

COILS
 SN# 96910081
 23270 kPa / 93°C
 9308 kPa / 93°C

Equip. No. _____ Prov. Reg. No. **3175031** C.R.N. **B-59.2134578** Serial No. **96910006** Yr. Inst. _____
 Code/Div. **ASME B31.3** Size: **3ft x 14ft** Manufacturer: **BLACK, SIVALLS AND BRYSON** Yr. Blt. **1996**
 C. Stamp: _____ Service: **SWEET** PWHT: **NIL** Radiography: **RT-4** Insulated: **50%**

Design & Materials Data

HEAD:
 Top Mat'l. **SA 36** Top Nom. **9.5mm** Top C.A. **1.6mm**
 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: **9.5mm** C.A. **1.6mm**
 MAWP Shell Side: **ATMOSPHERIC** @ Temp. _____
 MAWP Tube Side: _____ @ Temp. _____

CLIENT	CANADIAN NATURAL RESOURCES LTD	
FACILITY	GOLD CREEK FIELD LSD 04-30-68-05 W6M	
ITEM	LINE HEATER	
BY: IM	DATE: 08/2016	DWG.# 161

UTS DATA

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

FACILITY GOLD CREEK FIELD
SERVICE SWEET
LOCATION 04-30-68-05 W6M
RTD JOB # 4019962
REFER TO DRAWING 161

Test Point	THICKNESS DATA				Flag	T-Min	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Retirement Date
305												
Description: 3" 90° ELBOW												
	2016	8	2020	8								
Min. Thick.	13.2		13.2		9.71		1.4	11.10	0	0		
Average:	13.7		13.7						0	0		
Analysis:												
315												
Description: 2" 90° ELBOW												
	2016	8	2020	8								
Min. Thick.	5.1		5.1		4.81		.7	5.50	0	0		
Average:	5.3		5.3						0	0		
Analysis:												
320												
Description: 3" 90° ELBOW												
	2016	8	2020	8								
Min. Thick.	5.2		5.2		4.81		.7	5.50	0	0		
Average:	5.5		5.5						0	0		
Analysis:												
325												
Description: 3" 90° ELBOW												
	2016	8	2020	8								
Min. Thick.	4.9		4.9		4.81		.7	5.50	0	0		
Average:	5.2		5.2						0	0		
Analysis:												

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

Job 4019962

District: Grande Prairie, AB	Skid No.
Facility: Gold Creek Field	Location (LSD): 04-30-68-05 W6M
Vessel Name Equipment Number: Line Heater	
Orientation: Horizontal	
Status: Not in service	Integrity Inspection

PRESSURE VESSEL NAMEPLATE DATA

"A" or "G" or "S" (Sask.) or BC Registration Number. A3175031		CRN Number: B 59.2134578	
Vessel serial number: 96910006		Size: 3 ft. x 14 ft.	
Shell thickness: 9.5 mm		Shell material: SA 106B	
Head thickness: 9.5 mm		Head material: SA 234 WPB	
Tube wall thickness: 5.5 mm		Tube material:	
Tube diameter: 2 inch NPS		Tube length:	
Channel thickness:		Channel material:	
Design pressure	Shell: Atmospheric	Operating pressure	Shell:
	Tubes: 3375 PSI / 1350 PSI		Tubes:
Design Temp.	Shell: 200°F	Operating temperature	Shell:
	Tubes: 200°F		Tubes:
X-ray: RT-4		Heat treatment: Nil	
Code parameters: ASME B31.3		Coated: No	
Manufacturer: Black, Sivalls and Bryson		Year built: 1996	
Corrosion allowance: 12.5%		Manway: Yes 50%	

PRESSURE SAFETY VALVE NAMEPLATE DATA

PSV Tag #	Manufacture / Model / Serial	Set Pressure (PSI)	Capacity (scfm)	Size	Block Valve	Location	Service by / Date
	Not required						

SERVICE CONDITIONS-INDICATE ALL THAT APPLY

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

Other (Describe):

Inspection Interval _____ **PSV Service Interval** _____

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

Reports reviewed and accepted by:

Mechanical Integrity Coordinator _____ **Date** _____

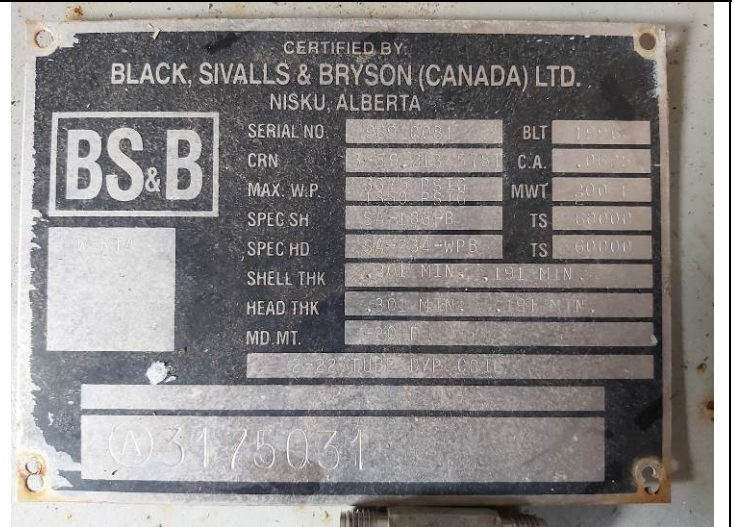
Fill out all forms as completely as possible. All information is important! Use back of sheets to record additional information or sketch if required. Copy of report to be filed by MIC at site, and copy sent to Chief Inspector

