



09/2013 NOT IN SERVICE PIPING DISCONNECTED
PSV REMOVED

Equip. No. _____ Prov. Reg. No. **(A) 429576** C.R.N. H-9622.12 Serial No. 1893-H401-4 Yr. Inst. _____
 Code/Div. ASME B.31.3 Size: 54in x 180in Manufacturer: PLAINS OIL LTD CALGARY Yr. Bld. 1996
 C. Stamp: W Service: SOUR PWHT: HT Radiography: RT-1 Insulated: NO

Design & Materials Data

HEAD:
 Top Mat'l. SA 36 Top Nom. 6.4mm Top C.A. 3.2mm
 Btm. Mat'l. _____ Btm. Nom. _____ Btm. C.A. _____
CHANNEL:
 Material: _____ Nominal: _____ C.A. _____
BOOT
 Head Mat'l. _____ Head Nom. _____ Head C.A. _____
 Shell Mat'l. _____ Shell Nom. _____ Shell C.A. _____
SHELL
 Material: SA 36 Nominal: 6.4mm C.A. 3.2mm
 MAWP Shell Side: 9308 kPa @ Temp. 93°C
 MAWP Tube Side: _____ @ Temp. _____

CLIENT	CANADIAN NATURAL RESOURCES LTD	
FACILITY	PASS CREEK FIELD LSD 03-06-61-19 W5M	
ITEM	LINE HEATER	
BY: KB/JH	DATE: 09/2013	DWG.# 65

UTS DATA

CLIENT: CANADIAN NATURAL RESOURCES
EQUIPMENT: LINE HEATER
CRN#: H-9622.12
PROV REG: A 429576
TESTED ON STREAM

FACILITY: PASS CREEK FIELD
SERVICE: SOUR
LOCATION: 03-06-61-19 W5M
RTD JOB #: 10.114960
REFER TO DRAWING: 65

Test Point	THICKNESS DATA					Flag	T-Min	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Retirement Date
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410

Description: TOP SHELL

2008 7 2013 10 2014 8

Min. Thick.	7.6	7	6.8									
Average:	7.6	7.1	7									

Analysis:

415

Description: BOTTOM SHELL

2008 7 2013 10 2014 8

Min. Thick.	7.2	6.8	6.7									
Average:	7.5	7	7									

Analysis:

420

Description: BOTTOM SIDE SHELL

2013 10

Min. Thick.	6.3											
Average:	6.4											

Analysis:

UTS DATA

CLIENT: CANADIAN NATURAL RESOURCES
EQUIPMENT: LINE HEATER PIPING
CRN#:
PROV REG:
TESTED ON STREAM

FACILITY: PASS CREEK FIELD
SERVICE: SOUR
LOCATION: 03-06-61-19 W5M
RTD JOB #: 10.114960
REFER TO DRAWING: 65

Test Point	THICKNESS DATA				Flag	T-Min	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Retirement Date
405												
Description:	3" 90° ELBOW											
	2008	7	2013	10	2014	8						
Min. Thick.	7.4		7.3		7		6.65	2.9	1.1	7.60	.36	.07
Average:	7.7		7.5		7.5						0	.03
Analysis:	2014/08 RETIREMENT DATE: 2076. <i>RS</i>											

**Canadian Natural Resources Limited
GENERAL PRESSURE VESSEL INFORMATION**

Job # 10.114960

District: SwanHills, Ab.	Skid No.
Facility: Pass Creek Field	Location (LSD): 03-06-61-19 W5M
Vessel Name Equipment Number: Line Heater	
Orientation: Horizontal	
Status: Not In Service	Regulatory Inspection

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. A429576	CRN Number: H9622.12
Vessel serial number: 1893 H401-4	Size: 54in x 180in
Shell thickness: 6.4mm	Shell material: SA 36
Head thickness: 6.4mm	Head material: SA 36
Tube wall thickness:	Tube material:
Tube diameter:	Tube length:
Channel thickness:	Channel material:
Design pressure	Operating pressure
Shell: 1350PSI	Shell:
Tubes:	Tubes:
Design Temp.	Operating temperature
Shell: 200 deg F	Shell:
Tubes:	Tubes:
X-ray: RT 1	Heat treatment: Yes
Code parameters: ASME VIII Div 1	Coated: no
Manufacturer: Plains Oil Ltd	Year built: 1996
Corrosion allowance: 3.2mm	Manway: Yes

