



|  WorleyParsons resources & energy | | FLOW TRANSMITTER | | | | SHT 1 OF 2 | | |
|------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------|---------------------------------------------|--------------------|----------------------|----------------------------------------------------|--|--|
| | | NO | BY | DATE | REVISION | DATASHEET No. | | |
| | | 00 | TR | 6-May-10 | Issued for Quotation | 25472-101-JFD-JF00-W0001 | | |
| PROJECT: Keystone XL Pipeline Canadian Pump Stations INSTRUMENT DATA SHEET | | 01 | TR | 29-Jul-10 | Issued for Purchase | JOB NUMBER: 08E4490 | | |
| | | | | | | REQUISITION No. 25472-101-MRA-JF00-W0001 | | |
| | | | | | | P.O. No. 25472-101-MRA-JF00-W0001 | | |
| | | BY | CHKD | APPR. | | | | |
| | | TR | AM | DG | | | | |
| GENERAL | 1 | Tag Number | See Attached List | | | | | |
| | 2 | Service | Mainline Pump Seal Leak Detection | | | | | |
| | 3 | P & ID Number | See Attached List | | | | | |
| | 4 | Line Number / Vessel Number | See Attached List | | | | | |
| | 5 | Pipeline/Schedule/Insulation | 1 1/2" Pipe / XS A333 Gr.6 SMLS / 11 1/2" E | | | | | |
| | 6 | Application | Flow | | | | | |
| PROCESS CONDITIONS | 7 | Fluid | Diluent Bitumen/Synthetic Crude | | | | | |
| | 8 | Unit | Mln | Max | | | | |
| | 9 | Pressure | kPag | 0 | 1900 | | | |
| | 10 | Temperature | °C | 0 | 70 | | | |
| | 11 | Specific Gravity | | 0.815 | 0.953 | | | |
| | 12 | Viscosity | cSt | 2 | 350 | | | |
| | 13 | Flow | ml / s | 0 | <30 | | | |
| | 14 | Velocity | m/s | 0 | 0.023 | | | |
| | 15 | Thermal Conductivity | W/mK | | | | | |
| | 16 | Clean or Dirty | Clean | | | | | |
| | 17 | % Solids | < 0.5% of Solid & Water | | | | | |
| | TRANSMITTER | 21 | Type | Thermal Dispersion | | | | |
| 22 | | Transmitter Output | 4-20mA | | | | | |
| 23 | | Power Supply | 24V DC | | | | | |
| 24 | | Housing Material | Copper free Aluminum | | | | | |
| 25 | | Agency Approval | CSA | | | | | |
| 26 | | Accuracy | ± 1% of set point velocity | | | | | |
| 27 | | Repeatability | ± 0.5% of reading | | | | | |
| 28 | | Flow Velocity | 0.003 to 1.5 m/s | | | | | |
| 29 | | Calibration range | 0.125 to 80 ml/s | | | | | |
| 30 | | Switch Point range | | | | | | |
| 31 | | Electrical Area Classification | Class I, Zone II, Group IIA | | | | | |
| 32 | | Enclosure Type | NEMA 4X | | | | | |
| 33 | | Electrical Connection | 1" NPT | | | | | |
| 34 | | Electrical Secondary Seal | Single Seal Approval | | | | | |
| PROBE | 35 | Type | Thermal Dispersion | | | | | |
| | 36 | Wetted Parts Material | 316L SS | | | | | |
| | 37 | Temperature Range | -55°C to 200°C | | | | | |
| | 38 | Pressure Range | 24 MPa @ 21°C | | | | | |
| | 39 | Thermal Conductivity | | | | | | |
| | 40 | Process Connection Size | 11/2" MNPT (Note 3) | | | | | |
| | 41 | Response Rate | 0.5 to 30 sec | | | | | |
| | 42 | Insertion Length | 1.75" | | | | | |
| SWITCHES | 43 | Type | SDPT | | | | | |
| | 44 | No. of Switches | 2 | | | | | |
| | 45 | Output Rating | 5 Amps @ 24V DC Max | | | | | |
| | 46 | | | | | | | |
| | 47 | | | | | | | |
| | 48 | | | | | | | |
| PURCHASE | 50 | Manufacturer | Kayden | | | | | |
| | 51 | Model Number | 810-RAG-00175-C1G0A1E | | | | | |
| | 52 | CRN Number | 0F09437.215 | | | | | |


25472-101-V1A-JF00-W0007
Supplier Document Status
CODE: 1
Code 1 = Work may proceed.
Code 1a = Work may proceed, submit certified print.
Code 2 = Review and resubmit. Work may proceed subject to resolution of indicated comments.
Code 3 = Review and resubmit. Work may not proceed.
Code 4 = Review not required. Work may proceed.
Permission to proceed does not constitute acceptance of approval of design details, calculations, analyses, test methods, or materials developed or selected by the Supplier and does not relieve the Supplier from full compliance with contractual obligations.
Responsible Engineer - **Moghadam Atokch**
Date Issued - **11/18/2010**
Supplier Requirement Category -
Equipment No. **121 HRDBP-B2-FT 1025**

Notes:

- Supply 316SS Tag, nameplate containing tag number, model/serial number, body ratings, operating conditions/limitations.
- Ambient Temperature is -40 °C to 40 °C (-40 °F to 104 °F).
- Flow Transmitter is mounted vertically and top mounted on threaded 11/2" Tee.

KEYSTONE XL OIL PIPELINE
PO:25472-101-POA-JF00-W0001

[illegible]