

PRESSURE VESSEL & COLUMN INSPECTION REPORT

LSD: 11-24-50-20W5

Date: Jul 28, 2017

SAP Equipment ID: 66113422

VESSEL STATIC DATA									
Plant Wellsite				Op Unit Ansell			System		
Prov. Insp. # A0568928				CRN P7217.2			Equip Tag #		
Equipment Description 3 Phase Separator							Serial # 10777		
Manufacturer RJV							Vessel Class		
Internal Access: Description:							Year Built 2006		
MAWP 1480		PSI		@ 100		°F		MDMT -20 °F	
CODE :				RT : 2			PWHT : No		
Diameter		Length (T/T)		mm		OAL		mm	
Shell Mat'l		SA-106B		Thickness		21.44		mm	
Head Mat'l		SA-516-70		Thickness		20.63		mm	
Nozzle Mat'l				Thickness		mm / in		mm	
Internal Coating: NO				Internal Clad : NO				Capacity m ³	
Manway : NO				Inspection Port : NO				Skirt	
Nozzle Rating		lb ANSI		Painted : YES		Insulated		NO	
PROCESS DATA									
Product Description									
Operating Pressure				kPa		Operating Temperature °C			
PSV STATIC DATA									
Serial No.	Location	Set Pressure	Capacity SCFM	Manufacturer	Model / Type	Service Date / Company			
30398-569	Shell	1440PSI	5180	Taylor	82E8351311	April 2012/ Wizard Valve			
PSV DETAILS									
	Type (Thread/Flange)			ANSI Rating			Size (inches)		
PRD Inlet	Threaded						1		
PRD Outlet	Threaded						1		
NDE Equipment Records									
Procedure#	Description	Manufacturer	Model#	Serial#	Due Date				

INSPECTION SUMMARY

A visual external inspection was performed on the vessel and a summary of what was found follows. Data plate secure and legible. Vessel and piping in good condition. PSV last serviced in 2012. Vessel skirt secure to base. Outlet loop piping secure to stand. All vents, drains, and nozzles plugged. Coating failures on inlet piping and flange. Water in skirt and condensation on vessel shell and piping in shack.

RECOMMENDATIONS

None noted

NONCONFORMANCES / INSPECTION DEFICIENCIES

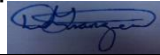
None noted

INSPECTION PLANNING

Inspection Strategy	Availability	Inspection Interval
Inspection Date	Date of Last Inspect	Date of Next Inspect

REPORT CERTIFICATION

The signatures below certify that inspections/tests have been completed in accordance with the identified inspection strategy and that the specified equipment is considered fit for service until the date of next inspection.

Inspected by	Donavon Granger		Date	Jul 28, 2017
Company	Streamline Inspection Ltd	PESL #	000752	API # 48529
Reviewed and Approved by			Date	
		PESL #		API #
Criticality Assessment Rerun	Inspection Planning Rerun			

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SAP Equipment ID:

Assessed Next Inspection Date

PRESSURE VESSEL & COLUMN INSPECTION REPORT

LSD: 11-24-50-20W5

Date: Jul 28, 2017

SAP Equipment ID:

