

Field Inspection Report - Long_Run 3162189_11/08/2013_VT_Internal

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|-------------------------------------|---------------|-------------------------------------|-------------------|-------------------------------------|------------|
| Vessel Number | 3162189 | Vessel Name | PROPANE SUBCOOLER | Province | Alberta |
| District | NORTHERN - AB | LSD | 03-26-074-01W6 | Location | PUSKWASKAU |
| Method | VT | Access | Internal | Cleaning | Good |
| Inspection Date (mm/dd/yyyy) | 11/08/2013 | Inspection Interval (months) | 60 | Next Inspection (mm/dd/yyyy) | 11/08/2018 |
| CRN | N1346.2 | Skid Number | PKG62777 | Service | |
| Internal Access | No | Internal Coating | No | Status | In Service |
| MAWP (PSI) | 250.05 | MAWP (kPa) | 1724 | Outstanding NCRs | 0 |
| MAWT (°C) | 66.11 | MAWT (°F) | 151 | | |
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General

The vessel was blinded, opened and cleaned for internal inspection as part of the 2013 T/A. Exchanger is a single pass exchanger with integral heads. Exchanger is near the roof and is painted, insulated and clad.
 Clean Harbors cleaned tubes with a 15K lance.
 Ultrasonic corrosion survey was completed on this piece of pressure equipment and associated piping in 2013 with no notable wall loss recorded.
 All vessel thickness readings were found to be above ASME Section VIII, Div. 1 code requirements at time of inspection.

PSV protecting the vessel was serviced during this T/A.

See attached pictures.

Safety Valves

PSV P99578 Tube side. Set pressure: 1320 PSI / 9101.14 KPa. MAWP: 1320.01 PSI / 9101 KPa. Capacity: 21007 SCFM / 594.85 m3/min.

PSV P99587 Shell side. Set pressure: 250 PSI / 1723.7 KPa. MAWP: 250.05 PSI / 1724 KPa. Capacity: 15079 SCFM / 426.99 m3/min.

External Condition

All visible shell surfaces and nozzles appear in good condition. Name plate is intact and legible. Vessel supports, foundation and electrical grounding appear good. The external coating, insulation and cladding appears to be in good condition. Associated piping, supports and components appear in good condition and

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alignment with no signs of leaks or defects present at the time of inspection. Exchanger is supported on 2 saddles that are both tight not allowing thermal expansion. No evidence of short studding or nut rounding at time of inspection.

PSVs have been verified, but are out for service at time of inspection. Verify vessel has Alberta CRN and A# stamping, PSV has correct code stamp, set pressure and MWS tagging, and was last serviced within the required interval guidelines.

Assign inspection interval.

Internal Condition

This is a fixed tubesheet exchanger with integral channel heads and dollar plate closures.

Clean Harbors cleaned tubes with a 15K lance.

Shells:

Internal inspection cannot be done on shells due to design of exchangers. Only integral heads, tubes, tubesheets and dollar plates could be washed and cleaned.

22 - 3/4" tubes were cleaned with a 15K lance followed with hydro blasting of the tubesheets, heads and dollar plates.

Integral heads (East & West):

Tubes protrude through tube sheet by 1/8", and show no signs of any corrosion, erosion or mechanical damage. The tube sheet is in excellent condition as well as the shell of the integral head. Dollar plate have no damage noted. All circs and Cat. D welds appear in good order. The nozzles are clear. Gasket faces in good condition.

Recommendations

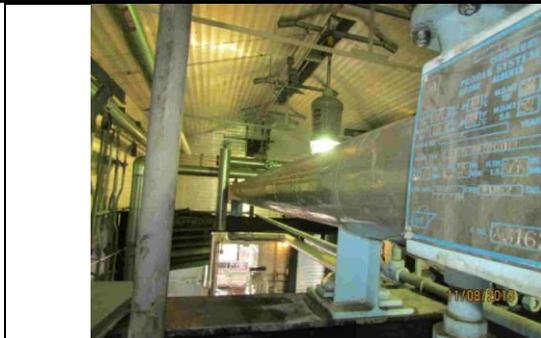
- Internally inspect again in 5 years.

The above recommendations have been reviewed with operations prior to closure.

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| Suitable to be returned to Service | Yes | Suggested Inspection interval (Months) | 60 |
| Repairs are still required | No | | |
| Daryl Cole Cert 000391 Inspector | | | 11/12/2013 Date (mm/dd/yyyy) |
| | | Signature | |

Pictures

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LRE - 3162189 SUB COOLER EXT. 11-08-13.JPG



LRE - 3162189 SUB COOLER INT WEST 11-08-13 (2).JPG



LRE - 3162189 SUB COOLER INT. EAST 11-08-13 (1).JPG



LRE - 3162189 SUB COOLER INT. EAST 11-08-13 (3).JPG