |
| | 30 | Rated Temperature Range | | | | -40ºC to 100ºC | | | |
| | 31 | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | No Diaphragm Seal | | | |
| | 33 | Process Connection Size and Rating | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | |
| | 36 | Top Housing Material | | | | | | | |
| | 37 | Capillary Length | | | | | | | |
| | 38 | Capillary Material | | | | | | | |
| | 39 | Flushing Connection | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | |
| | 46 | Cooling Fins | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Wika | | | |
| | 51 | Model | | | | 233-34 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | 0F02026.2 | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1016A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-PG -21-1016A |
|---|---|---|---|---|---|
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PG-21-1016A-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-001/003 | | 001-PIT -21-1011A | | |
| | 2 | Service | | | | TO 001-H-21-1010 | | | | |
| | 3 | Line Number | Equipment Number | | | 168-HMR-A11a-21106-38H | | 001-P-21-1011/1013 | | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | | |
| | 5 | | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | GLYCOL | | Liquid | | |
| | 7 | Pressure | Min. | Norm. | Max. | kPa-g | 550 | kPa-g | | kPa-g |
| | 8 | Temperature | Min. | Norm. | Max. | °C | 65 | °C | | °C |
| | 9 | Design Pressure | Design Temperature | | | | | °C | | |
| | 10 | Pulsation | Vibration | | | | | | | |
| | 11 | | | | | | | | | |
| GAUGE / TRANSMITTER | 12 | Type | | | | | | | | |
| | 13 | Range | | | | TO | | | | |
| | 14 | Figure Interval | | | | | | | | |
| | 15 | Minor Graduation | | | | | | | | |
| | 16 | Mounting | | | | | | | | |
| | 17 | Dial Size | Dial Color | | | | | | | |
| | 18 | Pointer Zero Adjustment | | | | | | | | |
| | 19 | Case Material | | | | | | | | |
| | 20 | Ring Construction | Ring Material | | | | | | | |
| | 21 | Blow-Out Protection | | | | | | | | |
| | 22 | Lens Material | | | | | | | | |
| | 23 | Pressure Element Type and Material | | | | | | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | | | | | |
| | 25 | Socket Material | | | | | | | | |
| | 26 | Connection Size | | | | | | | | |
| | 27 | Connection Location | | | | | | | | |
| | 28 | Movement Material | | | | | | | | |
| | 29 | Nominal Accuracy | | | | | | | | |
| | 30 | Rated Temperature Range | | | | | | | | |
| | 31 | | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | | | | | |
| | 33 | Process Connection Size and Rating | | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | | |
| | 36 | Top Housing Material | | | | | | | | |
| | 37 | Capillary Length | | | | | | | | |
| | 38 | Capillary Material | | | | | | | | |
| | 39 | Flushing Connection | | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | | |
| | 46 | Cooling Fins | | | | | | | | |
| | 47 | | | | | | | | | |
| | 48 | | | | | | | | | |
| | 49 | | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Rosemount | | | | |
| | 51 | Model | | | | 2051CG4A22A1AB1E6M5 | | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | | |
| | 53 | Price | | | | | | | | |
| | 54 | CRN Number | | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet 1 of 3

Dwg. No.: FER-001.1102039085-J-DSH-PIT-21-1011A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-PIT -21-1011A |
|---|---|---|---|---|---|
| | 2 | Service | | TO 001-H-21-1010 | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PIT-21-1011A-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-001/003 | | 001-PIT -21-1016 | |
| | 2 | Service | | | | HM FROM 001-V-21-1016 | | | |
| | 3 | Line Number | Equipment Number | | | 168-HMR-A11a-21100-38H | | 001-V-21-1016 | |
| | 4 | Ambient Temp. Range | Location | | | | | FIELD | |
| | 5 | | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | | Liquid | |
| | 7 | Pressure | Min. | Norm. | Max. | | | | |
| | 8 | Temperature | Min. | Norm. | Max. | °C | °C | | °C |
| | 9 | Design Pressure | Design Temperature | | | | | | °C |
| | 10 | Pulsation | Vibration | | | | | | |
| | 11 | | | | | | | | |
| GAUGE / TRANSMITTER | 12 | Type | | | | | | | |
| | 13 | Range | | | | TO | | | |
| | 14 | Figure Interval | | | | | | | |
| | 15 | Minor Graduation | | | | | | | |
| | 16 | Mounting | | | | | | | |
| | 17 | Dial Size | Dial Color | | | | | | |
| | 18 | Pointer Zero Adjustment | | | | | | | |
| | 19 | Case Material | | | | | | | |
| | 20 | Ring Construction | Ring Material | | | | | | |
| | 21 | Blow-Out Protection | | | | | | | |
| | 22 | Lens Material | | | | | | | |
| | 23 | Pressure Element Type and Material | | | | | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | | | | |
| | 25 | Socket Material | | | | | | | |
| | 26 | Connection Size | | | | | | | |
| | 27 | Connection Location | | | | | | | |
| | 28 | Movement Material | | | | | | | |
| | 29 | Nominal Accuracy | | | | | | | |
| | 30 | Rated Temperature Range | | | | | | | |
| | 31 | | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | | | | |
| | 33 | Process Connection Size and Rating | | | | | | | |
| | 34 | Diaphragm Material | | | | | | | |
| | 35 | Bottom Housing Material | | | | | | | |
| | 36 | Top Housing Material | | | | | | | |
| | 37 | Capillary Length | | | | | | | |
| | 38 | Capillary Material | | | | | | | |
| | 39 | Flushing Connection | | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | | |
| | 42 | Connection to Instrument | | | | | | | |
| | 43 | Rated Pressure Range | | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | | |
| | 45 | Snubber: Type | Material | | | | | | |
| | 46 | Cooling Fins | | | | | | | |
| | 47 | | | | | | | | |
| | 48 | | | | | | | | |
| | 49 | | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | Rosemount | | | |
| | 51 | Model | | | | 2051CG4A22A1AB1E6M5 | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | | |
| | 54 | CRN Number | | | | | | | |

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| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PIT-21-1016-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-PIT -21-1016 |
|---|---|---|---|---|---|
| | 2 | Service | | HM FROM 001-V-21-1016 | |

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PIT-21-1016-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-001/003 | | 001-PIT -21-1016A | |
| | 2 | Service | | | 001-V-21-1016 HM EXP VESL | | | |
| | 3 | Line Number | Equipment Number | | TANK/VESSEL NOZZLE | | 001-V-21-1016 | |
| | 4 | Ambient Temp. Range | Location | | | | FIELD | |
| | 5 | | | | | | | |
| PROCESS CONDITIONS | 6 | Fluid | State | | | | Liquid | |
| | 7 | Pressure | Min. | Norm. Max. | | | | |
| | 8 | Temperature | Min. | Norm. Max. | °C | | °C | °C |
| | 9 | Design Pressure | Design Temperature | | | | °C | |
| | 10 | Pulsation | Vibration | | | | | |
| | 11 | | | | | | | |
| GAUGE / TRANSMITTER | 12 | Type | | | | | | |
| | 13 | Range | | | TO | | | |
| | 14 | Figure Interval | | | | | | |
| | 15 | Minor Graduation | | | | | | |
| | 16 | Mounting | | | | | | |
| | 17 | Dial Size | Dial Color | | | | | |
| | 18 | Pointer Zero Adjustment | | | | | | |
| | 19 | Case Material | | | | | | |
| | 20 | Ring Construction | Ring Material | | | | | |
| | 21 | Blow-Out Protection | | | | | | |
| | 22 | Lens Material | | | | | | |
| | 23 | Pressure Element Type and Material | | | | | | |
| | 24 | Liquid Fill and Rated Temperature Range | | | | | | |
| | 25 | Socket Material | | | | | | |
| | 26 | Connection Size | | | | | | |
| | 27 | Connection Location | | | | | | |
| | 28 | Movement Material | | | | | | |
| | 29 | Nominal Accuracy | | | | | | |
| | 30 | Rated Temperature Range | | | | | | |
| | 31 | | | | | | | |
| DIAPHRAGM SEAL | 32 | Type | | | | | | |
| | 33 | Process Connection Size and Rating | | | | | | |
| | 34 | Diaphragm Material | | | | | | |
| | 35 | Bottom Housing Material | | | | | | |
| | 36 | Top Housing Material | | | | | | |
| | 37 | Capillary Length | | | | | | |
| | 38 | Capillary Material | | | | | | |
| | 39 | Flushing Connection | | | | | | |
| | 40 | Flushing Ring: # of Connections and Material | | | | | | |
| | 41 | Fill Fluid and Rated Temperature Range | | | | | | |
| | 42 | Connection to Instrument | | | | | | |
| | 43 | Rated Pressure Range | | | | | | |
| OPTIONS | 44 | Syphon: Type | Material | | | | | |
| | 45 | Snubber: Type | Material | | | | | |
| | 46 | Cooling Fins | | | | | | |
| | 47 | | | | | | | |
| | 48 | | | | | | | |
| | 49 | | | | | | | |
| PURCHASE | 50 | Manufacturer | | | Rosemount | | | |
| | 51 | Model | | | 2051CG4A22A1AB1E6M5 | | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Gauge
Code: 831

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet 1 of 1

Dwg. No.: FER-001.1102039085-J-DSH-PIT-21-1016A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-PIT -21-1016A |
|---|---|---|---|---|---|
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | |

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Gauge<br>Code: 831 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet 1 of 1 |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PIT-21-1016A-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | 001-PSHH -21-1010E | |
| | 2 | Service | | | | FG SPLY TO 001-H-21-1010 | | | |
| | 3 | Line Number | Equipment Number | | | 48-FG-A11-20090 | | 001-H-21-1010 | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | Ambient Temperature Range | | | | | | | |
| | 6 | | | | | | | | |
| | 7 | | | | | | | | |
| PROCESS CONDITIONS | 8 | Fluid | State | | | | | | |
| | 9 | Pressure | Min. | Norm. | Max. | | | | |
| | 10 | Temperature | Min. | Norm. | Max. | ºC | | ºC | ºC |
| | 11 | Design Pressure | Design Temperature | | | | | ºC | |
| | 12 | Oper. Specific Gravity | | | | | | cP | |
| | 13 | Pulsation | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| ELEMENT | 16 | Type | | | | | | | |
| | 17 | Material | | | | | | | |
| | 18 | Connection Size | | | | 1/2 | in | | |
| | 19 | Orientation | | | | | | | |
| | 20 | Pressure Rating | | | | 103 | kPa | | |
| | 21 | | | | | | | | |
| | 22 | | | | | | | | |
| | 23 | | | | | | | | |
| SWITCH | 24 | Type | | | | | | | |
| | 25 | Contact Arragement | | | | | | | |
| | 26 | Contact Rating | | | | 10 amps | | | |
| | 27 | Set Point | | | | FIELD | | | |
| | 28 | On Measurement Increase Switch | | | | SPST breaks on rise | | | |
| | 29 | Certification | | | | UL, CSA | | | |
| | 30 | Conduit Connection Size | | | | 1/2 | in | | |
| | 31 | Differential Range | | | | 3 to 34 | kPa | | |
| | 32 | | | | | | | | |
| | 33 | | | | | | | | |
| | 34 | | | | | | | | |
| | 35 | | | | | | | | |
| DIAPHRAGM SEAL | 36 | Body Material | | | | No Diaphragm seal | | | |
| | 37 | Diaphragm | | | | | | | |
| | 38 | Fill Liquid | | | | | | | |
| | 39 | Process Connection Size | | | | | | | |
| | 40 | Cleanout Connection | | | | | | | |
| | 41 | | | | | | | | |
| | 42 | | | | | | | | |
| | 43 | | | | | | | | |
| PURCHASE | 44 | Manufacturer | | | | Honeywell | | | |
| | 45 | Model | | | | C437E2011 | | | |
| | 46 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 47 | Price | | | | | | | |
| | 48 | CRN Number | | | | | | | |

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INSTRUMENT SPECIFICATION
Pressure Switch
Code: 731

| Instr. Chk | Process Chk | Appr. |
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Dwg. No.: FER-001.1102039085-J-DSH-PSHH-21-1010E-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSHH -21-1010E** |
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Switch<br>Code: 731 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PSHH-21-1010E-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | | D-2013-8426-50F-002/003 | | 001-PSLL -21-1010H | |
| | 2 | Service | | | | FG SPLY TO 001-H-21-1010 | | | |
| | 3 | Line Number | Equipment Number | | | 48-FG-A11-20090 | | 001-H-21-1010 | |
| | 4 | Area Classification | Location | | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | Ambient Temperature Range | | | | | | | |
| | 6 | | | | | | | | |
| | 7 | | | | | | | | |
| PROCESS CONDITIONS | 8 | Fluid | State | | | | | Gas/Vapor | |
| | 9 | Pressure | Min. | Norm. | Max. | | | | |
| | 10 | Temperature | Min. | Norm. | Max. | ºC | | ºC | ºC |
| | 11 | Design Pressure | Design Temperature | | | | | ºC | |
| | 12 | Oper. Specific Gravity | | | | | | cP | |
| | 13 | Pulsation | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| ELEMENT | 16 | Type | | | | | | | |
| | 17 | Material | | | | | | | |
| | 18 | Connection Size | | | | 1/2 | in | | |
| | 19 | Orientation | | | | | | | |
| | 20 | Pressure Rating | | | | 103 | kPa | | |
| | 21 | | | | | | | | |
| | 22 | | | | | | | | |
| | 23 | | | | | | | | |
| SWITCH | 24 | Type | | | | | | | |
| | 25 | Contact Arragement | | | | | | | |
| | 26 | Contact Rating | | | | 10 amps | | | |
| | 27 | Set Point | | | | field | | | |
| | 28 | On Measurement Increase Switch | | | | SPST breaks on fall | | | |
| | 29 | Certification | | | | UL, CSA | | | |
| | 30 | Conduit Connection Size | | | | 1/2 | in | | |
| | 31 | Differential Range | | | | 3 to 34 | kPa | | |
| | 32 | | | | | | | | |
| | 33 | | | | | | | | |
| | 34 | | | | | | | | |
| | 35 | | | | | | | | |
| DIAPHRAGM SEAL | 36 | Body Material | | | | No Diaphragm seal | | | |
| | 37 | Diaphragm | | | | | | | |
| | 38 | Fill Liquid | | | | | | | |
| | 39 | Process Connection Size | | | | | | | |
| | 40 | Cleanout Connection | | | | | | | |
| | 41 | | | | | | | | |
| | 42 | | | | | | | | |
| | 43 | | | | | | | | |
| PURCHASE | 44 | Manufacturer | | | | Honeywell | | | |
| | 45 | Model | | | | C437E2010 | | | |
| | 46 | Purchase Order Number | | | | FE-CPF-M011 | | | |
| | 47 | Price | | | | | | | |
| | 48 | CRN Number | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Pressure Switch
Code: 731