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			Shell is 50% insulated and in fair condition – dents and compressed cladding to 20% of area. Egress of moisture detected at west saddle.
External Condition Assess paint condition, areas peeling, record any corrosion, damage, etc (record location, size and depth of corrosion or damage)	X				Paint is in 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, and 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				Saddle: No buckling or dents. No evidence of corrosion at saddle to shell area – no leaks. Ground wire attached to skid
Anchor Bolts Hammer tap to ensure secure. Look for cracking in treads or signs of deformation.	X				Anchor bolts are secure – no cracking – no deformation.
Concrete foundation Check for cracks, spalling, etc.				X	Steel skid.
Ladder / Platform Describe general condition, ensure support is secure to vessel, and describe any hazards.				X	None.
Nozzle Assess paint, look for leakage, and ensure stud threads are fully engaged. Record any damage, deflection, etc. Are nozzles gusseted?	X				Threaded and flanged connections fully engaged. No deflection – no leaks. No gussets.
Gauges Ensure gauges are visible, working, no leakage, and suitable for range of MAWP/ Temp.	X				Pressure gauge: 0 to 7000 kPa. Below range of piping MAWP. Temp gauge: 40 to 400°F. Within range of MAWT. Liquid sight glass on expansion tank. Clear and clean – no leakage.
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; no deflection, all clamps and supports are in place. Paint is in good condition – no corrosion.
Valving Ensure no leaks are visible. Valves are properly supported and chained if necessary.	X				No leaks detected – valves are properly supported.
PSV Ensure PSV is set at pressure at or below that of vessel. Discharge piping is same size as valve outlet and is properly supported and routed. Are psv seals in place? Ensure no block valves between psv and vessel, or if there are that they are locked/sealed open.				X	No PSV required.
NDE methods Was UT/ MPI done on vessel (MI coordinator to review results)	X				Ultrasonic corrosion survey carried out – no metal thickness detected below nominal.
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: No recommendations at this time. Summary: This vessel is in good condition, visual external and ultrasonic thickness inspection carried out – no metal thickness detected below nominal. Vessel is fit for service.					

Photo table



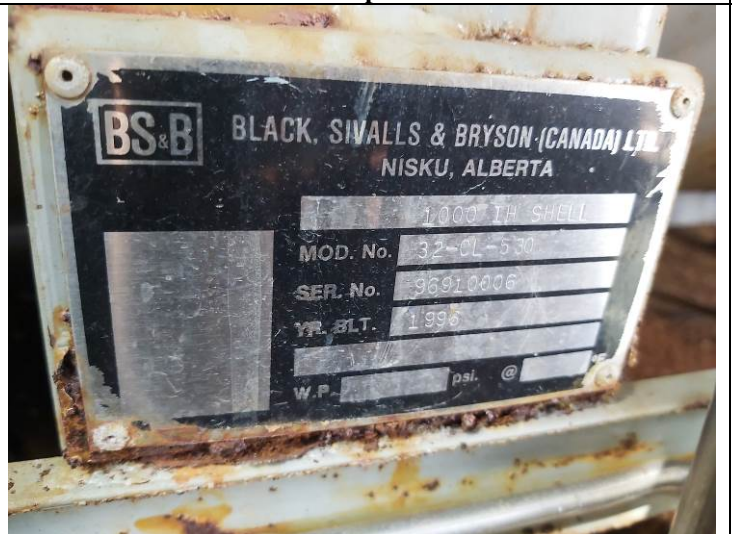
LSD



Data plate



Data plate



Data plate



Overview



Overview



Saddle



Anchor bolts



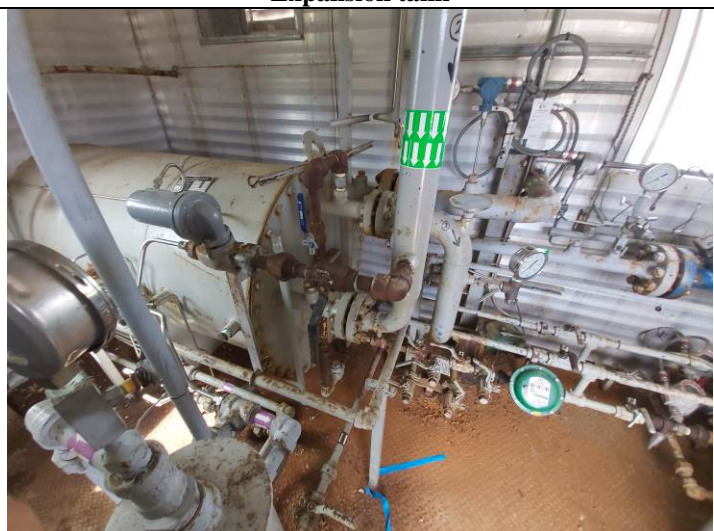
Skid deck



Expansion tank



Surface corrosion on accumulator / expansion tank



Piping



Ground cable



Pressure gauge



Temperature gauge