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacture / Model / Serial	Set Pressure (PSI / kPa)	Capacity (scfm)	Size	Block Valve	Location
NO PSV						

SERVICE CONDITIONS-INDICATE ALL THAT APPLY

Sweet	Sour X	Oil	Gas X	Water X
Amine	LPG	Condensate	Air	Glycol X

Other (Describe):

Inspection Interval _____ **PSV Service Interval** _____

(Determined by MIC in conjunction with Chief Inspector following guidelines of CNRL Owner-User Inspection Program)

Reports reviewed and accepted by:

Mechanical Integrity Coordinator Ray Linder Date Feb 26/15

Fill out all forms as completely as possible. All information is important! Use back of sheets to record additional information or sketch if required. Copy of report to be filed by MIC at site, and copy sent to Chief Inspector

External Inspection Items	G	F	P	N/A	Comments
Insulation Verify sealed around manways, nozzles, no damage present, and there is no egress of moisture.	X				No damage present- no egress of moisture. Sealed around nozzles and saddles (Outside 50 percent insulated)
External Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	X				Paint in good overall condition – No exposed metal.
Leakage Record any leakage at flanges, threaded joints, weep holes on repads, etc.	X				No leaks observed.
Saddle/Skirt Assess condition of paint, fire protection, concrete. Look for corrosion, buckling, dents, etc. Look at vessel surface area near supports. Verify no signs of leakage at attachment to vessel and attachment welds are acceptable. Ground wire attached?	X				Saddles: bolted directly to skid floor. No buckling or dents – no obvious leaks at attachment welds – saddle to shell. No corrosion at attachment welds to vessel. Ground wire attached to skid.
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				Securely fastened- no deformation.
Concrete foundation Check for cracks, spalling, etc.				X	
Ladder / Platform Describe general condition, ensure support is secure to vessel, describe any hazards.				X	
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				Threaded nozzle joints fully engaged- no leaks. No leaks observed. No damage or deflections. Nozzles are not gusseted.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.				X	No gauges directly on vessel
External Piping Ensure pipe is well supported. All clamps, supports, shoes, etc. in place. Look for evidence of structural overload, deflection, etc. Paint condition, external corrosion?	X				Piping is well supported – all clamps and supports are in place. No structural overloads or deflections. Paint in good condition- no exposed metal.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				No leaks are visible. Valves are supported properly.
PSV Ensure PSV is set at pressure at or below that of vessel.				X	No PSV on this vessel as vessel is not in service.
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	X				Ultrasonic corrosion survey carried out – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out: UT point 405 (3" elbow) – nominal thickness is 7.6mm / min thickness is 7.0mm / T min thickness is 2.9mm
Recommendations or corrective actions : Vessel is Fit for Service or describe corrective actions required) (MIC to review corrective actions with Operations, discuss with Chief Inspector where necessary, and get remedial action implemented)					
Recommendations: 1 Install PSV before returning to service Summary: This vessel is in good condition, visual external and ultrasonic thickness inspection carried out – pipe metal thickness detected below nominal minus corrosion allowance. Thickness calculations carried out to ensure sufficient metal exists for safe operation. Vessel is out of service.					

Photo Table



LSD

vessel Overview

W	SER. NO.	1893 H401-4
RT 100%	C.R.N.	H 9622.12
HT	CAPACITY	5.64M ³ .31M ³ COIL
HEATER TYPE LINE HEATER		
SHELL DIA. 6.4 X 1372 X 4572		
PRESS. RAT.	P.S.I.	AT
PRE 9308	K.P.A.	93 °C
PRESS. RAT.	P.S.I.	AT
POST 9308	K.P.A.	93 °C
TEST PRESS.	P.S.I.	MAT'L
PRE 13962	K.P.A.	SA 106B
TEST PRESS.	P.S.I.	MAT'L
POST 13962	K.P.A.	SA 106B
WGT. PRE	FRIDGE RAT.	748,000 RTD
WGT. POST	DRY WEIGHT	4300.00
YEAR BUILT	CORR. ALLOW.	N/A
PROP. NO.	0428576	



vessel data plate

vessel overview inside



Piping disconnected