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PSLL-21-1010H-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSLL -21-1010H** |
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Switch<br>Code: 731 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PSLL-21-1010H-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | | 001-PSV -21-1000A | |
| | 2 | Service | | FG SPLY | | | |
| | 3 | Line Number | Equipment Number | 48-FG-A11-20092 | | --- | |
| | 4 | Nozzle (Full, Semi) | | | | | |
| | 5 | Design | Safety, Relief, Safety-Relief | | | | |
| | 6 | Type | Conventional, Bellow, Pilot Operated | | | | |
| | 7 | Bonnet Type | | | | | |
| | 8 | Ambient Temp. Range | Location | | | FIELD | |
| PROCESS CONDITIONS | 9 | Fluid | State | fuel gas | | Gas/Vapor | |
| | 10 | Required Capacity | | 344 | Aft³/min | | |
| | 11 | Molecular Mass | | 18.831 | | | |
| | 12 | Oper. Pressure | Set Pressure | 345 | kPa-g | 455 | kPa-g |
| | 13 | Oper. Temperature | RelievingTemperature | 38 | ºC | 38 | ºC |
| | 14 | Back Pressure | Constant | 0.7 | kPa-g | | |
| | 15 | | Variable | 0.7 | kPa-g | | |
| | 16 | | Total | 0.2 | kPa | | |
| | 17 | % Allowable Overpressure | | 10 | | | |
| | 18 | Overpressure Factor | | | | | |
| | 19 | Compressibility Factor | | 1 | | | |
| | 20 | Latent Heat of Vaporization | | | kcal IT/kg | | |
| | 21 | Specific Heat Ratio | | 1.3 | | | |
| | 22 | Relief Density | | | kg/m³ | | |
| | 23 | Relief Viscosity | | | cP | | |
| | 24 | Barometric Pressure | | | | | |
| | 25 | Rupture Disk at Inlet | Coefficient | | | | |
| | 26 | Design Pressure | Design Temperature | | | ºC | |
| BASIS AND SELECTION | 27 | Design Code | | ASME VIII | | | |
| | 28 | Sizing Basis | | Non-Fire Case | | | |
| | 29 | | | | | | |
| | 30 | Calculated Area | | 0.21766 | in² | | |
| | 31 | Selected Area | | 0.226 | in² | | |
| | 32 | Orifice Designation | Calculated Capacity | | | Aft³/min | |
| | 33 | Selected Valve Capacity | | | | | |
| | 34 | | | | | | |
| CONNECTIONS | 35 | Size: Inlet | Outlet | 1 | in | 1 1/2 | in |
| | 36 | Rating / Facing | Rating / Facing | NPT | | NPT | |
| MATERIALS | 37 | Body and Bonnet | | SA216 WCC | | | |
| | 38 | Nozzle and Disc | | 316SS | | | |
| | 39 | Resilient Seat Seal | | | | | |
| | 40 | Guide and Rings | | 316SS | | | |
| | 41 | Spring | | 17-7 PH SS | | | |
| | 42 | Bellows | | | | | |
| | 43 | | | | | | |
| | 44 | | | | | | |
| OPTIONS | 45 | Cap: Screwed or Bolted | | Screwed | | | |
| | 46 | Lever: Plain or Packed | | None | | | |
| | 47 | Test Gag | | No | | | |
| | 48 | | | | | | |
| | 49 | | | | | | |
| PURCHASE | 50 | Manufacturer | | Consolidated | | | |
| | 51 | Model | | 1-19226LCF-2-CC-MC-31-MT-FT-GS | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Safety Valve
Code: 121

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1000A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | **001-PSV -21-1000A** |
|---|---|---|---|---|---|
| | 2 | Service | | FG SPLY | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Safety Valve<br>Code: 121 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1000A-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | | 001-PSV -21-1010A | |
| | 2 | Service | | 001-H-21-1010 HM HTR | | | |
| | 3 | Line Number | Equipment Number | TNK/VESL NZZL 11/4" | | 001-H-21-1010 | |
| | 4 | Nozzle (Full, Semi) | | | | | |
| | 5 | Design | Safety, Relief, Safety-Relief | | | | |
| | 6 | Type | Conventional, Bellow, Pilot Operated | | | | |
| | 7 | Bonnet Type | | | | | |
| | 8 | Ambient Temp. Range | Location | | | FIELD | |
| PROCESS CONDITIONS | 9 | Fluid | State | | | Gas/Vapor | |
| | 10 | Required Capacity | | | | | |
| | 11 | Molecular Mass | | | | | |
| | 12 | Oper. Pressure | Set Pressure | | | | |
| | 13 | Oper. Temperature | RelievingTemperature | | ºC | | ºC |
| | 14 | Back Pressure | Constant | | | | |
| | 15 | | Variable | | | | |
| | 16 | | Total | | | | |
| | 17 | % Allowable Overpressure | | | | | |
| | 18 | Overpressure Factor | | | | | |
| | 19 | Compressibility Factor | | | | | |
| | 20 | Latent Heat of Vaporization | | | kcal IT/kg | | |
| | 21 | Specific Heat Ratio | | | | | |
| | 22 | Relief Density | | | kg/m³ | | |
| | 23 | Relief Viscosity | | | cP | | |
| | 24 | Barometric Pressure | | | | | |
| | 25 | Rupture Disk at Inlet | Coefficient | | | | |
| | 26 | Design Pressure | Design Temperature | | | | ºC |
| BASIS AND SELECTION | 27 | Design Code | | ASME | | | |
| | 28 | Sizing Basis | | | ASME SEC1 | | |
| | 29 | | | | | | |
| | 30 | Calculated Area | | | in² | | |
| | 31 | Selected Area | | 0.3369 | in² | | |
| | 32 | Orifice Designation | Calculated Capacity | F | | | |
| | 33 | Selected Valve Capacity | | | | | |
| | 34 | | | | | | |
| CONNECTIONS | 35 | Size: Inlet | Outlet | 1 | in | 1 1/2 | in |
| | 36 | Rating / Facing | Rating / Facing | NPT | | NPT | |
| MATERIALS | 37 | Body and Bonnet | | SA216 WCB | | | |
| | 38 | Nozzle and Disc | | A479 316 SS | | | |
| | 39 | Resilient Seat Seal | | | | | |
| | 40 | Guide and Rings | | A743 CF8M SS | | | |
| | 41 | Spring | | A313-316 | | | |
| | 42 | Bellows | | | | | |
| | 43 | | | | | | |
| | 44 | | | | | | |
| OPTIONS | 45 | Cap: Screwed or Bolted | | | | | |
| | 46 | Lever: Plain or Packed | | Packed | | | |
| | 47 | Test Gag | | No | | | |
| | 48 | | | | | | |
| | 49 | | | | | | |
| PURCHASE | 50 | Manufacturer | | Kunkle | | | |
| | 51 | Model | | 927-BGF-M06-BE-0232 | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Safety Valve
Code: 121

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1010A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSV -21-1010A** |
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Safety Valve<br>Code: 121 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1010A-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | |
|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSV -21-1010B** | |
| | 2 | Service | | 001-H-21-1010 HM HTR | | |
| | 3 | Line Number | Equipment Number | TNK/VESL NZZL 11/4" | 001-H-21-1010 | |
| | 4 | Nozzle (Full, Semi) | | | | |
| | 5 | Design | Safety, Relief, Safety-Relief | | | |
| | 6 | Type | Conventional, Bellow, Pilot Operated | | | |
| | 7 | Bonnet Type | | | | |
| | 8 | Ambient Temp. Range | Location | | FIELD | |
| PROCESS CONDITIONS | 9 | Fluid | State | | Gas/Vapor | |
| | 10 | Required Capacity | | | | |
| | 11 | Molecular Mass | | | | |
| | 12 | Oper. Pressure | Set Pressure | | | |
| | 13 | Oper. Temperature | RelievingTemperature | ºC | ºC | |
| | 14 | Back Pressure | Constant | | | |
| | 15 | | Variable | | | |
| | 16 | | Total | | | |
| | 17 | % Allowable Overpressure | | | | |
| | 18 | Overpressure Factor | | | | |
| | 19 | Compressibility Factor | | | | |
| | 20 | Latent Heat of Vaporization | | kcal IT/kg | | |
| | 21 | Specific Heat Ratio | | | | |
| | 22 | Relief Density | | kg/m³ | | |
| | 23 | Relief Viscosity | | cP | | |
| | 24 | Barometric Pressure | | | | |
| | 25 | Rupture Disk at Inlet | Coefficient | | | |
| | 26 | Design Pressure | Design Temperature | | ºC | |
| BASIS AND SELECTION | 27 | Design Code | | ASME | | |
| | 28 | Sizing Basis | | ASME SEC1 | | |
| | 29 | | | | | |
| | 30 | Calculated Area | | in² | | |
| | 31 | Selected Area | | 0.3369 in² | | |
| | 32 | Orifice Designation | Calculated Capacity | F | | |
| | 33 | Selected Valve Capacity | | | | |
| | 34 | | | | | |
| CONNECTIONS | 35 | Size: Inlet | Outlet | 1 in | 1 1/2 in | |
| | 36 | Rating / Facing | Rating / Facing | NPT | NPT | |
| MATERIALS | 37 | Body and Bonnet | | SA216 WCB | | |
| | 38 | Nozzle and Disc | | A479 316 SS | | |
| | 39 | Resilient Seat Seal | | | | |
| | 40 | Guide and Rings | | A743 CF8M SS | | |
| | 41 | Spring | | A313-316 | | |
| | 42 | Bellows | | | | |
| | 43 | | | | | |
| | 44 | | | | | |
| OPTIONS | 45 | Cap: Screwed or Bolted | | | | |
| | 46 | Lever: Plain or Packed | | None | | |
| | 47 | Test Gag | | No | | |
| | 48 | | | | | |
| | 49 | | | | | |
| PURCHASE | 50 | Manufacturer | | Kunkle | | |
| | 51 | Model | | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | |
| | 53 | Price | | | | |
| | 54 | CRN Number | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Safety Valve
Code: 121

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1010B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSV -21-1010B** |
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Pressure Safety Valve<br>Code: 121 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1010B-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | |
|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSV -21-1010F** | |
| | 2 | Service | | FG SPLY TO FLR HDR | | |
| | 3 | Line Number | Equipment Number | 48-FG-A11-20090 | --- | |
| | 4 | Nozzle (Full, Semi) | | | | |
| | 5 | Design | Safety, Relief, Safety-Relief | | | |
| | 6 | Type | Conventional, Bellow, Pilot Operated | | | |
| | 7 | Bonnet Type | | | | |
| | 8 | Ambient Temp. Range | Location | | FIELD | |
| PROCESS CONDITIONS | 9 | Fluid | State | | Gas/Vapor | |
| | 10 | Required Capacity | | | | |
| | 11 | Molecular Mass | | | | |
| | 12 | Oper. Pressure | Set Pressure | | | |
| | 13 | Oper. Temperature | RelievingTemperature | ºC | ºC | |
| | 14 | Back Pressure | Constant | | | |
| | 15 | | Variable | | | |
| | 16 | | Total | | | |
| | 17 | % Allowable Overpressure | | | | |
| | 18 | Overpressure Factor | | | | |
| | 19 | Compressibility Factor | | | | |
| | 20 | Latent Heat of Vaporization | | kcal IT/kg | | |
| | 21 | Specific Heat Ratio | | | | |
| | 22 | Relief Density | | kg/m³ | | |
| | 23 | Relief Viscosity | | cP | | |
| | 24 | Barometric Pressure | | | | |
| | 25 | Rupture Disk at Inlet | Coefficient | | | |
| | 26 | Design Pressure | Design Temperature | | ºC | |
| BASIS AND SELECTION | 27 | Design Code | | | | |
| | 28 | Sizing Basis | | Non-Fire Case | | |
| | 29 | | | | | |
| | 30 | Calculated Area | | | | |
| | 31 | Selected Area | | | | |
| | 32 | Orifice Designation | Calculated Capacity | | | |
| | 33 | Selected Valve Capacity | | 10,000 scfh | | |
| | 34 | | | | | |
| CONNECTIONS | 35 | Size: Inlet | Outlet | 1 in | 1 in | |
| | 36 | Rating / Facing | Rating / Facing | NPT | NPT | |
| MATERIALS | 37 | Body and Bonnet | | brass | | |
| | 38 | Nozzle and Disc | | | | |
| | 39 | Resilient Seat Seal | | | | |
| | 40 | Guide and Rings | | | | |
| | 41 | Spring | | zinc plated steel | | |
| | 42 | Bellows | | | | |
| | 43 | | | | | |
| | 44 | | | | | |
| OPTIONS | 45 | Cap: Screwed or Bolted | | | | |
| | 46 | Lever: Plain or Packed | | | | |
| | 47 | Test Gag | | | | |
| | 48 | Yes | | | | |
| | 49 | Valve Fail Position | | | | |
| PURCHASE | 50 | Manufacturer | | Fisher | | |
| | 51 | Model | | 289H | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | |
| | 53 | Price | | | | |
| | 54 | CRN Number | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Safety Valve
Code: 121