DETAILED INSPECTION VISUAL EXTERNAL

ID	Description	Condition	Location	NCR	Comments
V1	General Other (Please Explain)				
V2	General Corrosion	Good			Minor scaling noted Condensation on vessel and piping
V3	General Leaks	Acceptable			No active leaks present
V4	Vibration	N/A			
V5	Dissimilar Flange Rating	Acceptable			None noted
V6	Ladder/Stairway	N/A			
V7	Heads	Acceptable			No concerns noted
V8	Guy Wires	N/A			
V9	Electrical Ground	Acceptable			Securely grounded
V10	Painted Inactive Corrosion	Acceptable			
V11	Coating/Painting	Good			Failures on shell
V12	Expansion Joint or Bellows	N/A			
V13	Gauge/Site Glass	Acceptable			No leaks or damage noted
V14	Shell	Acceptable			No concerns noted
V15	Jacket	N/A			
V21	Support Other (Please explain)	N/A			
V22	Foundation	Acceptable			No concerns noted
V23	Anchor Bolts	N/A			
V24	Saddle/Skirt	Acceptable			Securely in place
V25	Davit	N/A			
V26	Fireproofing	N/A			
V31	Connections Other (Please explain)	N/A			
V32	Small Branches	Acceptable			No significant sign of strain or concerns Well supported
V33	Nozzles	Acceptable			No stresses, corrosion or misalignment
V34	Manways	N/A			
V35	Reinforcing Pads	N/A			
V36	Inadequate Thread Engagement	Acceptable			No concerns noted
V37	Bolting	Acceptable			Intact with no missing bolts or short bolting
V38	Flanges	Acceptable			No active leaks
V39	Leak Clamps	N/A			
V41	Insulation Other (Please explain)	N/A			
V42	Damage	N/A			
V43	Penetrations	N/A			
V44	Insulation Jacket	N/A			
V45	Banding	N/A			
V46	Seals/Joints	Acceptable			No concerns
V51	Relief Devices Other (Please explain)	Acceptable			Serviced and seal intact
V52	Corrosion	Acceptable			None noted
V53	Leaks	Acceptable			None noted
V54	Restricted Inlet/Outlet	Acceptable			None noted
V55	Manual Operation Lever	Acceptable			

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DETAILED INSPECTION VISUAL INTERNAL

ID	Description	Condition	Location	NCR	Comments
V1	General Other (Please Explain)				
V2	Corrosion (depth, length, width)				
V3	Erosion				
V4	Distortion				
V5	Blisters				
V6	Deposits				
V7	Heads				
V8	Welds				
V9	Nozzles				
V10	Shell				
V11	Gasket Surfaces				
V21	Internals Other (Please explain)				
V22	Demister				
V23	Baffle/Wier				
V24	Sparger				
V25	Thermowells				
V26	Metallic Linings				
V27	Nonmetallic Linings				
V28	Trays				
V29	Tray Rings				
V30	Other Welded Attachments				

DETAILED INSPECTION OTHER TECHNIQUES

ID	Location	Observation/Measurement	Acceptance Criteria	NCR	Comments
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

DETAILED INSPECTION UT THICKNESS

CML	Nom. Thk	Current Reading	Short Term Corr Rate	Long Term Corr Rate	Remaining Life	Comments

