**Canadian Natural Resources Limited**
**GENERAL PRESSURE VESSEL INFORMATION** **Job # 05.002851**

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| District: **Ft St John, B.C.** | Skid No. |
| Facility: **Ladyfern Compressor Station** | Location (LSD): **10 – 19 – 94 – 12 – W6M** |
| Vessel Name & Equipment Number: **Inlet Line Heater (Fuel Gas)** | |
| Orientation: **Horizontal** | |
| Status: **Operating** | **Regulatory Inspection** |

**PRESSURE VESSEL NAMEPLATE DATA**

| | | | |
|---|---|---|---|
| Registration Number **C 23341** | | CRN Number P 3215.21 | |
| Vessel serial number: 0021676 | | Size: 36 in. OD x 12 ft | |
| Shell thickness: 9.5 mm | | Shell material: SA 36 | |
| Head thickness: 9.5 mm | | Head material: SA 36 | |
| Tube wall thickness: | | Tube material: | |
| Tube diameter: | | Tube length: | |
| Channel thickness: | | Channel material: | |
| Design pressure | 1st Pass: 5625 PSI | Operating pressure | Shell: |
| | 2nd Pass: 2025 PSI | | Tubes: |
| Design Temp. | 1st Pass: 200 deg F | Operating temperature | Shell: |
| | 2nd Pass: 200 deg F | | Tubes: |
| X-ray: RT 1 | | Heat treatment: HT | |
| Code parameters: ASME B 31.3 | | Coated: No | |
| Manufacturer: Wells Hall Fab | | Year built: 2001 | |
| Corrosion allowance: 1.6 mm | | Manway: No | |

**PRESSURE SAFETY VALVE NAMEPLATE DATA**

| **PSV Tag no.** | Manufacture | Model | Serial number | Set Pressure | Capacity | Size |
|---|---|---|---|---|---|---|
| No PSV on Line Heater | | | | | | |
| **Service By** | Date | Block Valve | CRN number | Code Stamp | Location | |
| | | | | | | |

**SERVICE CONDTIONS-INDICATE ALL THAT APPLY**

| | | | | |
|---|---|---|---|---|
| Sweet X | Sour | Oil | Gas X | Water X |
| Amine | LPG | Condensate X | Air | Glycol |
| Other (Describe): | | | | |

**Inspection Interval _____PSV Service Interval_____**
**(**Determined by MIC in conjunction with Chief Inspector following guidelines of CNRL's Owner-User Inspection Program)

Reports reviewed and accepted by:
**Mechanical Integrity Coordinator_____Date_____**

**Fill out all forms as completely as possible. <u>All information</u> is important! Use back of sheets to record additional information or sketch if required.**
**Copy of report to be filed by MIC at site, and copy sent to Chief Inspector**

| External Inspection Items | G | F | P | N/A | Comments |
|---|---|---|---|---|---|
| **Insulation:** Verify sealed around man ways, nozzles, no damage present, and there is no egress of moisture. | | | | X | Line heater is not insulated. |
| **External Condition:** Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage) | | X | | | Paint is in fair condition over all – some chips on shell.<br>Glycol expansion vessel on top of heater is missing a substantial amount of paint and has general surface corrosion to same area. |
| **Leakage:** Record any leakage at flanges, threaded joints, weep holes on repads, etc. | X | | | | No leaks detected. |
| **Skirt:** Assess condition of paint, fire protection, concrete. Look for corrosion, buckling, dents, etc. Look at vessel surface area near supports. Verify no signs of leakage at attachment to vessel and attachment welds are acceptable. Ground wire attached? | X | | | | Saddles – good condition, no distortion – no leaks at saddle to shell welds.<br>Paint is in good condition – no corrosion.<br>Skid Package is grounded. |
| **Anchor Bolts:** Hammer tap to ensure secure. Look for cracking in treads or signs of deformation. | X | | | | Firmly welded to skid deck. |
| **Concrete foundation:** Check for cracks, spalling, etc. | | | | X | |
| **Ladder / Platform:** Describe general condition, ensure support is secure to vessel, describe any hazards. | | | | X | |
| **Nozzle:** Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted? | X | | | | Threaded fittings - fully engaged.<br>Bolted fittings fully engaged to nuts.<br>No deflection of nozzles.<br>No gussets. |
| **Gauges:** Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp. | X | | | | Pressure gauge: No pressure gauge.<br>Temperature gauge: 0 to 250 deg F.<br>Within operational parameters for service. |
| **External Piping:** Ensure pipe is well supported. All clamps, supports, shoes, etc. in place. Look for evidence of structural overload, deflection, etc. Paint condition, external corrosion? | X | | | | Piping is not well supported – threaded into heater and lays on ground. Accumulator discharge is not supported and does not discharge to pop tank but to atmosphere.<br>Inlet piping is not insulated and has a large amount of ice built up on it – should be insulated.<br>Glycol inlet pump is not supported and is lying on ground. |
| **Valving:** Ensure no leaks are visible. Valves are properly supported and chained if necessary. | X | | | | Well supported, no leaks. |
| **PSV:** Ensure PSV is set at pressure at or below that of vessel. | | | | X | No PSV on this line heater – protection is from ESD on inlet. |
| **NDE methods:** Was UT/ MPI done on vessel (MI coordinator to review results) | X | | | | Ultrasonic thickness survey carried out – no metal thickness detected below nominal minus corrosion allowance. |

**Recommendations or corrective actions : Vessel is Fit for Service or describe corrective actions required)**
**(**MIC to review corrective actions with Operations, discuss with Chief Inspector where necessary, and get remedial action implemented)
**Recommendations:** 1. Insulate inlet piping. 2. Support glycol pump. 3. Shorten vertical legs to and from heater and install supports to raise piping up off ground. 4. Clean up and paint accumulator.
**Summary:** This line heater is in good condition, visual external and ultrasonic corrosion survey carried out – no metal thickness detected below nominal minus corrosion allowance.
**Line heater is fit for service.**

**Inspected By:** D. Wiedman **Date**: Jan 22 – 2009

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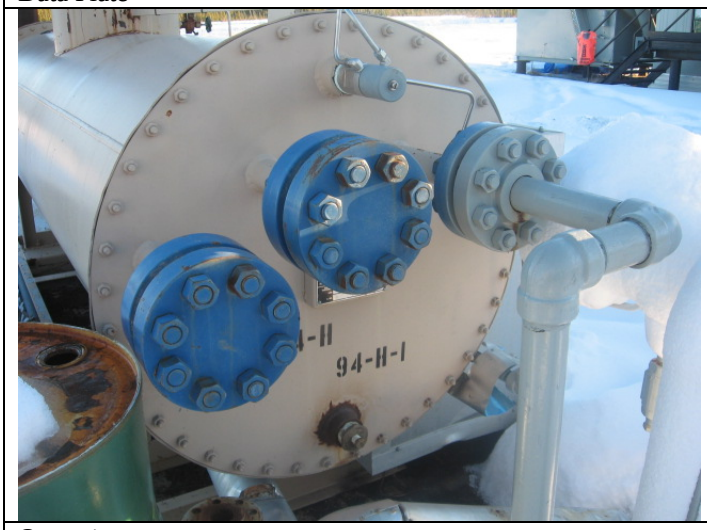
| Data Plate | Over view |
|  |  |
| Over view | Inlet piping frozen up. |
|  | |
| Accumulator – missing paint | |