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1010F-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSV -21-1010F** |
| | 2 | Service | | FG SPLY TO FLR HDR | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision | INSTRUMENT SPECIFICATION<br>Pressure Safety Valve<br>Code: 121 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| | | | | Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1010F-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | | 001-PSV -21-1015A | |
| | 2 | Service | | 001-FL-21-1015 HM FTR | | | |
| | 3 | Line Number | Equipment Number | 33-HCD-A11-23282 | | 001-FL-21-1015 | |
| | 4 | Nozzle (Full, Semi) | | | | | |
| | 5 | Design | Safety, Relief, Safety-Relief | | | | |
| | 6 | Type | Conventional, Bellow, Pilot Operated | | | | |
| | 7 | Bonnet Type | | | | | |
| | 8 | Ambient Temp. Range | Location | | | FIELD | |
| PROCESS CONDITIONS | 9 | Fluid | State | Glycol | | Liquid | |
| | 10 | Required Capacity | | 323 | lb/h | | |
| | 11 | Molecular Mass | | | | | |
| | 12 | Oper. Pressure | Set Pressure | 552 | kPa-g | 245 | kPa-g |
| | 13 | Oper. Temperature | RelievingTemperature | 93 | ºC | 221 | ºC |
| | 14 | Back Pressure | Constant | 0.7 | kPa-g | | |
| | 15 | | Variable | 0.7 | kPa-g | | |
| | 16 | | Total | 1.4 | kPa | | |
| | 17 | % Allowable Overpressure | | 21 | | | |
| | 18 | Overpressure Factor | | | | | |
| | 19 | Compressibility Factor | | 1 | | | |
| | 20 | Latent Heat of Vaporization | | 603.7 | Btu IT/lb | | |
| | 21 | Specific Heat Ratio | | 1.38 | | | |
| | 22 | Relief Density | | | kg/m³ | | |
| | 23 | Relief Viscosity | | | cP | | |
| | 24 | Barometric Pressure | | | | | |
| | 25 | Rupture Disk at Inlet | Coefficient | | | | |
| | 26 | Design Pressure | Design Temperature | | | | ºC |
| BASIS AND SELECTION | 27 | Design Code | | ASME VIII | | | |
| | 28 | Sizing Basis | | Fire Case | | | |
| | 29 | | | | | | |
| | 30 | Calculated Area | | 0.024 | in² | | |
| | 31 | Selected Area | | 0.096 | in² | | |
| | 32 | Orifice Designation | Calculated Capacity | | | | lb/h |
| | 33 | Selected Valve Capacity | | | | | |
| | 34 | | | | | | |
| CONNECTIONS | 35 | Size: Inlet | Outlet | 1 | in | 1 | in |
| | 36 | Rating / Facing | Rating / Facing | NPT | | NPT | |
| MATERIALS | 37 | Body and Bonnet | | SA216 WCC | | | |
| | 38 | Nozzle and Disc | | 316SS | | | |
| | 39 | Resilient Seat Seal | | | | | |
| | 40 | Guide and Rings | | 316SS | | | |
| | 41 | Spring | | 17-7 PH SS | | | |
| | 42 | Bellows | | | | | |
| | 43 | | | | | | |
| | 44 | | | | | | |
| OPTIONS | 45 | Cap: Screwed or Bolted | | Screwed | | | |
| | 46 | Lever: Plain or Packed | | None | | | |
| | 47 | Test Gag | | No | | | |
| | 48 | | | | | | |
| | 49 | | | | | | |
| PURCHASE | 50 | Manufacturer | | Consolidated | | | |
| | 51 | Model | | 1-119096LCF-2-CC-MS-31-MT-FT-LA | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Safety Valve
Code: 121

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1015A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-PSV -21-1015A** |
| | 2 | Service | | 001-FL-21-1015 HM FTR | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Safety Valve<br>Code: 121 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1015A-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | | 001-PSV -21-1016C | |
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | | | |
| | 3 | Line Number | Equipment Number | TANK/VESSEL NOZZLE | | 001-V-21-1016 | |
| | 4 | Nozzle (Full, Semi) | | | | | |
| | 5 | Design | Safety, Relief, Safety-Relief | | | | |
| | 6 | Type | Conventional, Bellow, Pilot Operated | | | | |
| | 7 | Bonnet Type | | | | | |
| | 8 | Ambient Temp. Range | Location | | | FIELD | |
| PROCESS CONDITIONS | 9 | Fluid | State | GLYCOL | | Gas/Vapor | |
| | 10 | Required Capacity | | 1881 | lb/h | | |
| | 11 | Molecular Mass | | 18.8 | | | |
| | 12 | Oper. Pressure | Set Pressure | 276 | kPa-g | 689 | kPa-g |
| | 13 | Oper. Temperature | RelievingTemperature | 49 | ºC | 181 | ºC |
| | 14 | Back Pressure | Constant | 0.7 | kPa-g | | |
| | 15 | | Variable | 0.7 | kPa-g | | |
| | 16 | | Total | 1.4 | kPa | | |
| | 17 | % Allowable Overpressure | | 21 | | | |
| | 18 | Overpressure Factor | | | | | |
| | 19 | Compressibility Factor | | 1 | | | |
| | 20 | Latent Heat of Vaporization | | 650.8 | Btu IT/lb | | |
| | 21 | Specific Heat Ratio | | 1.34 | | | |
| | 22 | Relief Density | | | kg/m³ | | |
| | 23 | Relief Viscosity | | | cP | | |
| | 24 | Barometric Pressure | | | | | |
| | 25 | Rupture Disk at Inlet | Coefficient | | | | |
| | 26 | Design Pressure | Design Temperature | | | | ºC |
| BASIS AND SELECTION | 27 | Design Code | | ASME VIII | | | |
| | 28 | Sizing Basis | | Fire Case | | | |
| | 29 | | | | | | |
| | 30 | Calculated Area | | 0.306 | in² | | |
| | 31 | Selected Area | | 0.559 | in² | | |
| | 32 | Orifice Designation | Calculated Capacity | G | | 3436.8 | lb/h |
| | 33 | Selected Valve Capacity | | | | | |
| | 34 | | | | | | |
| CONNECTIONS | 35 | Size: Inlet | Outlet | 1.5 | in | 3 | in |
| | 36 | Rating / Facing | Rating / Facing | CL150 | | CL150 | |
| MATERIALS | 37 | Body and Bonnet | | SA216 WCC | | | |
| | 38 | Nozzle and Disc | | 316 SS | | | |
| | 39 | Resilient Seat Seal | | | | | |
| | 40 | Guide and Rings | | 316SS | | | |
| | 41 | Spring | | ALLOY STEEL | | | |
| | 42 | Bellows | | INCONEL 625 LCF | | | |
| | 43 | | | | | | |
| | 44 | | | | | | |
| OPTIONS | 45 | Cap: Screwed or Bolted | | | | | |
| | 46 | Lever: Plain or Packed | | | | | |
| | 47 | Test Gag | | | | | |
| | 48 | | | | | | |
| | 49 | | | | | | |
| PURCHASE | 50 | Manufacturer | | Consolidated | | | |
| | 51 | Model | | 1905-35GC-3-CC-MS-31-RF-GS-LP | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pressure Safety Valve
Code: 121

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1016C-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | **001-PSV -21-1016C** |
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Pressure Safety Valve<br>Code: 121 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-PSV-21-1016C-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TC -21-1010A |
| | 2 | Service | | 001-H-21-1010 HM HTR | |
| | 3 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | FIELD |
| | 4 | Ambient Temperature Range | | | |
| | 5 | Function | | | |
| | 6 | Mounting | Enclosure | | |
| | 7 | Power Supply | | CHANGE TO TE-1010 | |
| | 8 | Cut - Out Dimension | | RTD | |
| | 9 | Case Color | | TEMPERATURE ELEMENT | |
| | 10 | | | | |
| RECEIVER | 11 | Number of Inputs | | | |
| | 12 | Scale Type | Scale Size | | |
| | 13 | Scale Range | | | |
| | 14 | Scale Form | | | |
| | 15 | Chart Type | Chart Size | | |
| | 16 | Chart Range | | | |
| | 17 | Chart Speed | | | |
| | 18 | Chart Format | | | |
| | 19 | | | | |
| CONTROLLER | 20 | Control Modes | | | |
| | 21 | On Measurement Incr. Output | | | |
| | 22 | Auto - Manual Bypass | | | |
| | 23 | Set Point Adjustment | | | |
| | 24 | Output | | | |
| | 25 | Ratio | Cascade | | |
| | 26 | | | | |
| | 27 | | | | |
| INPUTS | 28 | No. 1 | | | |
| | 29 | No. 2 | | | |
| | 30 | No. 3 | | | |
| | 31 | No. 4 | | | |
| | 32 | No. 5 | | | |
| | 33 | No. 6 | | | |
| | 34 | No. 7 | | | |
| | 35 | No. 8 | | | |
| | 36 | No. 9 | | | |
| | 37 | No. 10 | | | |
| | 38 | No. 11 | | | |
| | 39 | No. 12 | | | |
| | 40 | Power to Transmitters | | | |
| | 41 | | | | |
| | 42 | | | | |
| ALARMS | 43 | Switch Form | Rating | | |
| | 44 | | | | |
| | 45 | | | | |
| DIMENSIONS | 46 | Internal Illumination | | | |
| | 47 | Filter Regulator | | | |
| | 48 | Resistors | | | |
| | 49 | | | | |
| PURCHASE | 50 | Manufacturer | | * | |
| | 51 | Model | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | |
| | 53 | Price | | | |
| | 54 | CRN Number | | | |

TAG NO LONGER EXISTS

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
| | | | |

INSTRUMENT SPECIFICATION
Receiver / Controller
Code: 381

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet : of :

Dwg. No.: FER-001.1102039085-J-DSH-TC-21-1010A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TC -21-1010A |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Receiver / Controller<br>Code: 381 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TC-21-1010A-01 | | Rev.: |

Sheet 1 of 1

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | | **001-TG -21-1010B** | |
| | 2 | Service | | 001-H-21-1010 HM HTR | | | |
| | 3 | Line Number | Equipment Number | TNK/VESL NZZL 3/4" | | 001-H-21-1010 | |
| | 4 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | Ambient Temperature Range | | | | | |
| | 6 | | | | | | |
| PROCESS CONDITIONS | 7 | Fluid | State | | | Liquid | |
| | 8 | Temperature | Min. / Oper. / Max. | ºC | | ºC | ºC |
| | 9 | Oper. Pressure | Max. Pressure | | | | |
| | 10 | Oper. Flow | Max. Flow | | | | |
| | 11 | Oper. Velocity | Max. Velocity | m/s | | m/s | |
| | 12 | Design Pressure | Design Temperature | | | ºC | |
| | 13 | Oper. Density / SG / Molecular Mass | | | | | |
| | 14 | Viscosity | Compressibility | cP | | | |
| | 15 | Vibrations | Erosion / Oxidizing Atm. | | | | |
| | 16 | | | | | | |
| THERMOMETER | 17 | Type | | Bimetallic Thermometer | | | |
| | 18 | Range | | 0 TO 600 °F | | | |
| | 19 | Dial Size | Dial Color | 6 in | | White w/ black lettering | |
| | 20 | Case Material | Hermetically Sealed | Aluminum | | | |
| | 21 | Stem Type | Stem Material | | | | |
| | 22 | Stem/Union Thread | Stem Position | | | | |
| | 23 | Stem Length | Stem Diameter | 6 in | | | |
| | 24 | Sheath Material | Coating | | | | |
| | 25 | External Calibrator | | | | | |
| | 26 | | | | | | |
| | 27 | FILLED SYSTEM | Type | NO FILL | | | |
| | 28 | | Compensation | | | | |
| | 29 | | Capilliary Length | | | | |
| | 30 | | Capilliary Material | | | | |
| | 31 | | Armor Material | | | | |
| | 32 | | Bulb Diameter / Bulb Length | | | | |
| | 33 | | Bulb Type | | | | |
| | 34 | | Bulb Connection | | | | |
| THERMOWELL (Line 42, U, FS) | 35 | Thermowell Tag Number | | 001-TW-21-1010B | | | |
| | 36 | Process Connection | | 1/2" NPT | | | |
| | 37 | ConstructionType | | Bulb w/ Caplilary | | | |
| | 38 | Well Material | | 304SS | | | |
| | 39 | Flange Material | Flange Welding | | | | |
| | 40 | Internal Connection | Bore Diameter | | | | |
| | 41 | Insertion Length (U) | Flange Standoff (FS) | 6" | | | |
| | 42 | Length - Bottom of Thread/SW/Flange to Top | | | | | |
| | 43 | Overal Length (line 42 + U) | | | | | |
| | 44 | Tip Diameter | Tip Thickness | | | | |
| | 45 | Root Diameter | | | | | |
| | 46 | Vibration Calculation Results | | | | | |
| | 47 | Treatments | Finish | | | | |
| | 48 | Stamping | Plug & Chain | | | | |
| | 49 | Thermowell Model Number | | | | | |
| PURCHASE | 50 | Manufacturer | | Winters | | | |
| | 51 | Model | | TRR1-3-60-3-20-6 | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Thermometer
Code: 841

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1010B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-TG -21-1010B** |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

