

PRESSURE VESSEL & COLUMN INSPECTION REPORT

LSD: 06-22-057-20W5

Date: 29-May-2017

SAP Equipment ID: 66172348

VESSEL STATIC DATA									
Plant: Foothills & BC			Op Unit				System		
Prov. Insp. # 483171			CRN P8150.2				Equip Tag #		
Equipment Description						Serial # 7751-03			
Manufacturer						Vessel Class Pressure Vessel			
Internal Access: YES			Description: Manway			Year Built			
MAWP 1480			PSI @ 100			°F			
CODE : U			RT : 1			PWHT : Yes			
Diameter 4 ft 6 in		Length (T/T) 16 ft		OAL		mm / in		Horizontal	
Shell	Mat'l	516-70N		Thickness	2.25		in		Corr Allowance .125 in
Head	Mat'l	516-70N		Thickness	2.25		mm / in		Corr Allowance .125 in
Nozzle	Mat'l			Thickness			mm / in		Corr Allowance mm / in
Internal Coating: NO				Internal Clad : NO				Capacity m ³	
Manway : YES				Inspection Port : YES				Saddle	
Nozzle Rating 600		lb. ANSI		Painted : YES		Insulated YES			

PROCESS DATA									
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Product Description						Sour			
Operating Pressure				kPa / PSI		Operating Temperature °C / °F			

PSV STATIC DATA									
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Serial No.	Location	Size		Set Pressure	Capacity SCFM / Lbs/Hr. / GPM	Manufacturer	Model / Type	Service Date
		Inlet	Outlet					
428828	Piping	1.5 in	2 in	1378 psi	8930 scfm	Farris	26FA1-3-120	26-May-2017

Pentair ID W-37492

NDE Equipment records									
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Procedure#	Description	Manufacturer	Model#	Serial#	Due Date

INSPECTION SUMMARY

The **external** visual inspection (*January 2017*) of the equipment revealed:

- No relevant indications of in-service corrosion/erosion/mechanical defects or damage
- No non-conformances
- No inspection deficiencies

The **internal** visual inspection (*May 2017*) of the equipment revealed:

- No relevant indications of in-service corrosion/erosion. The internal chevron vein pack (non-pressure part) was mechanically damaged and had to be replaced in kind during the outage.
- No non-conformances
- No inspection deficiencies
- No requirements for inspection interval change

RECOMMENDATIONS

None

NONCONFORMANCES / INSPECTION DEFICIENCIES

None

INSPECTION PLANNING

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

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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	Keith Courneyea		Date	29-May-2017
Reviewed and Approved by	_____	_____	Date	_____
Criticality Assessment Rerun	_____	_____	Inspection Planning Rerun	_____
Assessed Next Inspection Date	_____	_____	_____	_____

DETAILED INSPECTION VISUAL EXTERNAL

ID	Description	Condition	Location	NCR	Comments
V1	General Other (Please Explain)	Good			Minor external corrosion noted less than .005 in deep as noted in areas of coating failure in item V11 below. Corrosion product was scraped away and wire brushed to allow for inspection.
V2	General Corrosion	Good			See V1
V3	General Leaks	None			
V4	Vibration	None			
V5	Dissimilar Flange Rating	None			
V6	Ladder/Stairway	Good			
V7	Heads	Good			
V8	Guy Wires				
V9	Electrical Ground	Good			
V10	Painted Inactive Corrosion	None			
V11	Coating/Painting	Fair			Paint failure noted at east end below manway on shell – approximately 2 square foot area. Several other small locations scattered around external.
V12	Expansion Joint or Bellows	NA			
V13	Gauge/Site Glass	Good			
V14	Shell	Good			
V15	Jacket	NA			
V21	Support Other (Please explain)	NA			
V22	Foundation	Good			Steel skid
V23	Anchor Bolts	Good			
V24	Saddle/Skirt	Good			
V25	Davit	Good			
V26	Fireproofing	NA			
V31	Connections Other (Please explain)	NA			
V32	Small Branches	Good			
V33	Nozzles	Good			
V34	Manways	Good			
V35	Reinforcing Pads	None			
V36	Inadequate Thread Engagement	None			
V37	Bolting	Good			
V38	Flanges	Good			
V39	Leak Clamps	None			
V41	Insulation Other (Please explain)	NA			
V42	Damage	NA			
V43	Penetrations	NA			
V44	Insulation Jacket	NA			
V45	Banding	NA			
V46	Seals/Joints	NA			
V51	Relief Devices Other (Please explain)	Good			

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V52	Corrosion	None			
V53	Leaks	None			
V54	Restricted Inlet/Outlet	None			
V55	Manual Operation Lever	NA			

DETAILED INSPECTION VISUAL INTERNAL

ID	Description	Condition	Location	NCR	Comments
V1	General Other (Please Explain)				
V2	Corrosion (depth, length, width)	None			
V3	Erosion	None			
V4	Distortion	None			
V5	Blisters	None			
V6	Deposits	None			
V7	Heads	Good			
V8	Welds	Good			
V9	Nozzles	Good			
V10	Shell	Good			
V11	Gasket Surfaces	Good			
V21	Internals Other (Please explain)	Poor			Chevron vein pack was damage and parts were found in the bottom of the vessel. The vein pack was replaced. No damage to the vessel was found in the areas where the vein pack made contact with the shell.
V22	Demister	N/A			
V23	Baffle/Wier	Good			
V24	Sparger	N/A			
V25	Thermowells	N/A			
V26	Metallic Linings	N/A			
V27	Nonmetallic Linings	N/A			
V28	Trays	N/A			
V29	Tray Rings	N/A			
V30	Other Welded Attachments	N/A			

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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PHOTOS



Location



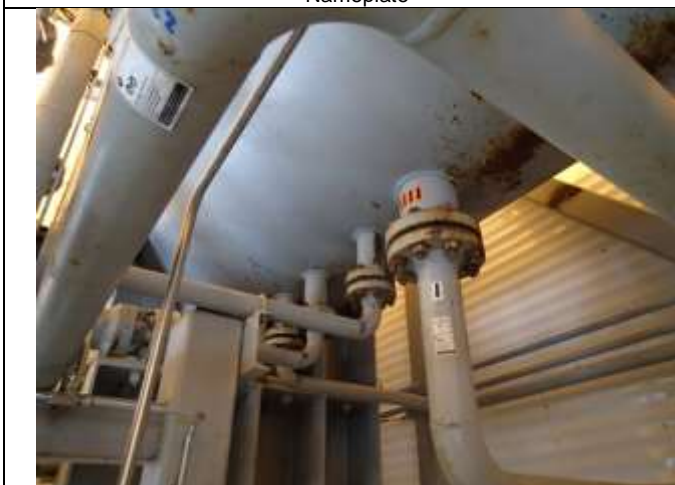
Building overview



Nameplate



Overview



Drain piping/bottom shell



West bottom shell/saddle

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Support connection to skid. Rust flakes from paint failure/ minor external corrosion above.



Paint failure area with minor external surface corrosion less than .005 in deep on east end. Not an integrity issue at the time of inspection.



Close up of paint failure/external corrosion area.



Support system at manway end



Support system at manway end photo 2



Manway/davit

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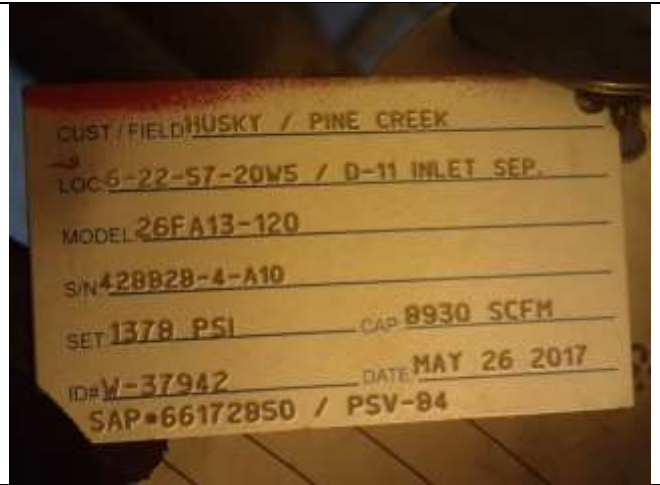
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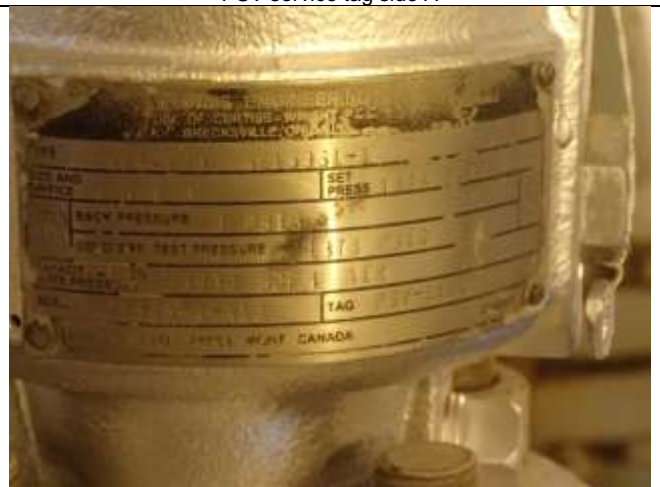
PSV overview



PSV service tag side A



PSV nameplate



May 2017 Internal – Remainder of the vein pack removed from the vessel. No damage to the vessel shell or internal components



May 2017 Internal – New replacement vein pack prior to installation

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May 2017 Internal – Replacement vein pack installed



May 2017 Internal – Manway cover



May 2017 Internal – Manway face and nozzle neck



May 2017 Internal – Overview of inlet end of vessel



May 2017 Internal – inlet nozzle and flow diverter



May 2017 Internal – mid lower shell and vein pack support

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May 2017 Internal – left side shell and vein pack support clips



May 2017 Internal – left side shell and vein pack support clips



May 2017 Internal – Vortex breaker on water dump nozzle



May 2017 Internal – Inlet side of weir



May 2017 Internal – Outlet side of weir and lower shell



May 2017 Internal – Outlet end of shell. Typical all around with no relevant indications of corrosion/erosion or mechanical damage.