PRESSURE VESSEL & COLUMN INSPECTION REPORT

LSD: 11-24-50-20W5

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PHOTOS



LSD Sign



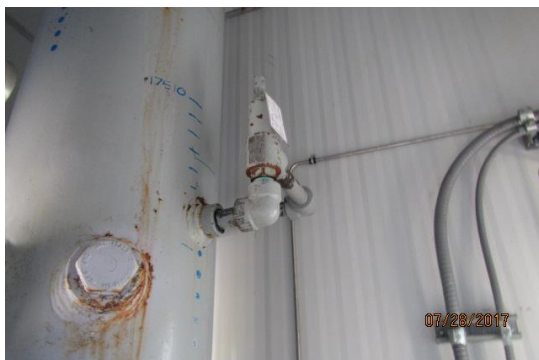
Vessel Overview



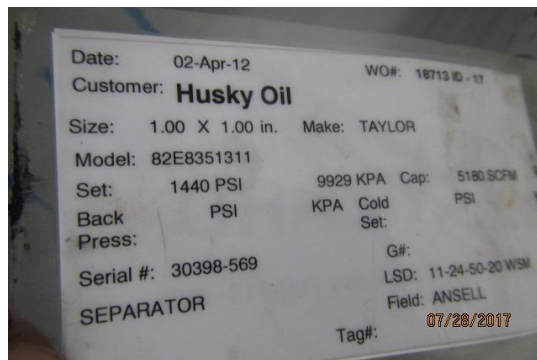
Data Plate



Top Head



PSV



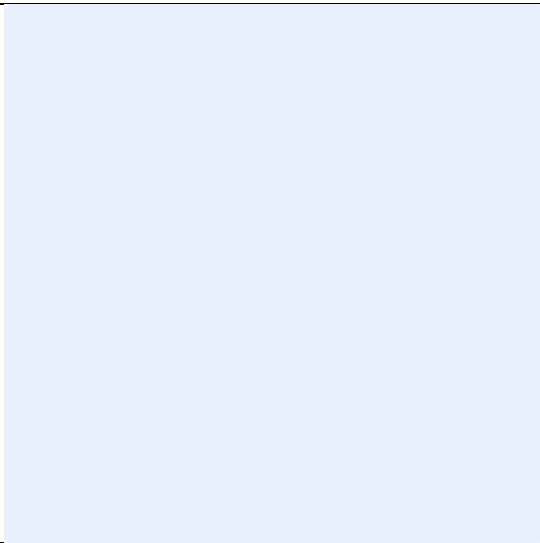
PSV Service Tag

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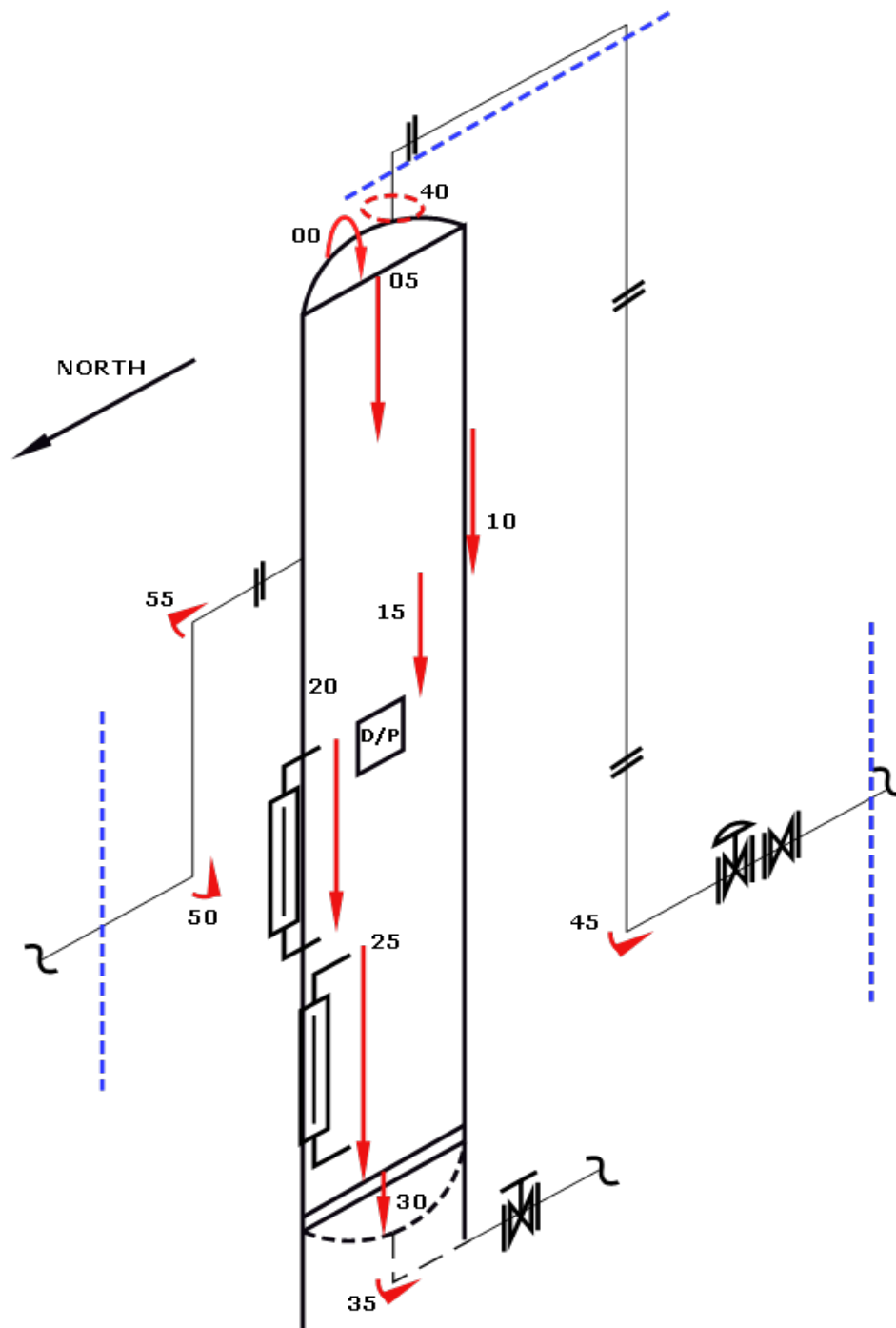
 A close-up photograph of a white service tag attached to a pressure safety valve. The tag has the word 'SEPARATOR' at the top, followed by '11-24-50-20 W5M', 'WIZARD' in large bold letters, and 'Valve Services 780-712-40' at the bottom. A date stamp '07/28/2017' is visible in the bottom right corner of the tag.	 A photograph showing the interior of a large, cylindrical metal vessel. The metal surface is heavily corroded and rusted. A white rod or pipe is visible running horizontally across the frame. A date stamp '07/28/2017' is visible in the bottom right corner.
 A photograph of industrial piping. A white pipe with a flange and bolted connection is visible. A date stamp '07/28/2017' is visible in the bottom right corner.	 A photograph of a white cylindrical shell with a circular access point or manhole. The area around the access point shows significant rust and corrosion. A date stamp '07/28/2017' is visible in the bottom right corner.
 A photograph showing a complex arrangement of industrial piping, valves, and instruments. A date stamp '07/28/2017' is visible in the bottom right corner.	 A large, solid light blue rectangular area, likely a placeholder for a photograph or diagram.