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|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Thermometer<br>Code: 841 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1010B-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-TG -21-1010C | |
| | 2 | Service | | | 001-H-21-1010 M HTR | | | |
| | 3 | Line Number | Equipment Number | | TNK/VESL NZZL 14" | | 001-H-21-1010 | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 5 | Ambient Temperature Range | | | | | | |
| | 6 | | | | TAG DOESN'T EXIST | | | |
| PROCESS CONDITIONS | 7 | Fluid | State | | | | Liquid | |
| | 8 | Temperature | Min. | Oper. | Max. | °C | °C | °C |
| | 9 | Oper. Pressure | Max. Pressure | | | | | |
| | 10 | Oper. Flow | Max. Flow | | | | | |
| | 11 | Oper. Velocity | Max. Velocity | | | m/s | | m/s |
| | 12 | Design Pressure | Design Temperature | | | | | °C |
| | 13 | Oper. Density / SG / Molecular Mass | | | | | | |
| | 14 | Viscosity | Compressibility | | | cP | | |
| | 15 | Vibrations | Erosion | Oxidizing Atm. | | | | |
| | 16 | | | | | | | |
| THERMOMETER | 17 | Type | | | | | | |
| | 18 | Range | | | | TO | | |
| | 19 | Dial Size | Dial Color | | | | | |
| | 20 | Case Material | Hermetically Sealed | | | | | |
| | 21 | Stem Type | Stem Material | | | | | |
| | 22 | Stem/Union Thread | Stem Position | | | | | |
| | 23 | Stem Length | Stem Diameter | | | | | |
| | 24 | Sheath Material | Coating | | | | | |
| | 25 | External Calibrator | | | | | | |
| | 26 | | | | | | | |
| | 27 | FILLED SYSTEM | Type | | | | | |
| | 28 | | Compensation | | | | | |
| | 29 | | Capilliary Length | | | | | |
| | 30 | | Capilliary Material | | | | | |
| | 31 | | Armor Material | | | | | |
| | 32 | | Bulb Diameter | Bulb Length | | | | |
| | 33 | | Bulb Type | | | | | |
| | 34 | | Bulb Connection | | | | | |
| THERMOWELL | 35 | Thermowell Tag Number | | | | 001-TW-21-1010C | | |
| Line 42 | 36 | Process Connection | | | | | | |
| | 37 | ConstructionType | | | | | | |
| | 38 | Well Material | | | | | | |
| U | 39 | Flange Material | Flange Welding | | | | | |
| | 40 | Internal Connection | Bore Diameter | | | | | |
| | 41 | Insertion Length (U) | Flange Standoff (FS) | | | | | |
| | 42 | Length - Bottom of Thread/SW/Flange to Top | | | | | | |
| | 43 | Overal Length (line 42 + U) | | | | | | |
| Line 42 | 44 | Tip Diameter | Tip Thickness | | | | | |
| | 45 | Root Diameter | | | | | | |
| FS U | 46 | Vibration Calculation Results | | | | | | |
| | 47 | Treatments | Finish | | | | | |
| | 48 | Stamping | Plug & Chain | | | | | |
| | 49 | Thermowell Model Number | | | | | | |
| PURCHASE | 50 | Manufacturer | | | | * | | |
| | 51 | Model | | | | | | |
| | 52 | Purchase Order Number | | | | FE-CPF-M011 | | |
| | 53 | Price | | | | | | |
| | 54 | CRN Number | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Thermometer
Code: 841

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1010-01 Rev.:

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TG -21-1010C |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 M HTR | |

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| | | | | INSTRUMENT SPECIFICATION<br>Thermometer<br>Code: 841 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1010-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-TG -21-1016 | | |
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | | | |
| | 3 | Line Number | Equipment Number | TNK/VESL NZZL 3/4" | 001-V-21-1016 | | |
| | 4 | Area Classification | Location | | FIELD | | |
| | 5 | Ambient Temperature Range | | | | | |
| | 6 | | | | | | |
| PROCESS CONDITIONS | 7 | Fluid | State | | Liquid | | |
| | 8 | Temperature | Min. / Oper. / Max. | ºC | ºC | ºC | |
| | 9 | Oper. Pressure | Max. Pressure | | | | |
| | 10 | Oper. Flow | Max. Flow | | | | |
| | 11 | Oper. Velocity | Max. Velocity | m/s | m/s | | |
| | 12 | Design Pressure | Design Temperature | | ºC | | |
| | 13 | Oper. Density / SG / Molecular Mass | | | | | |
| | 14 | Viscosity | Compressibility | cP | | | |
| | 15 | Vibrations | Erosion / Oxidizing Atm. | | | | |
| | 16 | | | | | | |
| THERMOMETER | 17 | Type | | BIMETALLIC THERMOMETER | | | |
| | 18 | Range | | 0 TO 250 ºF | | | |
| | 19 | Dial Size | Dial Color | 5 in | WHITE w/ BLACK LETTERING | | |
| | 20 | Case Material | Hermetically Sealed | 304SS | TES AS PER ASME B40.3 | | |
| | 21 | Stem Type | Stem Material | | 304SS | | |
| | 22 | Stem/Union Thread | Stem Position | | | | |
| | 23 | Stem Length | Stem Diameter | 18 in | | | |
| | 24 | Sheath Material | Coating | | | | |
| | 25 | External Calibrator | | | | | |
| | 26 | | | | | | |
| | 27 | FILLED SYSTEM | Type | NO FILL | | | |
| | 28 | | Compensation | | | | |
| | 29 | | Capilliary Length | | | | |
| | 30 | | Capilliary Material | | | | |
| | 31 | | Armor Material | | | | |
| | 32 | | Bulb Diameter / Bulb Length | | | | |
| | 33 | | Bulb Type | | | | |
| | 34 | | Bulb Connection | | | | |
| THERMOWELL | 35 | Thermowell Tag Number | | 001-TW-21-1016 | | | |
| Line 42 | 36 | Process Connection | | 3/4" NPT | | | |
| | 37 | ConstructionType | | TAPERED | | | |
| | 38 | Well Material | | 304SS | | | |
| U | 39 | Flange Material | Flange Welding | | | | |
| | 40 | Internal Connection | Bore Diameter | | 0.385 | | |
| | 41 | Insertion Length (U) | Flange Standoff (FS) | 16.5" | | | |
| | 42 | Length - Bottom of Thread/SW/Flange to Top | | 2.0" | | | |
| | 43 | Overal Length (line 42 + U) | | 18.5" | | | |
| Line 42 | 44 | Tip Diameter | Tip Thickness | | | | |
| | 45 | Root Diameter | | | | | |
| FS U | 46 | Vibration Calculation Results | | | | | |
| | 47 | Treatments | Finish | | | | |
| | 48 | Stamping | Plug & Chain | | | | |
| | 49 | Thermowell Model Number | | | | | |
| PURCHASE | 50 | Manufacturer | | Wika | | | |
| | 51 | Model | | T1.51 | | | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Thermometer
Code: 841

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1016-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-TG -21-1016 |
|---|---|---|---|---|---|
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Thermometer<br>Code: 841 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1016-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-001/003 | 001-TG -21-1016A | |
| | 2 | Service | | | 001-V-21-1016 HM EXP VESL | | |
| | 3 | Line Number | Equipment Number | | 168-HMR-A11a-21100-38H | 001-V-21-1016 | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | FIELD | |
| | 5 | Ambient Temperature Range | | | | | |
| | 6 | | | | | | |
| PROCESS CONDITIONS | 7 | Fluid | State | | | Liquid | |
| | 8 | Temperature | Min. | Oper. / Max. | ºC | ºC | ºC |
| | 9 | Oper. Pressure | Max. Pressure | | | | |
| | 10 | Oper. Flow | Max. Flow | | | | |
| | 11 | Oper. Velocity | Max. Velocity | | m/s | m/s | |
| | 12 | Design Pressure | Design Temperature | | | ºC | |
| | 13 | Oper. Density / SG / Molecular Mass | | | | | |
| | 14 | Viscosity | Compressibility | | cP | | |
| | 15 | Vibrations | Erosion | Oxidizing Atm. | | | |
| | 16 | | | | | | |
| THERMOMETER | 17 | Type | | | BIMETALLIC THERMOMETER | | |
| | 18 | Range | | | 0 TO 250 ºF | | |
| | 19 | Dial Size | Dial Color | | 5 in | WHITE w/ BLACK LETTERING | |
| | 20 | Case Material | Hermetically Sealed | | 304SS | YES PER ASME B40.3 | |
| | 21 | Stem Type | Stem Material | | | 304SS | |
| | 22 | Stem/Union Thread | Stem Position | | | | |
| | 23 | Stem Length | Stem Diameter | | 6 in | | |
| | 24 | Sheath Material | Coating | | | | |
| | 25 | External Calibrator | | | | | |
| | 26 | | | | | | |
| | 27 | FILLED SYSTEM | Type | | NO FILL | | |
| | 28 | | Compensation | | | | |
| | 29 | | Capilliary Length | | | | |
| | 30 | | Capilliary Material | | | | |
| | 31 | | Armor Material | | | | |
| | 32 | | Bulb Diameter | Bulb Length | | | |
| | 33 | | Bulb Type | | | | |
| | 34 | | Bulb Connection | | | | |
| THERMOWELL | 35 | Thermowell Tag Number | | | 001-TW-21-1016A | | |
| Line 42 | 36 | Process Connection | | | 3/4" NPT | | |
| | 37 | ConstructionType | | | TAPERED | | |
| | 38 | Well Material | | | 304SS | | |
| U | 39 | Flange Material | Flange Welding | | | | |
| | 40 | Internal Connection | Bore Diameter | | | | |
| | 41 | Insertion Length (U) | Flange Standoff (FS) | | 4.5" | | |
| | 42 | Length - Bottom of Thread/SW/Flange to Top | | | 2" | | |
| | 43 | Overal Length (line 42 + U) | | | 6.5" | | |
| Line 42 | 44 | Tip Diameter | Tip Thickness | | | | |
| | 45 | Root Diameter | | | | | |
| FS U | 46 | Vibration Calculation Results | | | | | |
| | 47 | Treatments | Finish | | | | |
| | 48 | Stamping | Plug & Chain | | | | |
| | 49 | Thermowell Model Number | | | | | |
| PURCHASE | 50 | Manufacturer | | | Wika | | |
| | 51 | Model | | | T1.51 | | |
| | 52 | Purchase Order Number | | | FE-CPF-M011 | | |
| | 53 | Price | | | | | |
| | 54 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
| | | | |
| | | | |
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| | | | |

INSTRUMENT SPECIFICATION
Thermometer
Code: 841

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1016A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-001/003 | 001-TG -21-1016A |
|---|---|---|---|---|---|
| | 2 | Service | | 001-V-21-1016 HM EXP VESL | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Thermometer<br>Code: 841 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TG-21-1016A-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | | Tag Number | | D-2013-8426-50F-002/003 | | 001-TIT -21-1000 | | | | | |
| | 2 | Service | | | | 001-PK-21-1000 AMB TEMP | | | | | | | |
| | 3 | Line Number | | Equipment Number | | --- | | 001-PK-21-1000 | | | | | |
| | 4 | Line Size | | Line Schedule | | | | | | | | | |
| | 5 | Area Classification | | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | | | | | |
| | 6 | Ambient Temperature Range | | | | | | | | | | | |
| | 7 | | | | | | | | | | | | |
| PROCESS CONDITIONS | 8 | Fluid | | State | | | | Gas/Vapor | | | | | |
| | 9 | Temperature | Min. | Oper. | Max. | ºC | | ºC | | ºC | | | |
| | 10 | Oper. Pressure | | Max. Pressure | | kPa-g | | kPa-g | | | | | |
| | 11 | Oper. Flow | | Max. Flow | | kg/h | | kg/h | | | | | |
| | 12 | Oper. Velocity | | Max. Velocity | | m/s | | m/s | | | | | |
| | 13 | Design Pressure | | Design Temperature | | kPa-g | | ºC | | | | | |
| | 14 | Oper. Density | | Molecular Mass | | kg/m³ | | | | | | | |
| | 15 | Oper. Viscosity | | | | cP | | | | | | | |
| | 16 | Vibrations | Erosive | | Oxidizing | | | | | | | | |
| | 17 | | | | | | | | | | | | |
| ELEMENT | 18 | Element Tag No. | | 001-TE-09-1010A | | HEAD | 55 | Head Type | | DIN A SINGLE SENSOR INP | | | |
| | 19 | Element Type | | RTD | | | 56 | Material | | ALUMINUM | | | |
| | 20 | T/C | ISA Type | | | | 57 | Enclosure | | NEMA 4X | | | |
| | 21 | | Epoxy | | | | 58 | Terminal Block | | | | | |
| | 22 | | Ground | Unground | | | 59 | Conduit Connection | | 1/2" NPT | | | |
| | 23 | | | | | | 60 | Ext.Type and Material | | | | | |
| | 24 | RTD | Material | PLATINUM | | | 61 | Nipple Size | | | | | |
| | 25 | | Resistance | 100 OHMS | | | 62 | Union | | | | | |
| | 26 | | Wire Matl/Gauge | 22 GAUGE | | | 63 | Nipple Union Length | | | | | |
| | 27 | | | | | | 64 | Spring Loaded | | | | | |
| | 28 | Single/Double/Other | | SINGLE | | | 65 | | | | | | |
| | 29 | Diameter | | | | TRANSMITTER | 66 | Transmitter Type | | RTD | | | |
| | 30 | Sheath Material | | NO SHEATH | | | 67 | TE Types Supported | | RTD OR THERMOCOUPLE | | | |
| | 31 | Coating | | NO COATING | | | 68 | Cold Junction Comp. | | | | | |
| | 32 | | | | | | 69 | Enclosure | | NEMA 4X | | | |
| | 33 | Element Model No. | | 0068N21N00N060E6 | | | 70 | Housing Material | | ALUMINUM | | | |
| WELL | 34 | Thermowell Tag No. | | NONE | | | 71 | Power Supply | | 24 VDC | | | |
| | 35 | Process Connection | | | | | 72 | Electrical Connection | | | | | |
| Line 44 | 36 | Construction Type | | | | | 73 | Accuracy | | ± 0.15 | | | |
| | 37 | Well Material | | | | | 74 | Response Time | | <0.5 S | | | |
| | 38 | Flange Material | | | | | 75 | Linearization of Output | | | | | |
| U | 39 | Flange Welding | | Full Penetration | | | 76 | Range Limits | | -58 TO 752 | | | |
| | 40 | Internal Connection | | | | | 77 | Calibrated Range | | -40 TO 185 ºF | | | |
| | 41 | Bore Diameter | | | | | 78 | Communication Type | | 4-20 mA HART | | | |
| | 42 | Insertion Length (U) | | | | | 79 | Configuration From | | | | | |
| | 43 | Flange Standoff (FS) | | | | | 80 | Internal Diagnostics | | YES | | | |
| | 44 | Thread/Flange to Top | | | | | 81 | Integral Indicator | | LCD DISPLAY | | | |
| | 45 | Overall Length (44+U) | | | | | 82 | Indicator Scale | | | | | |
| | 46 | Tip Diameter | | | | | 83 | Custom Configuration | | | | | |
| Line 44 | 47 | Tip Thickness | | | | | 84 | Mounting Bracket | | | | | |
| | 48 | Root Diameter | | | | | 85 | | | | | | |
| FS U | 49 | Vibration Calc. Result | | | | | 86 | | | | | | |
| | 50 | Plug & Chain | | | | PURCHASE | 87 | Manufacturer | | Rosemount | | | |
| | 51 | Treatments | | | | | 88 | Model | | 644HAK6J6M5 | | | |
| | 52 | Finish | Stamping | | | | 89 | Purchase Order No. | | FE-CPF-M011 | | | |
| | 53 | | | | | | 90 | Price | | | | | |
| | 54 | Thermowell Model No. | | | | | 91 | CRN Number | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION

