

PRESSURE VESSEL & COLUMN INSPECTION REPORT

LSD: 02-31-022-11W4M Date: MAY 16, 2014 SAP Equipment ID: 66047500

VESSEL STATIC DATA							
Plant	Wardlow Oil Battery	Op Unit		System			
Prov. Insp. #	A2619721	CRN	K0237.2	Equip Tag #	V-100, barcode 067134		
Equipment Description	Inlet Separator			Serial #	2015.90		
Manufacturer	Sure Weld			Vessel Class			
Internal Access:	YES	Description: 18" manway		Year Built	1990		
MAWP	9800	kPa	@ 38	°C	MDMT	0 °C	
CODE :	UM- U U2	RT : 1		PWHT : no			
Diameter	42"	Length (s/s)	120 in (approx.)	OAL	mm / in	Vertical	
Shell	Mat'l	SA-516-70N	Thickness	in	Corr Allowance	1.6 mm	
Head	Mat'l		Thickness	in	Corr Allowance	1.6 mm	
Nozzle	Mat'l		Thickness	mm / in	Corr Allowance	mm / in	
Internal Coating:	NO		Internal Clad :	NO		Capacity	m ³
Manway :	YES		Inspection Port :	YES		SKIRT	
Nozzle Rating	600	lb ANSI	Painted :	YES		Insulated	NO
PROCESS DATA							
Product Description	Emulsion, gas, produced water			Sweet			
Operating Pressure	kPa / PSI		Operating Temperature				°C / °F
PSV STATIC DATA							
Serial No.	Location	Set Pressure	Capacity SCFM / Lbs/Hr / GPM	Manufacturer	Model / Type	Service Date / Company	
89C3431	Inlet piping	1421psi	14415 scfm	Consolidated	1912GC1-1-1-1	06/2011 Unified Valve	
PSV DETAILS							
	Type (Thread/Flange)		ANSI Rating		Size (in)		
PRD Inlet	Flange		600		1.5"		
PRD Outlet	Flange		150		2.5"		
NDE Equipment records							
Procedure#	Description	Manufacturer	Model#	Serial#	Due Date		

INSPECTION SUMMARY

An internal visual inspection was conducted on vessel after it had been cleaned. Vessel access is through 18" manway. Vessel is uncoated. There is a vertical baffle plate running down middle of vessel, across from manway. This baffle plate limits cleaning and visual inspection of shell to manway side of vessel only. Due to the presence of the baffle plate, only a "head and shoulders" inspection through the manway was possible. Shell and bottom head (as visible) was found to be in good condition. No significant corrosion or damage noted. Baffle plate is in good condition and securely welded to shell. There is no visual access to top head due to presence of demister. The demister was found to be in good condition. No damage was noted to demister or supports, and all supports appear secure. The manway nozzle and gasket surface is in good condition. Manway flange is double nutted.

A boroscope was used to aid in visual inspection of bottom head, especially for portion of bottom head behind baffle. A Boroscope inspection was also done through 2" thread-o-lette on side shell (opposite manway). This area of vessel shell was not cleaned so inspection was limited. No significant concerns noted during boroscope inspection on areas not visible from manway.

RECOMMENDATIONS

Review UT corrosion survey data to verify bottom head and drain condition.

NONCONFORMANCES / INSPECTION DEFICIENCIES

No nonconformances or deficiencies were noted during inspection.

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INSPECTION PLANNING

Inspection Strategy	Availability	Inspection Interval
Inspection Date <u>May 16, 2014</u>	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	<u>Ed Tymensen</u>		Date	<u>May 16, 2014</u>	
Company	<u>Streamline Inspection</u>	PESL #	<u>000711</u>	API #	<u>27479</u>
Reviewed and Approved by	_____	_____	Date	_____	
	_____	PESL #	_____	API #	_____
Criticality Assessment Rerun	_____	Inspection Planning Rerun	_____		
Assessed Next Inspection Date	_____				

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DETAILED INSPECTION VISUAL EXTERNAL

