

CMC No: 13.5S

DNV GL Job No:
A0334533

DNV GL UK LTD
SURVEILLANCE VISIT REPORT
General.



Client: Drilltools Ltd	Client Certification Ref: N/A
Vendor / Location: Drilltools Ltd, Meikle Wartle	Project Number: N/A

SCOPE

Witness Verification testing of Drilltools DT Surface Flapper Safety Valve as per Testing Procedure M-0101-7000 Rev.A

DISCIPLINE	Y	N	TASK	Y	N
Mechanical	Y		Visual Survey	Y	
Electrical		N	Document Review		N
Structural		N	Pressure Test	Y	
Other (Specify Below)	N/A		Function Test	Y	
			Load Test		N
			Other (Specify Below)	N/A	

DESCRIPTION

Witness Verification testing of Drilltools DT Surface Flapper Safety Valve S/No DT SFSV -001 as per Testing Procedure M-0101-7000 Rev.A (As described in API Specification 7NRV)

Equipment used

DeWitt Chart Recorder S/No: 09-02769.1-09 Range 0 - 30,000psi Calibrated 25/07/16

Data Logger c/w 0- 2000 bar Hydrotechnik Pressure Transducer S/No: Z150141428 Calibrated 31/07/16

Marsh Funnel Viscometer as described in API RP13 B1

Flowmeter, Wafer Type 0- 6000 l/min range. S/No 16205327 Calibrated 25/07/16

Activities Witnessed 05/09/16

Procedure Sections

6.a to 6.i Body Hydrostatic Proof Test. Body tested to 250 psi for 5 minutes then 22,500 psi for 5 & 15 minutes. No visible leakage was observed and a steady chart was noted.

6.j to 6.o Valve Seat Hydrostatic Test. The valve was pressurised below the flapper to 250 psi for 5 minutes then 15,000 psi and held for a period of 5 minutes then 2 further hold periods of 15 minutes. No visible leakage was observed and a steady chart was noted.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of DNV GL UK LTD then DNV GL UK LTD shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "DNV GL UK LTD" shall mean the Foundation DNV GL UK LTD as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of DNV GL UK LTD.

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- 6.p to 6.s** Valve Seat Gas Test. The valve was pressurised to 250 psi for 5 minutes then 4,500 psi below the flapper and held for a period of 10 minutes. No visible leakage was observed and a steady chart was noted.
- 6.t to 6.v** Valve Seat Hydrostatic Test (Secondary). The valve was pressurised to 15,000 psi .below the flapper and held for a period 10 minutes.No visible leakage was observed and a steady chart was noted.

Other activities witnessed while on site.

The flow media viscosity was measured prior to commencement of flow loop testing. The testing involved the use of a Marsh Funnel Viscometer as described in API RP13 B1. The measured funnel /volume test was recorded at 75 seconds.

The sand content of the flow media was checked using sample flasks and centrifuge in accordance with API MPMS. The sand content was measured at 2.5%

Activities Witnessed /Reviewed13/09/16

Procedure Sections

6.w to 6.cc NRV Cycle Test & Erosion Test

At the time of the survey the valve was installed in the flow loop which had been running for approximately 160 hours. The flow rate was monitored during the visit and was found to be between 1570-1600 litres per minute.

The test media viscosity was measure using a Marsh Funnel Viscometer as described in API RP13 B1. The measured funnel /volume test was recorded at 71 seconds. During the 200 hour test the test media was subject to evaporation and water was added periodically to keep the volume constant and retaining the sand content at the original level of 2.5% volume.

Activities Witnessed 15/09/16

- 6.dd to 6.fff** Valve Seat Hydrostatic. The valve was pressurised to 15,000 psi .below the flapper and held for a period 10 minutes.No visible leakage was observed and a steady chart was noted.
- 6.gg to 6.jj** Valve Seat Gas Test. The valve was pressurised below the flapper to 250 psi for 10 minutes then 4,100 psi and held for a period of 10 minutes. Minor bubble leakage noted on 250 psi test no visible leakage was observed on 4,100 psi test and a steady chart was noted
- 6.kk to 6.mm** Valve Seat Hydrostatic Test(Secondary). The valve was pressurised to 15,000 psi .below the flapper and held for a period 10 minutes.No visible leakage was observed and a steady chart was noted.
- 6.nn to 6.oo** Valve Drift Test. The valve was removed from the fixture and the test caps removed. The drift S/No: Drift-001 was passed through the valve unrestricted.

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CONCLUSIONS

All activities witnessed and found to be in accordance with Testing Procedure M-0101-7000 Rev.A

Surveyor: Raymond Hay

Date: 16th September 2016

Place: Drilltools, Meikle Wartle



For DNV GL UK LTD

This document has been digitally signed and will
therefore not have handwritten signatures

Raymond Hay
Surveyor