Temp Transmitter/Element/Well

Code: 344

| Instr. Chk | Process Chk | Approved |
|---|---|---|
| | | |

Sheet of

Dwg No: FER-001.1102039085-J-DSH-TIT-21-1000-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TIT -21-1000 |
|---|---|---|---|---|---|
| | 2 | Service | | 001-PK-21-1000 AMB TEMP | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Temp Transmitter/Element/Well<br>Code: 344 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TIT-21-1000-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TIT -21-1010E | | |
| | 2 | Service | | HM FROM 001-H-21-1010 | | | |
| | 3 | Line Number | Equipment Number | 168-HMS-A11a-21100-38H | 001-H-21-1010 | | |
| | 4 | Line Size | Line Schedule | 6 in | STD | | |
| | 5 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | FIELD | | |
| | 6 | Ambient Temperature Range | | | | | |
| | 7 | | | | | | |
| PROCESS CONDITIONS | 8 | Fluid | State | | Gas/Vapor | | |
| | 9 | Temperature | Min. / Oper. / Max. | ºC | ºC | ºC | |
| | 10 | Oper. Pressure | Max. Pressure | kPa-g | kPa-g | | |
| | 11 | Oper. Flow | Max. Flow | kg/h | kg/h | | |
| | 12 | Oper. Velocity | Max. Velocity | m/s | m/s | | |
| | 13 | Design Pressure | Design Temperature | kPa-g | ºC | | |
| | 14 | Oper. Density | Molecular Mass | kg/m³ | | | |
| | 15 | Oper. Viscosity | | cP | | | |
| | 16 | Vibrations | Erosive / Oxidizing | | | | |
| | 17 | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ELEMENT | 18 | Element Tag No. | | 001-TE-2-1010E | HEAD | 55 | Head Type | DIN A SINGLE SENSOR INP |
| | 19 | Element Type | | RTD | | 56 | Material | ALUMINUM |
| | 20 | T/C | ISA Type | | | 57 | Enclosure | NEMA 4X |
| | 21 | | Epoxy | | | 58 | Terminal Block | |
| | 22 | | Ground / Unground | | | 59 | Conduit Connection | 1/2" NPT |
| | 23 | | | | | 60 | Ext.Type and Material | |
| | 24 | RTD | Material | PLATINUM | | 61 | Nipple Size | |
| | 25 | | Resistance | 100 OHMS | | 62 | Union | |
| | 26 | | Wire Matl/Gauge | 22 GAUGE | | 63 | Nipple Union Length | |
| | 27 | | | | | 64 | Spring Loaded | |
| | 28 | Single/Double/Other | | SINGLE | | 65 | | |
| | 29 | Diameter | | | TRANSMITTER | 66 | Transmitter Type | RTD |
| | 30 | Sheath Material | | NO SHEATH | | 67 | TE Types Supported | RTD OR THERMOCOUPLE |
| | 31 | Coating | | NO COATING | | 68 | Cold Junction Comp. | |
| | 32 | | | | | 69 | Enclosure | NEMA 4X |
| | 33 | Element Model No. | | 0068N21C6B045T26E6 | | 70 | Housing Material | ALUMINUM |
| WELL | 34 | Thermowell Tag No. | | 001-TW-2-1010E | | 71 | Power Supply | 24VDC |
| | 35 | Process Connection | | 3/4" | | 72 | Electrical Connection | |
| Line 44 | 36 | Construction Type | | TAPERED | | 73 | Accuracy | ±0.15ºC |
| | 37 | Well Material | | | | 74 | Response Time | <0.5 S |
| | 38 | Flange Material | | NO FLANGE | | 75 | Linearization of Output | |
| U | 39 | Flange Welding | | Full Penetration | | 76 | Range Limits | -58 TO 752 |
| | 40 | Internal Connection | | 1/2" | | 77 | Calibrated Range | -40 TO 185 ºF |
| | 41 | Bore Diameter | | | | 78 | Communication Type | 4-20 mA HART |
| | 42 | Insertion Length (U) | | 4.5" | | 79 | Configuration From | |
| | 43 | Flange Standoff (FS) | | | | 80 | Internal Diagnostics | YES |
| | 44 | Thread/Flange to Top | | | | 81 | Integral Indicator | LCD DISPLAY |
| | 45 | Overall Length (44+U) | | | | 82 | Indicator Scale | |
| | 46 | Tip Diameter | | | | 83 | Custom Configuration | |
| Line 44 | 47 | Tip Thickness | | | | 84 | Mounting Bracket | |
| | 48 | Root Diameter | | | | 85 | | |
| FS U | 49 | Vibration Calc. Result | | | | 86 | | |
| | 50 | Plug & Chain | | | PURCHASE | 87 | Manufacturer | Rosemount |
| | 51 | Treatments | | | | 88 | Model | 644HAK6J6M5 |
| | 52 | Finish | Stamping | | | 89 | Purchase Order No. | FE-CPF-M011 |
| | 53 | | | | | 90 | Price | |
| | 54 | Thermowell Model No. | | REFER TO TE MODEL # | | 91 | CRN Number | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
| | | | |
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INSTRUMENT SPECIFICATION

Temp Transmitter/Element/Well

Code: 344

| Instr. Chk | Process Chk | Approved |
|---|---|---|
| | | |

Sheet of

Dwg No: FER-001.1102039085-J-DSH-TIT-21-1010E-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TIT -21-1010E |
|---|---|---|---|---|---|
| | 2 | Service | | HM FROM 001-H-21-1010 | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Temp Transmitter/Element/Well<br>Code: 344 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TIT-21-1010E-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | | **001-TIT -21-1010F** | |
| | 2 | Service | | HM TO 001-H-21-1010 | | | |
| | 3 | Line Number | Equipment Number | 168-HMR-A11a-21106-38H | | 001-H-21-1010 | |
| | 4 | Line Size | Line Schedule | 6 in | | STD | |
| | 5 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | | FIELD | |
| | 6 | Ambient Temperature Range | | | | | |
| | 7 | | | | | | |
| PROCESS CONDITIONS | 8 | Fluid | State | | | Gas/Vapor | |
| | 9 | Temperature | Min. / Oper. / Max. | ºC | ºC | ºC | |
| | 10 | Oper. Pressure | Max. Pressure | kPa-g | | kPa-g | |
| | 11 | Oper. Flow | Max. Flow | kg/h | | kg/h | |
| | 12 | Oper. Velocity | Max. Velocity | m/s | | m/s | |
| | 13 | Design Pressure | Design Temperature | kPa-g | | ºC | |
| | 14 | Oper. Density | Molecular Mass | kg/m³ | | | |
| | 15 | Oper. Viscosity | | cP | | | |
| | 16 | Vibrations | Erosive / Oxidizing | | | | |
| | 17 | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ELEMENT | 18 | Element Tag No. | | 001-TE-2-1010F | HEAD | 55 | Head Type | DIN A SINGLE SENSOR INP |
| | 19 | Element Type | | RTD | | 56 | Material | ALUMINUM |
| | 20 | T/C | ISA Type | | | 57 | Enclosure | NEMA 4X |
| | 21 | | Epoxy | | | 58 | Terminal Block | |
| | 22 | | Ground / Unground | | | 59 | Conduit Connection | 1/2" NPT |
| | 23 | | | | | 60 | Ext.Type and Material | |
| | 24 | RTD | Material | PLATINUM | | 61 | Nipple Size | |
| | 25 | | Resistance | 100 OHMS | | 62 | Union | |
| | 26 | | Wire Matl/Gauge | 22 GAUGE | | 63 | Nipple Union Length | |
| | 27 | | | | | 64 | Spring Loaded | |
| | 28 | Single/Double/Other | | SINGLE | | 65 | | |
| | 29 | Diameter | | | TRANSMITTER | 66 | Transmitter Type | RTD |
| | 30 | Sheath Material | | NO SHEATH | | 67 | TE Types Supported | RTD OR THERMOCOUPLE |
| | 31 | Coating | | NO COATING | | 68 | Cold Junction Comp. | |
| | 32 | | | | | 69 | Enclosure | NEMA 4X |
| | 33 | Element Model No. | | 0068N21C6B045T26E6 | | 70 | Housing Material | ALUMINUM |
| WELL | 34 | Thermowell Tag No. | | 001-TW-2-1010F | | 71 | Power Supply | 24VDC |
| | 35 | Process Connection | | 3/4" | | 72 | Electrical Connection | |
| Line 44 | 36 | Construction Type | | TAPERED | | 73 | Accuracy | ±0.15ºC |
| | 37 | Well Material | | | | 74 | Response Time | <0.5 S |
| | 38 | Flange Material | | NO FLANGE | | 75 | Linearization of Output | |
| U | 39 | Flange Welding | | Full Penetration | | 76 | Range Limits | -58 TO 752 |
| | 40 | Internal Connection | | 1/2" | | 77 | Calibrated Range | -40 TO 185 ºF |
| | 41 | Bore Diameter | | | | 78 | Communication Type | 4-20 mA HART |
| | 42 | Insertion Length (U) | | 4.5" | | 79 | Configuration From | |
| | 43 | Flange Standoff (FS) | | | | 80 | Internal Diagnostics | YES |
| | 44 | Thread/Flange to Top | | | | 81 | Integral Indicator | LCD DISPLAY |
| | 45 | Overall Length (44+U) | | | | 82 | Indicator Scale | |
| | 46 | Tip Diameter | | | | 83 | Custom Configuration | |
| Line 44 | 47 | Tip Thickness | | | | 84 | Mounting Bracket | |
| | 48 | Root Diameter | | | | 85 | | |
| FS U | 49 | Vibration Calc. Result | | | | 86 | | |
| | 50 | Plug & Chain | | | PURCHASE | 87 | Manufacturer | Rosemount |
| | 51 | Treatments | | | | 88 | Model | 644HAK6J6M5 |
| | 52 | Finish | Stamping | | | 89 | Purchase Order No. | FE-CPF-M011 |
| | 53 | | | | | 90 | Price | |
| | 54 | Thermowell Model No. | | REFER TO TE MODEL # | | 91 | CRN Number | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
| | | | |
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| | | | |
| | | | |

INSTRUMENT SPECIFICATION

Temp Transmitter/Element/Well

Code: 344

| Instr. Chk | Process Chk | Approved |
|---|---|---|
| | | |

Sheet of

Dwg No: FER-001.1102039085-J-DSH-TIT-21-1010F-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-TIT -21-1010F** |
|---|---|---|---|---|---|
| | 2 | Service | | HM TO 001-H-21-1010 | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Temp Transmitter/Element/Well<br>Code: 344 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TIT-21-1010F-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TT -21-1010 | | |
| | 2 | Service | | 001-H-21-1010 HM HTR | | | |
| | 3 | Line Number | Equipment Number | TANK/VESSEL NOZZLE | 001-H-21-1010 | | |
| | 4 | Line Size | Line Schedule | N/A | | | |
| | 5 | Area Classification | Location | CLASS 1 ZONE 2 IIA T3 | FIELD | | |
| | 6 | Ambient Temperature Range | | | TAG DOESNT EXIST | | |
| | 7 | | | | CHANGE TO TSHH-1010A | | |
| PROCESS CONDITIONS | 8 | Fluid | State | | Liquid | | |
| | 9 | Temperature | Min. / Oper. / Max. | °C | °C | °C | |
| | 10 | Oper. Pressure | Max. Pressure | | | | |
| | 11 | Oper. Flow | Max. Flow | | | | |
| | 12 | Oper. Velocity | Max. Velocity | m/s | m/s | | |
| | 13 | Design Pressure | Design Temperature | | °C | | |
| | 14 | Oper. Density | Molecular Mass | kg/m³ | | | |
| | 15 | Oper. Viscosity | | cP | | | |
| | 16 | Vibrations | Erosive / Oxidizing | | | | |
| | 17 | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ELEMENT | 18 | Element Tag No. | | HEAD | 55 | Head Type | |
| | 19 | Element Type | | | 56 | Material | |
| | 20 | T/C | ISA Type | | 57 | Enclosure | |
| | 21 | | Epoxy | | 58 | Terminal Block | |
| | 22 | | Ground / Unground | | 59 | Conduit Connection | |
| | 23 | | | | 60 | Ext.Type and Material | |
| | 24 | RTD | Material | | 61 | Nipple Size | |
| | 25 | | Resistance | | 62 | Union | |
| | 26 | | Wire Matl/Gauge | | 63 | Nipple Union Length | |
| | 27 | | | | 64 | Spring Loaded | |
| | 28 | Single/Double/Other | | | 65 | | |
| | 29 | Diameter | | TRANSMITTER | 66 | Transmitter Type | |
| | 30 | Sheath Material | | | 67 | TE Types Supported | |
| | 31 | Coating | | | 68 | Cold Junction Comp. | |
| | 32 | | | | 69 | Enclosure | |
| | 33 | Element Model No. | | | 70 | Housing Material | |
| WELL | 34 | Thermowell Tag No. | 001-TW-21-1010 | | 71 | Power Supply | |
| | 35 | Process Connection | | | 72 | Electrical Connection | |
| Line 44 | 36 | Construction Type | | | 73 | Accuracy | |
| | 37 | Well Material | | | 74 | Response Time | |
| | 38 | Flange Material | | | 75 | Linearization of Output | |
| U | 39 | Flange Welding | Full Penetration | | 76 | Range Limits | TO |
| | 40 | Internal Connection | | | 77 | Calibrated Range | TO |
| | 41 | Bore Diameter | | | 78 | Communication Type | |
| | 42 | Insertion Length (U) | | | 79 | Configuration From | |
| | 43 | Flange Standoff (FS) | | | 80 | Internal Diagnostics | |
| | 44 | Thread/Flange to Top | | | 81 | Integral Indicator | |
| | 45 | Overall Length (44+U) | | | 82 | Indicator Scale | |
| | 46 | Tip Diameter | | | 83 | Custom Configuration | |
| Line 44 | 47 | Tip Thickness | | | 84 | Mounting Bracket | |
| | 48 | Root Diameter | | | 85 | | |
| FS U | 49 | Vibration Calc. Result | | | 86 | | |
| | 50 | Plug & Chain | | PURCHASE | 87 | Manufacturer | * |
| | 51 | Treatments | | | 88 | Model | |
| | 52 | Finish / Stamping | | | 89 | Purchase Order No. | FE-CPF-M011 |
| | 53 | | | | 90 | Price | |
| | 54 | Thermowell Model No. | | | 91 | CRN Number | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Temp Transmitter/Element/Well
Code: 344

| Instr. Chk | Process Chk | Approved |
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Sheet of