Location Name:	MINEHEAD	LSD:	11-24-50-20W5
Jur #:	A0568928	Equipment/Tag No.	
Equipment Description:	SEPARATOR		
Manufacturer:	RJV GASFIELD SERVICES		
Serial Number:	10777	CRN:	P7217.2
Shell MAWP:	1480	PSI	Shell Design Temp: 100 °F
Tube MAWP:		PSI	Tube Design Temp: °F
Shell Material:	SA-106-B	Head Material:	SA-516-70
Shell Thickness:	21.44	mm	Head Thickness: 20.63 mm
Corrosion Allowance:	1.6	mm	Date Built: 2006
Size:	406.4	in	Pipe / Rolled Plate: PIPE
RT:	2		

NOTES:









Ultrasonic Corrosion Survey

*All values are in millimeters unless otherwise stated.

Survey Name: Husky Energy

Date: Jul 28, 2017

Inspector: D. Skeard

LSD: 11-24-50-20W5	Area: MINEHEAD	Location: FIELD
Jur #: A0568928	Tag Number:	Vessel Name: SEPARATOR
CRN: P7217.2	Year Built: 2006	Serial Number: 10777
RT: 2	Vessel CA: 1.6 mm	Manufacturer: RJV GASFIELD SERVICES
	Shell MAWP: 1480 PSI	Tube MAWP: PSI
	MAWTF: 100 °F	MAWTF: °F
		Pipe/Plate PIPE
TML Description	Baseline	Flange ANSI:
00 HEAD	2017	Material: SA-516-70
Shape: Ellipsoidal	Min 21.56	Flag 19.030
OD: 406.4	Avg 21.62	CA 1.6
Spec: ASME VIII Div.1	Comments:	Nominal 20.630
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
05 SHELL	2017	Material: SA-106-B
Shape: Cylindrical	Min 22.33	Flag 19.840
OD: 406.4	Avg 22.43	CA 1.6
Spec: ASME VIII Div.1	Comments:	Nominal 21.440
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
10 SHELL	2017	Material: SA-106-B
Shape: Cylindrical	Min 21.82	Flag 19.840
OD: 406.4	Avg 22.12	CA 1.6
Spec: ASME VIII Div.1	Comments:	Nominal 21.440
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
15 SHELL	2017	Material: SA-106-B
Shape: Cylindrical	Min 21.64	Flag 19.840
OD: 406.4	Avg 21.82	CA 1.6
Spec: ASME VIII Div.1	Comments:	Nominal 21.440
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:



Ultrasonic Corrosion Survey

*All values are in millimeters unless otherwise stated.