ID	Description	Condition	Location	NCR	Comments
V1	General Other (Please Explain)	n/a			
V2	General Corrosion	n/a			
V3	General Leaks	n/a			
V4	Vibration	n/a			
V5	Dissimilar Flange Rating	n/a			
V6	Ladder/Stairway	n/a			
V7	Heads	n/a			
V8	Guy Wires	n/a			
V9	Electrical Ground	n/a			
V10	Painted Inactive Corrosion	n/a			
V11	Coating/Painting	n/a			
V12	Expansion Joint or Bellows	n/a			
V13	Gauge/Site Glass	n/a			
V14	Shell	n/a			
V15	Jacket	n/a			
V21	Support Other (Please explain)	n/a			
V22	Foundation	n/a			
V23	Anchor Bolts	n/a			
V24	Saddle/Skirt	n/a			
V25	Davit	n/a			
V26	Fireproofing	n/a			
V31	Connections Other (Please explain)	n/a			
V32	Small Branches	n/a			
V33	Nozzles	n/a			
V34	Manways	n/a			
V35	Reinforcing Pads	n/a			
V36	Inadequate Thread Engagement	n/a			
V37	Bolting	n/a			
V38	Flanges	n/a			
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	n/a			
V51	Relief Devices Other (Please explain)	n/a			
V52	Corrosion	n/a			
V53	Leaks	n/a			
V54	Restricted Inlet/Outlet	n/a			
V55	Manual Operation Lever	n/a			

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DETAILED INSPECTION VISUAL INTERNAL

ID	Description	Condition	Location	NCR	Comments
V1	General Other (Please Explain)	Good			Only partial internal inspection was possible
V2	Corrosion (depth, length, width)	n/a			No internal corrosion noted
V3	Erosion	n/a			No internal erosion noted
V4	Distortion	n/a			No distortions noted
V5	Blisters	n/a			
V6	Deposits	n/a			No deposits noted
V7	Heads	Good			No visual access to top head due to demister. No significant corrosion noted on bottom head as visible
V8	Welds	Good			No weld defects or corrosion noted, as visible
V9	Nozzles	Good	Manway nozzle		No corrosion or damage to manway nozzle internal surface noted
V10	Shell	Good			No corrosion or damage noted, as visible
V11	Gasket Surfaces	Good			No corrosion or damage noted
V21	Internals Other (Please explain)	Good	Baffle plate, draw off line, demister and demister supports		All internal attachments are in good condition and secure
V22	Demister	Good			No damage noted, well supported
V23	Baffle/Wier	Good	Down center of shell		No damage, welds in good condition, secure. Limits inspection to half of vessel only
V24	Sparger	n/a			
V25	Thermowells	n/a			
V26	Metallic Linings	n/a			
V27	Nonmetallic Linings	n/a			Vessel is un-coated
V28	Trays	n/a			
V29	Tray Rings	n/a			
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

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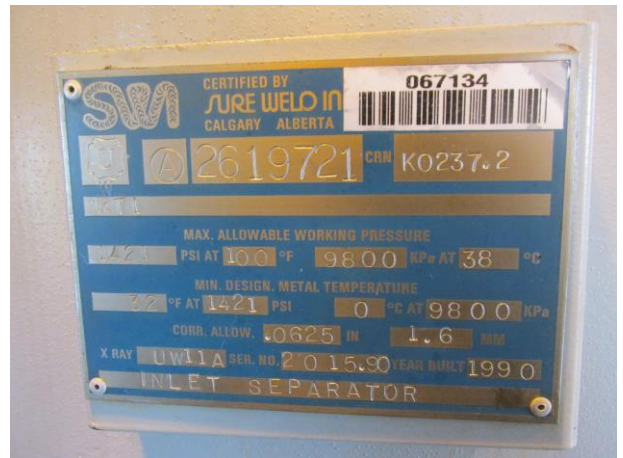
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PHOTOS



LSD sign



Dataplate



Vessel overview



Vessel overview



Top head above roof



Manway - 18"

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PHOTOS



Manway nozzle



Baffle plate across from manway, limits internal cleaning and visual to half of vessel only



Bottom head



Bottom head and draw off line



Shell and demister



Baffle plate to shell weld

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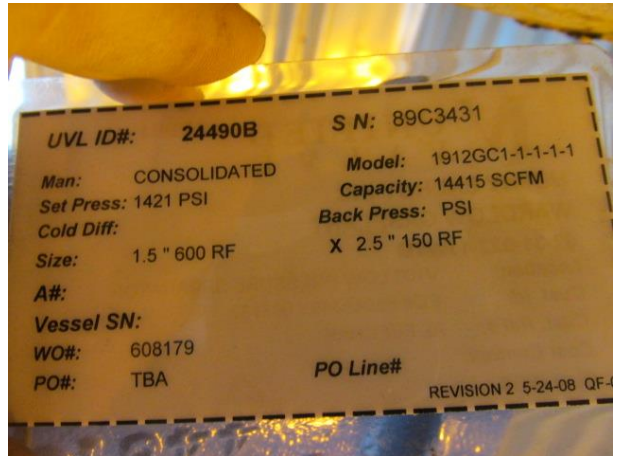
Bottom shell / head



Bottom shell to head weld



PSV service tag



PSV service tag



PSV Dataplate



PSV overview