Dwg No: FER-001.1102039085-J-DSH-TT-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-TT -21-1010 |
|---|---|---|---|---|---|
| | 2 | Service | | 001-H-21-1010 HM HTR | |

Notes:

| | | | | INSTRUMENT SPECIFICATION<br>Temp Transmitter/Element/Well<br>Code: 344 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet 3 of 3 |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-TT-21-1010-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-TV -21-1010D | | |
| | 2 | Service | | | FG SPLY TO 001-H-21-1010 | | | | |
| | 3 | Line Number | | | 48-FG-A11-20090 | | | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | | |
| | 5 | Ambient Temperature Range | | | | | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | kPa | | kPa | | |
| | 8 | Signal Failure Position | Air Failure Position | | | | | | |
| | 9 | Flange Face to Face | Actuator Clearance Height | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | 1 1/2 in STD | | | | |
| | 11 | Pipe Material | Pipe Insulation | | | | | | |
| PROCESS CONDITIONS | 12 | Required Open and Closing Times | | | Valve Fail Position | | | | |
| | 13 | Process Fluid | Upstream Condition | | Air for blower | | Gas/Vapor | | |
| | 14 | Max Differential Pressure At Shut Off | | | kPa | | | | |
| | 15 | Design Pressure | Design Temperature | | kPa-g | | ºC | | |
| | 16 | Critical Pressure | Critical Temperature | | kPa-a | | ºC | | |
| | 17 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow | |
| | 18 | Flow Rate | | | kg/h | | | | |
| | 19 | Inlet Pressure | | | kPa-g | | | | |
| | 20 | Pressure Drop | | | kPa | | | | |
| | 21 | Inlet Temperature | | | ºC | | | | |
| | 22 | Inlet Density / Specific Gravity / Molecular Mass | | | | | | Sizing | |
| | 23 | Inlet Compressibility Factor | | | — | | | | |
| | 24 | Inlet Viscosity | | | cP | | | | |
| | 25 | Inlet Specific Heat Ratio | | | — | | | | |
| | 26 | Inlet Vapour Pressure | | | | | | | |
| CALCULATED RESULTS | 27 | Flow Coefficient Cv | | | — | | | | |
| | 28 | Sound Pressure Level | | | dBA | | | | |
| BODY AND TRIM | 29 | Manufacturer | Eclipse | | ACTUATOR | 55 | Valve Stroke Time | 10 sec | |
| | 30 | Model | 6BV-A | | | 56 | Fire Proofing | | |
| | 31 | Body Type | Butterfly | | | 57 | Orientation | | |
| | 32 | Body Size / Trim Size | 1.5 in | 1.65 | | 58 | Pilot Valve | | |
| | 33 | Rated Cv | 111 | | | 59 | Visual Indicator | none | |
| | 34 | End Connec. & Rating | NPT 34 kPag | | | 60 | Speed Control | No | |
| | 35 | Body Material | Cast Iron | | | 61 | Act. Amb. Temp Range | -20 to 60 ºC | |
| | 36 | Bonnet Type / Material | | | SOLENOID VALVE | 62 | Manufacturer | | |
| | 37 | Uni or Bidirectional | | | | 63 | Model | | |
| | 38 | Fire Safe Design | | | | 64 | Type | | |
| | 39 | Guiding / No. of Ports | | 0 | | 65 | When De-Energ.Valve: | | |
| | 40 | Trim Type / Rated Travel | | | | 66 | Solenoid Tag | | |
| | 41 | Plug/ Ball/ Disk Material | | | SWITCHES | 67 | Manufacturer | | |
| | 42 | Balanced / Unbalanced | | | | 68 | Model | | |
| | 43 | Seat Material | | | | 69 | Type / Quantity | | |
| | 44 | Stem Material | | | | 70 | Contacts / Rating | | |
| | 45 | Packing Type / Material | | | | 71 | Switching Position | | |
| | 46 | Valve Break Torque | | | | 72 | Switch Tags | | |
| ACTUATOR | 47 | Manufacturer | Siemens | | AIR SET | 73 | Manufacturer | | |
| | 48 | Model | SQM45-295A9 | | | 74 | Model | | |
| | 49 | Type | Electromotoric | | | 75 | Set Press / Filter / Gauge | | |
| | 50 | Size / Area | | | TESTS | 76 | Hydro. Pressure | | |
| | 51 | Handwheel Location | | | | 77 | Allowable Leakage | | |
| | 52 | Max Rated Pressure | n/a | | | 78 | Valve Testing | | |
| | 53 | Action On Air Failure | n/a | | PURCHASE | 79 | Manufacturer | Eclipse | |
| | 54 | Action On Signal Failure | in position | | | 80 | Model | 6BV-A c/w Seimens SQM45-295 | |
| | | | | | | 81 | PO Number | FE-CPF-M011 | |
| | | | | | | 82 | Price | | |
| | | | | | | 83 | Valve CRN Number | | |
| | | | | | | 84 | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010D-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-TV -21-1010D** |
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision | INSTRUMENT SPECIFICATION<br>Pneumatic On/Off Valve<br>Code: 131 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| | | | | Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010D-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | **D-2013-8426-50F-002/003** | **001-XA -21-1000** |
| | 2 | Service | | HM PKG PRCS ALM STRB(INT.) | |
| | 3 | Line Number | Equipment Number | --- | 001-PK-21-1000 |
| | 4 | | Location | | FIELD |
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| PURCHASE | 50 | Manufacturer | | Federal Signal Corp. | |
| | 51 | Model | | 191XL-S120240R | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | |
| | 53 | Price | | | |
| | 54 | CRN Number | | | |

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INSTRUMENT SPECIFICATION

Custom Datasheet
Code: 999

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XA -21-1000** |
|---|---|---|---|---|---|
| | 2 | Service | | HM PKG PRCS ALM STRB(INT.) | |

Notes:

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| | | | | INSTRUMENT SPECIFICATION<br>Custom Datasheet<br>Code: 999 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
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| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | **D-2013-8426-50F-002/003** | **001-XA -21-1000A** |
| | 2 | Service | | HM PKG ESD ALM STRB(INT.) | |
| | 3 | Line Number | Equipment Number | --- | 001-PK-21-1000 |
| | 4 | | Location | | FIELD |
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| PURCHASE | 50 | Manufacturer | | Federal Signal Corp. | |
| | 51 | Model | | 191XL-S120240A | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | |
| | 53 | Price | | | |
| | 54 | CRN Number | | | |

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| | | | | INSTRUMENT SPECIFICATION | | |
| | | | | Custom Datasheet | | |
| | | | | Code: 999 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | Sheet of |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000A-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XA -21-1000A** |
|---|---|---|---|---|---|
| | 2 | Service | | HM PKG ESD ALM STRB(INT.) | |

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| | | | | INSTRUMENT SPECIFICATION<br>Custom Datasheet<br>Code: 999 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
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| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000A-01 | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

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| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XA -21-1000B** |
| | 2 | Service | | HM PKG PCS ALM STRB(EXT.) | |
| | 3 | Line Number | Equipment Number | --- | 001-PK-21-1000 |
| | 4 | | Location | | FIELD |
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| PURCHASE | 50 | Manufacturer | | Federal Signal Corp. | |
| | 51 | Model | | 191XL-S120240R | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | |
| | 53 | Price | | | |
| | 54 | CRN Number | | | |

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INSTRUMENT SPECIFICATION

Custom Datasheet
Code: 999

| Instr. Chk | Process Chk | Appr. |
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Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XA -21-1000B** |
|---|---|---|---|---|---|
| | 2 | Service | | HM PKG PCS ALM STRB(EXT.) | |

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| | | | | INSTRUMENT SPECIFICATION<br>Custom Datasheet<br>Code: 999 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
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| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000B-01 | | Rev.: |

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Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

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|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | 001-XA -21-1000C |
| | 2 | Service | | HM PKG ESD ALM STRB(EXT.) | |
| | 3 | Line Number | Equipment Number | --- | 001-PK-21-1000 |
| | 4 | | Location | | FIELD |
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| PURCHASE | 50 | Manufacturer | | Federal Signal Corp. | |
| | 51 | Model | | 191XL-S120240A | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | |
| | 53 | Price | | | |
| | 54 | CRN Number | | | |

Notes: See Notes Page

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INSTRUMENT SPECIFICATION

Custom Datasheet
Code: 999

| Instr. Chk | Process Chk | Appr. |
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Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000C-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XA -21-1000C** |
|---|---|---|---|---|---|
| | 2 | Service | | HM PKG ESD ALM STRB(EXT.) | |

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| | | | | INSTRUMENT SPECIFICATION<br>Custom Datasheet<br>Code: 999 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
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| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000C-01 | | Rev.: |

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Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | |
|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | **D-2013-8426-50F-002/003** | **001-XA -21-1000D** |
| | 2 | Service | | HM PKG ALM HRN(INT.) | |
| | 3 | Line Number | Equipment Number | --- | 001-PK-21-1000 |
| | 4 | | Location | | FIELD |
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| PURCHASE | 50 | Manufacturer | | Federal Signal Corp. | |
| | 51 | Model | | 300GCX-120 | |
| | 52 | Purchase Order Number | | FE-CPF-M011 | |
| | 53 | Price | | | |
| | 54 | CRN Number | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION

Custom Datasheet
Code: 999

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000D-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| GENERAL | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XA -21-1000D** |
|---|---|---|---|---|---|
| | 2 | Service | | HM PKG ALM HRN(INT.) | |

Notes:

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | INSTRUMENT SPECIFICATION<br>Custom Datasheet<br>Code: 999 | | |
| | | | | Instr. Chk | Process Chk | Appr. |
| | | | | | | |
| No. | By | Date | Revision | Dwg. No.: FER-001.1102039085-J-DSH-XA-21-1000D-01 | | Rev.: |

Sheet of

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | | 001-XV -21-1010 | |
| | 2 | Service | | | FROM 001-BM-21-1001 TO VENT | | | | |
| | 3 | Line Number | | | * | | | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | | FIELD | |
| | 5 | Ambient Temperature Range | | | | | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | kPa-g | | | kPa-g | |
| | 8 | Signal Failure Position | Air Failure Position | | | | | | |
| | 9 | Flange Face to Face | Actuator Clearance Height | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | | | | | |
| | 11 | Pipe Material | Pipe Insulation | | | | | | |
| PROCESS CONDITIONS | 12 | Required Open and Closing Times | | | Valve Fail Position | | | | |
| | 13 | Process Fluid | Upstream Condition | | fuel gas vent | | | Gas/Vapor | |
| | 14 | Max Differential Pressure At Shut Off | | | kPa | | | | |
| | 15 | Design Pressure | Design Temperature | | kPa-g | | | ºC | |
| | 16 | Critical Pressure | Critical Temperature | | kPa-a | | | ºC | |
| | 17 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow | |
| | 18 | Flow Rate | | | kg/h | | | | |
| | 19 | Inlet Pressure | | | kPa-g | | | | |
| | 20 | Pressure Drop | | | kPa | | | | |
| | 21 | Inlet Temperature | | | ºC | | | | |
| | 22 | Inlet Density / Specific Gravity / Molecular Mass | | | | | | Sizing | |
| | 23 | Inlet Compressibility Factor | | | — | | | | |
| | 24 | Inlet Viscosity | | | cP | | | | |
| | 25 | Inlet Specific Heat Ratio | | | — | | | | |
| | 26 | Inlet Vapour Pressure | | | | | | | |
| CALCULATED RESULTS | 27 | Flow Coefficient Cv | | | — | | | | |
| | 28 | Sound Pressure Level | | | dBA | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BODY AND TRIM | 29 | Manufacturer | | ACTUATOR | 55 | Valve Stroke Time | <1 sec |
| | 30 | Model | | | 56 | Fire Proofing | |
| | 31 | Body Type | | | 57 | Orientation | |
| | 32 | Body Size / Trim Size | in | | 58 | Pilot Valve | |
| | 33 | Rated Cv | | | 59 | Visual Indicator | |
| | 34 | End Connec. & Rating | | | 60 | Speed Control | |
| | 35 | Body Material | Aluminum | | 61 | Act. Amb. Temp Range | |
| | 36 | Bonnet Type / Material | | SOLENOID VALVE | 62 | Manufacturer | ASCO |
| | 37 | Uni or Bidirectional | | | 63 | Model | 8214G054 |
| | 38 | Fire Safe Design | | | 64 | Type | 2 way |
| | 39 | Guiding / No. of Ports | 0 | | 65 | When De-Energ.Valve: | Fail Open |
| | 40 | Trim Type / Rated Travel | | | 66 | Solenoid Tag | |
| | 41 | Plug/ Ball/ Disk Material | NBR | SWITCHES | 67 | Manufacturer | |
| | 42 | Balanced / Unbalanced | | | 68 | Model | |
| | 43 | Seat Material | | | 69 | Type / Quantity | |
| | 44 | Stem Material | | | 70 | Contacts / Rating | |
| | 45 | Packing Type / Material | | | 71 | Switching Position | |
| | 46 | Valve Break Torque | | | 72 | Switch Tags | |
| ACTUATOR | 47 | Manufacturer | | AIR SET | 73 | Manufacturer | |
| | 48 | Model | | | 74 | Model | |
| | 49 | Type | | | 75 | Set Press / Filter / Gauge | |
| | 50 | Size / Area | | TESTS | 76 | Hydro. Pressure | |
| | 51 | Handwheel Location | | | 77 | Allowable Leakage | |
| | 52 | Max Rated Pressure | | | 78 | Valve Testing | |
| | 53 | Action On Air Failure | | PURCHASE | 79 | Manufacturer | ASCO |
| | 54 | Action On Signal Failure | | | 80 | Model | 8214G054 |
| | | | | | 81 | PO Number | FE-CPF-M011 |
| | | | | | 82 | Price | |
| | | | | | 83 | Valve CRN Number | |
| | | | | | 84 | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
| | | | |
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet ___ of ___