Survey Name: Husky Energy

Date: Jul 28, 2017

Inspector: D. Skeard

LSD: 11-24-50-20W5	Area: MINEHEAD	Location: FIELD
Jur #: A0568928	Tag Number:	Vessel Name: SEPARATOR
CRN: P7217.2	Year Built: 2006	Serial Number: 10777
RT: 2	Vessel CA: 1.6 mm	Manufacturer: RJV GASFIELD SERVICES
	Shell MAWP: 1480 PSI	Tube MAWP: PSI
	MAWTF: 100 °F	MAWTF: °F
		Pipe/Plate PIPE
TML Description	Baseline	Flange ANSI:
20 SHELL	2017	Material: SA-106-B
Shape: Cylindrical	Min 22.20	Flag 19.840
OD: 406.4	Avg 22.33	CA 1.6
Spec: ASME VIII Div.1	Comments:	Nominal 21.440
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
25 SHELL	2017	Material: SA-106-B
Shape: Cylindrical	Min 22.66	Flag 19.840
OD: 406.4	Avg 22.89	CA 1.6
Spec: ASME VIII Div.1	Comments:	Nominal 21.440
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI:
30 HEAD	2017	Material: SA-516-70
Shape: Ellipsoidal	Min 21.26	Flag 19.030
OD: 406.4	Avg 21.41	CA 1.6
Spec: ASME VIII Div.1	Comments:	Nominal 20.630
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI: Unknown
35 NOZZLE	2017	Material: SA-234-WPB
Shape: 90° Elbow	Min 7.87	Flag 7.623
OD: 60.325	Avg 7.98	CA 1.089
Spec: ASME VIII Div.1	Comments: ASSUMED NOMINAL, THINNING	Nominal 8.712
		T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.076
		Remaining Life:
		Retirement Date:



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Date: Jul 28, 2017

Inspector: D. Skeard

LSD: 11-24-50-20W5	Area: MINEHEAD	Location: FIELD
Jur #: A0568928	Tag Number:	Vessel Name: SEPARATOR
CRN: P7217.2	Year Built: 2006	Serial Number: 10777
RT: 2	Vessel CA: 1.6 mm	Manufacturer: RJV GASFIELD SERVICES
	Shell MAWP: 1480 PSI	Tube MAWP: PSI
	MAWTF: 100 °F	MAWTF: °F
		Pipe/Plate PIPE
TML Description	Baseline	Flange ANSI: Unknown
40 PIPING	2017	Material: SA-234-WPB
Shape: 90° Elbow	Min 14.50	CA 1.905
OD: 88.9	Avg 15.11	Nominal 15.240
Spec: ASME B31.3	Comments: ASSUMED NOMINAL	T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.067
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI: Unknown
45 PIPING	2017	Material: SA-234-WPB
Shape: 90° Elbow	Min 7.77	CA 0.953
OD: 88.9	Avg 7.95	Nominal 7.620
Spec: ASME B31.3	Comments: ASSUMED NOMINAL	T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.000
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI: Unknown
50 PIPING	2017	Material: SA-106-B
Shape: 360° Circ	Min 5.33	CA 0.686
OD: 88.9	Avg 5.46	Nominal 5.486
Spec: ASME B31.3	Comments: ASSUMED NOMINAL	T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.014
		Remaining Life:
		Retirement Date:
TML Description	Baseline	Flange ANSI: Unknown
55 PIPING	2017	Material: SA-106-B
Shape: 360° Circ	Min 5.00	CA 0.686
OD: 88.9	Avg 5.31	Nominal 5.486
Spec: ASME B31.3	Comments: ASSUMED NOMINAL	T Min
		STCR mm/yr 0.000
		LTCR mm/yr 0.044
		Remaining Life:
		Retirement Date: