RAE Engineering and Inspection Ltd.
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Field Inspection Report – Vessel

Job # 5118

Client	Canadian Natural Resources Ltd.				LSD	05-03-063-11W6					Location	Narraway							
Provincial Reg #	A457189				Inspection Date	09-Apr-2015					Next Inspection Date	DD-MM-YYYY							
Equipment Type	Line heater				Inspection Type	VE					Next Insp. Type								
Manufacturer	Maloney Industries Inc										Vessel Status	Not In Service							
Unit #	Line Heater Building										Tag #						NB Stamp	No	
Serial #	CC-C4936-3001				CRN #	K1237.12					Year Built	2000					RT	Partial	HT Yes
MAWP	30000	KPA	@	93	C	MDMT	-40	C	@	30000	KPA	Coil 1 (A) 3"							
MAWP	13962	KPA	@	93	C	MDMT	-40	C	@	13962	KPA	Coil 2 (B) 6"							
MAWP	13962	KPA	@	93	C	MDMT	-29	C	@	13962	KPA	Coil 3 (C) 2" (Hot Oil)							
Shell Material								Shell Thickness	0.6	in	CA	0.0625	in						
Diameter			Length					Vessel Orientation	Horizontal										
Head Material					Head Thickness				CA										
ASME STAMP	B31.3		Foreman	Dan Morrison				Service	Sweet										

PSV Tag #	See Notes	Service Company				Model #/Type			
CRN#		Set Pressure			Capacity			NB Stamp	
Manufacturer		Serial Number			ASME Stamp				
Inlet Size			Outlet Size			Service Date		Next Service Due	
Valve Location		PSV Vents to			Valve Connection				

Piping

Are mechanical connections acceptable for service?			Acceptable	Dead Legs	No		
Covering	Coated	Condition	Acceptable	Piping Supported Adequately	Yes		

PSV (see notes)

PSV Service Report Available	No	Installation Vertical	Yes	PSV Block Valve	No		
Block Valve car Seal in Place	N/A	Car Seal Log Book Maintained	N/A				
Drainage	Acceptable	Supports	Acceptable	Bolting	Acceptable	Gaskets	Acceptable
Seal Wire	Acceptable	Service Tag	Acceptable	Set pressure	Acceptable		
CRN	Acceptable						

External

Certificate of Inspection Permit	No			Nameplate - Attached & Legible		Yes	Grounded	Yes	
CUI Checked	Yes	Attachments		No	Manway	No	Size		
Manway Davit Arms	Free to Move	N/A		Carry Bolt w/Washer & Double Nutted				N/A	
	Lubricated	N/A							
Installation	Partial	Drains	Manual	Ladders and Platforms		Acceptable			
Support Structure	Acceptable			External Covering		Acceptable			

Based on the scope and results for this inspection, after all noted issue(s) have been resolved to meet the current code requirements, this vessel will be fit for service.

Additional Comments

RT 100% on coil 1&2, 10% on coil 3.
Recommend a thorough inspection if vessel is to be put back into service.

PSV notes...
- Coil 1 & 2 PSV's inside the building and were acceptable
- Coil 3 psv in the injection building on the discharge of the 'Heat String' circulation pump and was acceptable.
- All PSV's will require service if vessel is put back in service.

Highest Corrosion Rate of	N/A	at TML#	N/A
Remaining Life	N/A	at TML#	N/A

API 510 #31740 Expires 31-Dec-2016

RAE
Keith Courneyea
SEN. INSPECTOR
ALBERTA IBPV
FILE # A - 69528

Inspector (Print Name) Keith Courneyea Signature

Figure 1: Vessel Overview

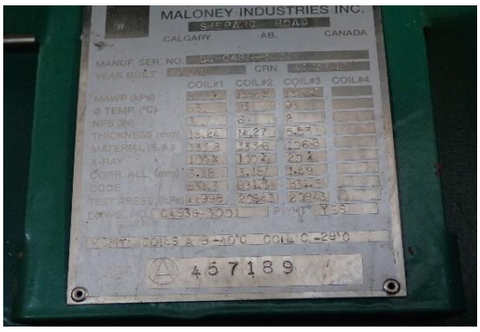

Figure2: Vessel Nameplate 1

Figure 3: inlet - spool removed

Figure 4: Coil 1 PSV

Figure 5: Coil 1 PSV service tag side A

Figure 6: Coil 1 PSV service tag side B

Figure 6: Coil 2 PSV

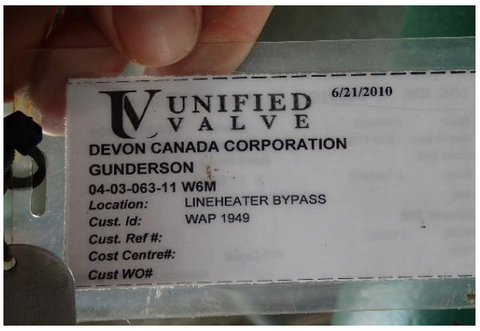

Figure 7: Coil 2 PSV service tag side A

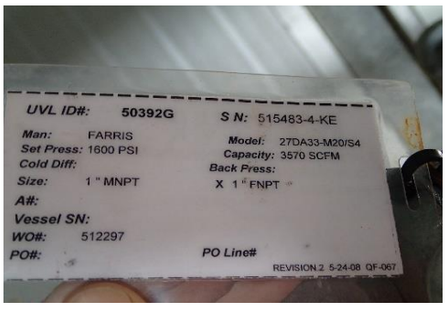

Figure 8: Coil 2 PSV service tag side B

Figure 9: Coil 3 PSV service tag side A