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XV -21-1010** |
| | 2 | Service | | FROM 001-BM-21-1001 TO VENT | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision | INSTRUMENT SPECIFICATION<br>Pneumatic On/Off Valve<br>Code: 131 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| | | | | Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-XV -21-1010A |
| | 2 | Service | | | FG SPLY TO 001-BM-21-1001 | | |
| | 3 | Line Number | | | 48-FG-A11-20090 | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD |
| | 5 | Ambient Temperature Range | | | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | | | |
| | 8 | Signal Failure Position | Air Failure Position | | | | |
| | 9 | Flange Face to Face | Actuator Clearance Height | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | 1 1/2 in STD | | 2 in 80 |
| | 11 | Pipe Material | Pipe Insulation | | | | |
| PROCESS CONDITIONS | 12 | Required Open and Closing Times | | | Valve Fail Position | | |
| | 13 | Process Fluid | Upstream Condition | | | | Liquid |
| | 14 | Max Differential Pressure At Shut Off | | | kPa | | |
| | 15 | Design Pressure | Design Temperature | | kPa-g | | ºC |
| | 16 | Critical Pressure | Critical Temperature | | kPa-a | | ºC |
| | 17 | | | | Units | @ Max Flow | @ Norm Flow / @ Min Flow |
| | 18 | Flow Rate | | | kg/h | | |
| | 19 | Inlet Pressure | | | kPa-g | | |
| | 20 | Pressure Drop | | | kPa | | |
| | 21 | Inlet Temperature | | | ºC | | |
| | 22 | Inlet Density / Specific Gravity / Molecular Mass | | | | | Sizing |
| | 23 | Inlet Compressibility Factor | | | — | | |
| | 24 | Inlet Viscosity | | | cP | | |
| | 25 | Inlet Specific Heat Ratio | | | — | | |
| | 26 | Inlet Vapour Pressure | | | kPa-a | | |
| CALCULATED RESULTS | 27 | Flow Coefficient Cv | | | — | | |
| | 28 | Sound Pressure Level | | | dBA | | |
| BODY AND TRIM | 29 | Manufacturer | | | | | |
| | 30 | Model | | | | | |
| | 31 | Body Type | | | | | |
| | 32 | Body Size / Trim Size | in | | | | |
| | 33 | Rated Cv | | | | | |
| | 34 | End Connec. & Rating | | | | | |
| | 35 | Body Material | | | | | |
| | 36 | Bonnet Type / Material | | | | | |
| | 37 | Uni or Bidirectional | | | | | |
| | 38 | Fire Safe Design | | | | | |
| | 39 | Guiding / No. of Ports | | 0 | | | |
| | 40 | Trim Type / Rated Travel | | | | | |
| | 41 | Plug/ Ball/ Disk Material | | | | | |
| | 42 | Balanced / Unbalanced | | | | | |
| | 43 | Seat Material | | | | | |
| | 44 | Stem Material | | | | | |
| | 45 | Packing Type / Material | | | | | |
| | 46 | Valve Break Torque | | | | | |
| ACTUATOR | 47 | Manufacturer | Siemens | | | | |
| | 48 | Model | SKP25.011U1 | | | | |
| | 49 | Type | Electro-hydraulic | | | | |
| | 50 | Size / Area | | | | | |
| | 51 | Handwheel Location | | | | | |
| | 52 | Max Rated Pressure | | | | | |
| | 53 | Action On Air Failure | n/a | | | | |
| | 54 | Action On Signal Failure | | | | | |

Notes: See Notes Page

| | | | |
|---|---|---|---|
| ACTUATOR | 55 | Valve Stroke Time | <0.8 sec |
| | 56 | Fire Proofing | |
| | 57 | Orientation | |
| | 58 | Pilot Valve | |
| | 59 | Visual Indicator | no |
| | 60 | Speed Control | No |
| | 61 | Act. Amb. Temp Range | -15 to 60 ºC |
| SOLENOID VALVE | 62 | Manufacturer | |
| | 63 | Model | |
| | 64 | Type | |
| | 65 | When De-Energ.Valve: | |
| | 66 | Solenoid Tag | |
| SWITCHES | 67 | Manufacturer | Integral to Actuator |
| | 68 | Model | |
| | 69 | Type / Quantity | SPDT / 1 |
| | 70 | Contacts / Rating | 3 amps 120 VAC |
| | 71 | Switching Position | Proof of Closure |
| | 72 | Switch Tags | 001-ZSC-21-1010A |
| AIR SET | 73 | Manufacturer | |
| | 74 | Model | |
| | 75 | Set Press / Filter / Gauge | |
| TESTS | 76 | Hydro. Pressure | |
| | 77 | Allowable Leakage | |
| | 78 | Valve Testing | |
| PURCHASE | 79 | Manufacturer | Siemens |
| | 80 | Model | |
| | 81 | PO Number | FE-CPF-M011 |
| | 82 | Price | |
| | 83 | Valve CRN Number | |
| | 84 | | |

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

Instr. Chk | Process Chk | Appr.

Sheet ___ of ___

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010A-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XV -21-1010A** |
| | 2 | Service | | FG SPLY TO 001-BM-21-1001 | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision | INSTRUMENT SPECIFICATION<br>Pneumatic On/Off Valve<br>Code: 131 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| | | | | Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010A-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-XV -21-1010B | | |
| | 2 | Service | | | FROM 001-BM-21-1001 TO VENT | | | | |
| | 3 | Line Number | | | 48-FG-A11-20090 | | | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | | |
| | 5 | Ambient Temperature Range | | | Outside, -40°C to +3°C | | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | kPa-g | | kPa-g | | |
| | 8 | Signal Failure Position | Air Failure Position | | | | | | |
| | 9 | Flange Face to Face | Actuator Clearance Height | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | 1 1/2 in STD | | | | |
| | 11 | Pipe Material | Pipe Insulation | | | | | | |
| PROCESS CONDITIONS | 12 | Required Open and Closing Times | | | Valve Fail Position | | | | |
| | 13 | Process Fluid | Upstream Condition | | | | Liquid | | |
| | 14 | Max Differential Pressure At Shut Off | | | kPa | | | | |
| | 15 | Design Pressure | Design Temperature | | kPa-g | | °C | | |
| | 16 | Critical Pressure | Critical Temperature | | kPa-a | | °C | | |
| | 17 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow | |
| | 18 | Flow Rate | | | kg/h | 104 | | | |
| | 19 | Inlet Pressure | | | kPa-g | | | | |
| | 20 | Pressure Drop | | | kPa | | | | |
| | 21 | Inlet Temperature | | | °C | | | | |
| | 22 | Inlet Density / Specific Gravity / Molecular Mass | | | | | | Sizing | |
| | 23 | Inlet Compressibility Factor | | | — | | | | |
| | 24 | Inlet Viscosity | | | cP | | | | |
| | 25 | Inlet Specific Heat Ratio | | | — | | | | |
| | 26 | Inlet Vapour Pressure | | | kPa-a | | | | |
| CALCULATED RESULTS | 27 | Flow Coefficient Cv | | | — | | | | |
| | 28 | Sound Pressure Level | | | dBA | | | | |
| BODY AND TRIM | 29 | Manufacturer | | | | | | | |
| | 30 | Model | | | | | | | |
| | 31 | Body Type | | | | | | | |
| | 32 | Body Size | Trim Size | | in | | | | |
| | 33 | Rated Cv | | | | | | | |
| | 34 | End Connec. & Rating | | | | | | | |
| | 35 | Body Material | | | | | | | |
| | 36 | Bonnet Type | Material | | | | | | |
| | 37 | Uni or Bidirectional | | | | | | | |
| | 38 | Fire Safe Design | | | | | | | |
| | 39 | Guiding | No. of Ports | | 0 | | | | |
| | 40 | Trim Type | Rated Travel | | | | | | |
| | 41 | Plug/ Ball/ Disk Material | | | | | | | |
| | 42 | Balanced / Unbalanced | | | | | | | |
| | 43 | Seat Material | | | | | | | |
| | 44 | Stem Material | | | | | | | |
| | 45 | Packing Type / Material | | | | | | | |
| | 46 | Valve Break Torque | | | | | | | |
| ACTUATOR | 47 | Manufacturer | Siemens | | | | | | |
| | 48 | Model | SKP15.011U1 | | | | | | |
| | 49 | Type | Electro-hydraulic | | | | | | |
| | 50 | Size | Area | | | | | | |
| | 51 | Handwheel Location | | | | | | | |
| | 52 | Max Rated Pressure | | | | | | | |
| | 53 | Action On Air Failure | n/a | | | | | | |
| | 54 | Action On Signal Failure | | | | | | | |
| ACTUATOR | 55 | Valve Stroke Time | <0.8 sec | | | | | | |
| | 56 | Fire Proofing | | | | | | | |
| | 57 | Orientation | | | | | | | |
| | 58 | Pilot Valve | | | | | | | |
| | 59 | Visual Indicator | no | | | | | | |
| | 60 | Speed Control | No | | | | | | |
| | 61 | Act. Amb. Temp Range | | | | | | | |
| SOLENOID VALVE | 62 | Manufacturer | | | | | | | |
| | 63 | Model | | | | | | | |
| | 64 | Type | | | | | | | |
| | 65 | When De-Energ.Valve: | | | | | | | |
| | 66 | Solenoid Tag | | | | | | | |
| SWITCHES | 67 | Manufacturer | Integral to Actuator | | | | | | |
| | 68 | Model | | | | | | | |
| | 69 | Type | Quantity | | SPDT | 1 | | | |
| | 70 | Contacts / Rating | 3 amps 120 VAC | | | | | | |
| | 71 | Switching Position | Proof of Closure | | | | | | |
| | 72 | Switch Tags | 001-ZSC-21-1010B | | | | | | |
| AIR SET | 73 | Manufacturer | | | | | | | |
| | 74 | Model | | | | | | | |
| | 75 | Set Press | Filter | Gauge | | | | | |
| TESTS | 76 | Hydro. Pressure | | | | | | | |
| | 77 | Allowable Leakage | | | | | | | |
| | 78 | Valve Testing | | | | | | | |
| PURCHASE | 79 | Manufacturer | Siemens | | | | | | |
| | 80 | Model | | | | | | | |
| | 81 | PO Number | FE-CPF-M011 | | | | | | |
| | 82 | Price | | | | | | | |
| | 83 | Valve CRN Number | | | | | | | |
| | 84 | | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
| | | |

Sheet ___ of ___

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010B-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XV -21-1010B** |
| | 2 | Service | | FROM 001-BM-21-1001 TO VENT | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision | INSTRUMENT SPECIFICATION<br>Pneumatic On/Off Valve<br>Code: 131 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| | | | | Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010B-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-XV -21-1010C | | |
| | 2 | Service | | | FG SPLY TO 001-H-21-1010 | | | | |
| | 3 | Line Number | | | 21-FG-A11-20093 | | | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | | |
| | 5 | Ambient Temperature Range | | | | | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | kPa-g | | 910 kPa-g | | |
| | 8 | Signal Failure Position | Air Failure Position | | | | | | |
| | 9 | Flange Face to Face | Actuator Clearance Height | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | 1/2 in STD | | | | |
| | 11 | Pipe Material | Pipe Insulation | | | | | | |
| PROCESS CONDITIONS | 12 | Required Open and Closing Times | | | Valve Fail Position | | | | |
| | 13 | Process Fluid | Upstream Condition | | Pilot Fuel Gas | | Gas/Vapor | | |
| | 14 | Max Differential Pressure At Shut Off | | | kPa | | | | |
| | 15 | Design Pressure | Design Temperature | | kPa-g | | ºC | | |
| | 16 | Critical Pressure | Critical Temperature | | kPa-a | | ºC | | |
| | 17 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow | |
| | 18 | Flow Rate | | | kg/h | | | | |
| | 19 | Inlet Pressure | | | kPa-g | | | | |
| | 20 | Pressure Drop | | | kPa | | | | |
| | 21 | Inlet Temperature | | | ºC | | | | |
| | 22 | Inlet Density / Specific Gravity / Molecular Mass | | | | | | Sizing | |
| | 23 | Inlet Compressibility Factor | | | — | | | | |
| | 24 | Inlet Viscosity | | | cP | | | | |
| | 25 | Inlet Specific Heat Ratio | | | — | | | | |
| | 26 | Inlet Vapour Pressure | | | | | | | |
| CALCULATED RESULTS | 27 | Flow Coefficient Cv | | | — | | | | |
| | 28 | Sound Pressure Level | | | dBA | | | | |
| BODY AND TRIM | 29 | Manufacturer | | | | | | | |
| | 30 | Model | | | | | | | |
| | 31 | Body Type | | | | | | | |
| | 32 | Body Size | Trim Size | | in | | | | |
| | 33 | Rated Cv | | | | | | | |
| | 34 | End Connec. & Rating | | | | | | | |
| | 35 | Body Material | | | Aluminum | | | | |
| | 36 | Bonnet Type | Material | | | | | | |
| | 37 | Uni or Bidirectional | | | | | | | |
| | 38 | Fire Safe Design | | | | | | | |
| | 39 | Guiding | No. of Ports | | 0 | | | | |
| | 40 | Trim Type | Rated Travel | | | | | | |
| | 41 | Plug/ Ball/ Disk Material | | | NBR | | | | |
| | 42 | Balanced / Unbalanced | | | | | | | |
| | 43 | Seat Material | | | | | | | |
| | 44 | Stem Material | | | | | | | |
| | 45 | Packing Type / Material | | | | | | | |
| | 46 | Valve Break Torque | | | | | | | |
| ACTUATOR | 47 | Manufacturer | | | | | | | |
| | 48 | Model | | | | | | | |
| | 49 | Type | | | | | | | |
| | 50 | Size | Area | | | | | | |
| | 51 | Handwheel Location | | | | | | | |
| | 52 | Max Rated Pressure | | | | | | | |
| | 53 | Action On Air Failure | | | | | | | |
| | 54 | Action On Signal Failure | | | | | | | |
| ACTUATOR | 55 | Valve Stroke Time | | | <1 sec | | | | |
| | 56 | Fire Proofing | | | | | | | |
| | 57 | Orientation | | | | | | | |
| | 58 | Pilot Valve | | | | | | | |
| | 59 | Visual Indicator | | | | | | | |
| | 60 | Speed Control | | | | | | | |
| | 61 | Act. Amb. Temp Range | | | | | | | |
| SOLENOID VALVE | 62 | Manufacturer | | | | | | | |
| | 63 | Model | | | | | | | |
| | 64 | Type | | | | | | | |
| | 65 | When De-Energ.Valve: | | | | | | | |
| | 66 | Solenoid Tag | | | | | | | |
| SWITCHES | 67 | Manufacturer | | | ASCO | | | | |
| | 68 | Model | | | K3A542U | | | | |
| | 69 | Type | Quantity | | 2 way | | | | |
| | 70 | Contacts / Rating | | | | | | | |
| | 71 | Switching Position | | | Fail Closed | | | | |
| | 72 | Switch Tags | | | | | | | |
| AIR SET | 73 | Manufacturer | | | | | | | |
| | 74 | Model | | | | | | | |
| | 75 | Set Press | Filter | Gauge | | | | | |
| TESTS | 76 | Hydro. Pressure | | | | | | | |
| | 77 | Allowable Leakage | | | | | | | |
| | 78 | Valve Testing | | | | | | | |
| PURCHASE | 79 | Manufacturer | | | ASCO | | | | |
| | 80 | Model | | | K3A542U | | | | |
| | 81 | PO Number | | | FE-CPF-M011 | | | | |
| | 82 | Price | | | | | | | |
| | 83 | Valve CRN Number | | | | | | | |
| | 84 | | | | | | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
|---|---|---|---|
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010C-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XV -21-1010C** |
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010C-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-XV -21-1010D | | |
| | 2 | Service | | | FG SPLY TO 001-H-21-1010 | | | | |
| | 3 | Line Number | | | 21-FG-A11-20093 | | | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | | |
| | 5 | Ambient Temperature Range | | | | | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | kPa-g | | kPa-g | | |
| | 8 | Signal Failure Position | Air Failure Position | | | | | | |
| | 9 | Flange Face to Face | Actuator Clearance Height | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | 1/2 in STD | | | | |
| | 11 | Pipe Material | Pipe Insulation | | | | | | |
| PROCESS CONDITIONS | 12 | Required Open and Closing Times | | | Valve Fail Position | | | | |
| | 13 | Process Fluid | Upstream Condition | | | | Liquid | | |
| | 14 | Max Differential Pressure At Shut Off | | | kPa | | | | |
| | 15 | Design Pressure | Design Temperature | | kPa-g | | ºC | | |
| | 16 | Critical Pressure | Critical Temperature | | kPa-a | | ºC | | |
| | 17 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow | |
| | 18 | Flow Rate | | | kg/h | | | | |
| | 19 | Inlet Pressure | | | kPa-g | | | | |
| | 20 | Pressure Drop | | | kPa | | | | |
| | 21 | Inlet Temperature | | | ºC | | | | |
| | 22 | Inlet Density / Specific Gravity / Molecular Mass | | | | | | Sizing | |
| | 23 | Inlet Compressibility Factor | | | — | | | | |
| | 24 | Inlet Viscosity | | | cP | | | | |
| | 25 | Inlet Specific Heat Ratio | | | — | | | | |
| | 26 | Inlet Vapour Pressure | | | kPa-a | | | | |
| CALCULATED RESULTS | 27 | Flow Coefficient Cv | | | — | | | | |
| | 28 | Sound Pressure Level | | | dBA | | | | |
| BODY AND TRIM | 29 | Manufacturer | | | ACTUATOR | 55 | Valve Stroke Time | <1 sec | |
| | 30 | Model | | | | 56 | Fire Proofing | | |
| | 31 | Body Type | | | | 57 | Orientation | | |
| | 32 | Body Size / Trim Size | in | | | 58 | Pilot Valve | | |
| | 33 | Rated Cv | | | | 59 | Visual Indicator | | |
| | 34 | End Connec. & Rating | | | | 60 | Speed Control | | |
| | 35 | Body Material | Aluminum | | | 61 | Act. Amb. Temp Range | | |
| | 36 | Bonnet Type / Material | | | SOLENOID VALVE | 62 | Manufacturer | | |
| | 37 | Uni or Bidirectional | | | | 63 | Model | | |
| | 38 | Fire Safe Design | | | | 64 | Type | | |
| | 39 | Guiding / No. of Ports | | 0 | | 65 | When De-Energ.Valve: | | |
| | 40 | Trim Type / Rated Travel | | | | 66 | Solenoid Tag | | |
| | 41 | Plug/ Ball/ Disk Material | NBR | | SWITCHES | 67 | Manufacturer | ASCO | |
| | 42 | Balanced / Unbalanced | | | | 68 | Model | K3A542U | |
| | 43 | Seat Material | | | | 69 | Type / Quantity | 2 way | |
| | 44 | Stem Material | | | | 70 | Contacts / Rating | | |
| | 45 | Packing Type / Material | | | | 71 | Switching Position | Fail Closed | |
| | 46 | Valve Break Torque | | | | 72 | Switch Tags | | |
| ACTUATOR | 47 | Manufacturer | | | AIR SET | 73 | Manufacturer | | |
| | 48 | Model | | | | 74 | Model | | |
| | 49 | Type | | | | 75 | Set Press / Filter / Gauge | | |
| | 50 | Size / Area | | | TESTS | 76 | Hydro. Pressure | | |
| | 51 | Handwheel Location | | | | 77 | Allowable Leakage | | |
| | 52 | Max Rated Pressure | | | | 78 | Valve Testing | | |
| | 53 | Action On Air Failure | | | PURCHASE | 79 | Manufacturer | ASCO | |
| | 54 | Action On Signal Failure | | | | 80 | Model | K3A542U | |
| | | | | | | 81 | PO Number | FE-CPF-M011 | |
| | | | | | | 82 | Price | | |
| | | | | | | 83 | Valve CRN Number | | |
| | | | | | | 84 | | | |

Notes: See Notes Page

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010D-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XV -21-1010D** |
| | 2 | Service | | FG SPLY TO 001-H-21-1010 | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
|---|---|---|
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Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010D-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| GENERAL | 1 | P&ID Number | Tag Number | | D-2013-8426-50F-002/003 | | 001-XV -21-1010E | | |
| | 2 | Service | | | FROM 001-H-21-1010 TO VENT | | | | |
| | 3 | Line Number | | | * | | | | |
| | 4 | Area Classification | Location | | CLASS 1 ZONE 2 IIA T3 | | FIELD | | |
| | 5 | Ambient Temperature Range | | | | | | | |
| | 6 | Allowable Sound Pressure Level dBA | | | | | | | |
| | 7 | Available Air Supply Pressure: | Min. | Max. | kPa-g | | kPa-g | | |
| | 8 | Signal Failure Position | Air Failure Position | | | | | | |
| | 9 | Flange Face to Face | Actuator Clearance Height | | | | | | |
| PIPE LINE | 10 | Line Size and Schedule | Inlet | Outlet | | | | | |
| | 11 | Pipe Material | Pipe Insulation | | | | | | |
| PROCESS CONDITIONS | 12 | Required Open and Closing Times | | | Valve Fail Position | | | | |
| | 13 | Process Fluid | Upstream Condition | | pilot fuel gas vent | | Gas/Vapor | | |
| | 14 | Max Differential Pressure At Shut Off | | | kPa | | | | |
| | 15 | Design Pressure | Design Temperature | | kPa-g | | ºC | | |
| | 16 | Critical Pressure | Critical Temperature | | kPa-a | | ºC | | |
| | 17 | | | | Units | @ Max Flow | @ Norm Flow | @ Min Flow | |
| | 18 | Flow Rate | | | kg/h | | | | |
| | 19 | Inlet Pressure | | | kPa-g | | | | |
| | 20 | Pressure Drop | | | kPa | | | | |
| | 21 | Inlet Temperature | | | ºC | | | | |
| | 22 | Inlet Density / Specific Gravity / Molecular Mass | | | | | | Sizing | |
| | 23 | Inlet Compressibility Factor | | | — | | | | |
| | 24 | Inlet Viscosity | | | cP | | | | |
| | 25 | Inlet Specific Heat Ratio | | | — | | | | |
| | 26 | Inlet Vapour Pressure | | | | | | | |
| CALCULATED RESULTS | 27 | Flow Coefficient Cv | | | — | | | | |
| | 28 | Sound Pressure Level | | | dBA | | | | |
| BODY AND TRIM | 29 | Manufacturer | | | ACTUATOR | 55 | Valve Stroke Time | <1 sec | |
| | 30 | Model | | | | 56 | Fire Proofing | | |
| | 31 | Body Type | | | | 57 | Orientation | | |
| | 32 | Body Size / Trim Size | in | | | 58 | Pilot Valve | | |
| | 33 | Rated Cv | | | | 59 | Visual Indicator | | |
| | 34 | End Connec. & Rating | | | | 60 | Speed Control | | |
| | 35 | Body Material | Aluminum | | | 61 | Act. Amb. Temp Range | | |
| | 36 | Bonnet Type / Material | | | SOLENOID VALVE | 62 | Manufacturer | ASCO | |
| | 37 | Uni or Bidirectional | | | | 63 | Model | 8214G023 | |
| | 38 | Fire Safe Design | | | | 64 | Type | 2 way | |
| | 39 | Guiding / No. of Ports | | 0 | | 65 | When De-Energ.Valve: | Fail Open | |
| | 40 | Trim Type / Rated Travel | | | | 66 | Solenoid Tag | | |
| | 41 | Plug/ Ball/ Disk Material | NBR | | SWITCHES | 67 | Manufacturer | | |
| | 42 | Balanced / Unbalanced | | | | 68 | Model | | |
| | 43 | Seat Material | | | | 69 | Type / Quantity | | |
| | 44 | Stem Material | | | | 70 | Contacts / Rating | | |
| | 45 | Packing Type / Material | | | | 71 | Switching Position | | |
| | 46 | Valve Break Torque | | | | 72 | Switch Tags | | |
| ACTUATOR | 47 | Manufacturer | | | AIR SET | 73 | Manufacturer | | |
| | 48 | Model | | | | 74 | Model | | |
| | 49 | Type | | | | 75 | Set Press / Filter / Gauge | | |
| | 50 | Size / Area | | | TESTS | 76 | Hydro. Pressure | | |
| | 51 | Handwheel Location | | | | 77 | Allowable Leakage | | |
| | 52 | Max Rated Pressure | | | | 78 | Valve Testing | | |
| | 53 | Action On Air Failure | | | PURCHASE | 79 | Manufacturer | ASCO | |
| | 54 | Action On Signal Failure | | | | 80 | Model | 8214G023 | |
| Notes: See Notes Page | | | | | | 81 | PO Number | FE-CPF-M011 | |
| | | | | | | 82 | Price | | |
| | | | | | | 83 | Valve CRN Number | | |
| | | | | | | 84 | | | |

| No. | By | Date | Revision |
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INSTRUMENT SPECIFICATION
Pneumatic On/Off Valve
Code: 131

| Instr. Chk | Process Chk | Appr. |
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| | | |

Sheet of

Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010E-01 Rev.:

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYSTEM / 001 - OIL BATTERY

| GENERAL | | | | | |
|---|---|---|---|---|---|
| | 1 | P&ID Number | Tag Number | D-2013-8426-50F-002/003 | **001-XV -21-1010E** |
| | 2 | Service | | FROM 001-H-21-1010 TO VENT | |

Notes:
1. REQ number is 407014-00120-00-IC-REQ-0003 (WP) / FE-CPF-J003 (Devon).
2. Valve selection and material testing requirement shall be in accordance with "GS-4500 - Instrument Design and Installation Specification", "GS-5300 - Valves and Valve Classes", "GS-5210 - Piping Class Specification", and "GS-5310 - Valve Technical Descriptions.
3. See Requisition Section III - Supplier Data Requirements for valve NDE and documentation requirements.
4. As a minimum valve wetted materials must comply to API Trim 8.
5. Globe valve body shall meet the minimum material requirements as per valve specification GS-5310, section LA0306A1 - Globe Valve; OS&Y; ASME Class 300; RF flanged; A216-WCB body; bolted bonnet w/ spiral wound gasket (graphite/SS); plug type swivel disc; API Trim 8; die-formed flexible graphite packing w/ anti-extrusion rings and corrosion inhibitor; A193-B7 / A194-2H body bolting; MDMT -29ºC, Max. = 400ºC; per ASME B16.34 and API 598 (API 600 as applicable).
6. Actuator shall be sized to provide, under minimum air supply conditions (550 kPa-g), the torque or thrust requirements to position and fully stroke the valve against maximum differential pressure stated on line 13.
7. All test documentation shall reference the full instrument tag number.
8. Hydrostatic testing to be performed as per ANSI / ISA 75.19.01 latest revision.
9. All valve & accessories shall be supplied with a permanent SS label stating the full tag number & all other pertinent information.
10. Valve actuator, positioner & accessories shall be certified for use in -40°C ambient temperature conditions.
11. Line 28 Sound Pressure Level will be <85 dBA for all process sizing conditions.

| No. | By | Date | Revision | INSTRUMENT SPECIFICATION<br>Pneumatic On/Off Valve<br>Code: 131 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Instr. Chk | Process Chk | Appr. | Sheet of |
| | | | | Dwg. No.: FER-001.1102039085-J-DSH-XV-21-1010E-01 | | | Rev.: |

Project: CONVENTIONAL RED DEER / FERRIER - 11-02 GATHERING SYST / 001 - OIL BATTERY