

FINAL PRODUCT TEST INSPECTION REPORT

1. Applicant Fort Vale Engineering Ltd AAR No. PRD139511
 Address Calder Vale Business park, Simonstone Lane, Simonstone, UK, BB12 7ND AAR Docket No. _____
 2. Manufacturer Fort Vale Engineering Ltd AAR Service Trial No. ST-444
 Address Calder Vale Business park, Simonstone Lane, Simonstone, UK, BB12 7ND Date 12/1/2017

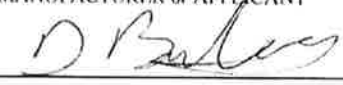

3. Description of device 65mm Flanged Pressure Relief Valve
 4. Device designation or model no. OR3/XXXX006R, OR4/XXXX006T, 0U3/XXXX006R
 5. Total number of devices in service 25 6. Number of devices for inspection 5
 7. Service data for service equipment under this inspection
 Total load/unload cycles and average 12.8 Total loaded mileage and average 10690
 Total service time and average 2 years 9 months


8. Teardown data	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
From car number	TILX 257107	TILX 257109	TILX 257116	TILX 257117	TILX 257129
Last lading	Asphalt	Gas Oil	Carbon black oil	Asphalt	Gas Oil
Model number	OR3/B1650006T	OR3/B1650006T	OR3/B1650006T	OR3/B1650006T	OR3/B1650006R
Serial number	14010195	14010198	14010177	14010187	14010113
Test Pressure, psi (kPa)	192	175	190	187	183
Test temperature, °F (°C)	74°F (23°C)	74°F (23°C)	74°F (23°C)	74°F (23°C)	74°F (23°C)
Test medium	Air	Air	Air	Air	Air
STD psi, (kPa)	181,179,178	171,168,169	185,183,181	183,181,179	174,176,172
Vapor tight, psi (kPa)	160,156,161	159,159,159	153,159,156	166,171,172	165,163,161
Test remarks	Set Pressure High	Set Pressure High	Set Pressure High	Set Pressure High	Set Pressure High
Physical condition	As Received	As Received	As Received	As Received	As Received
Compare critical final dimensions to original	In tolerance	In tolerance	In tolerance	In tolerance	In tolerance
9. Drawing numbers					
(ref Form AAR 4-3 or AAR 4-5)					
Revisions made					
Revision date					
	see attached				
	see attached				

10 Conclusions Valve set pressure on average 8% higher than set pressure, seals have slight swell and compression set
2 valves rebuilt with new seals and adjusted to identical position as original valve and retested results within required specification

Recommendations to Tank Car Committee As noted above, the o-rings were replaced on two (2) PRDs and the valves were reassembled to the original set position and the retests of these PRDs noted the STD. (Min - Max) and the VT required settings were met. This Inspector would recommend approving this PRD.

12 CERTIFICATION
 The above data is correct and complies with the AAR Specifications for Tank Cars, Appendix A. Devices tested conform to the drawings listed above.

MANUFACTURER or APPLICANT  (Signature) Title <u>Design and Development Director</u> Company <u>Fort Vale Engineering Ltd</u>	INDEPENDENT OBSERVER / QA MANAGER  (Signature) Title <u>BOE CHIEF INSPECTOR</u> Company <u>AAR / BUREAU of EXPLOSIVES</u>
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13 APPROVAL AAR Tank Car Committee service trial complete
 Date approved 7/26/2017 
 (Signature) on behalf of Tank Car Committee