





## Field Inspection Report

Client	CNRL		Date of Inspection	June 26, 2012					
Prov. Reg.#	A0242049		Inspection Type	VI, VE, UT					
Equipment	Free Water Knock Out #1		Location	Grand Forks Battery					
Tag/Equip. #			LSD	04-01-013-13W4M					
Vessel Status	In Service		Comp./Unit #						
Manufacturer	C.E Natco Limited		MAWP / Temp	75 PSIG @ 200 F					
Serial #	LM-2261	CRN #	F 9229.2	MDMT@ Pressure					
Corrosion Allowance	0.0625"	Shell Material	SA-516-70	Shell Thickness	0.375"				
Year Built	1987	Head Material	SA516-70	Head Thickness	0.500"				
Diameter	8' OD	Length		Height		RT	RT-4	HT	
Service	Sour	Next Inspection		Next Insp. Type					
ASME Stamp	Yes	Next Inspection		Next Insp. Type					
PSV Tag #		CRN#	01832.52	Set Pressure	75 PSIG				
Manufacturer	Consolidated			NB#		ASME Stamp			
Type/Model		Serial	87C2443	Inlet Size	3"				
Capacity		Service Company	Tarpon	Outlet Size	3"				
Service Date	June 2012		Next Service Date						
Valve Location	<ul style="list-style-type: none"> <li>• On Vessel</li> <li>On Piping</li> <li>Vents to Flare</li> <li>Vents to Atmosphere</li> </ul>	Valve Connection	<ul style="list-style-type: none"> <li>Threaded</li> <li>• Flanged</li> <li>Welded</li> </ul>	ABSA CODE TYPE					
				Plant		Process			
				Vessel		Special			
PSV Tag #		CRN#		Set Pressure					
Manufacturer		NB#		NB#		ASME Stamp			
Type/Model		Serial #		Inlet Size					
Capacity		Service Company		Outlet Size					
Service Date			Next Service Date						
Valve Location	<ul style="list-style-type: none"> <li>On Vessel</li> <li>On Piping</li> <li>Vents to Flare</li> <li>Vents to Atmosphere</li> </ul>	Valve Connection	<ul style="list-style-type: none"> <li>Threaded</li> <li>Flanged</li> <li>Welded</li> </ul>						

**Manway:** Yes, East Head Manway and West Head Firetube Manway.

**Background:**

**PSV:** Service date and Set pressure acceptable with no restriction between the valve and the vessel.



# Field Inspection Report

## **Ladders, Stairs, Platforms & Walkways**

Corroded or Broken Parts-  
Condition of Coating-  
Wear of Ladder Rungs & Stair Treads-  
Handrails Secure-  
Condition of Flooring on Walkways-  
Check Tightness of Bolts-  
Check for Corrosion-  
Additional comments:

## **Concrete Supports and Foundations**

Steel Supports (Skirts, Bracing)  
Check for Corrosion-  
Check for Buckling & deflection-  
Check Vessel Supports for Tightness-  
Check Insulation for Deterioration-  
Additional Comments:

## **Nozzles**

Check for Distortion-  
If Found; Check Surrounding Shell and Seams for cracks-  
Check Condition of Connected Piping and Supports-  
Check Condition of Weep Holes in re-pads-  
Additional comments:

## **Electrical, Instrumentation & Grounding Equipment**

Sept./06 Check General Condition of Associated Electrical Equipment-  
Check General Condition of Associated Instrumentation-  
Check Grounding Connections-  
Additional comments:

## **Auxiliary Equipment**

Check Gauges and Sensor connections for Defects, Damage, Cracks & Vibration-  
Check Sight Glasses for defects, Damage, Cracks & Vibration-  
Check Condition and Operation of Associated Valves-  
Additional comments:

## **Metal Surfaces**

Check for Corroded Areas-  
Check for Cracks at Weld Seams and Nozzles-  
Check for Blistering at and below liquid Level-

## **Internals**

Inspection conducted -  
Check bubble or step trays for condition  
Check vane packing for plugging or mechanical damage  
Check down-comers, overflow lines.  
Check weirs, baffles, mist pads and coils-  
Additional Comments:



## Field Inspection Report

### **Protective: Coatings / Insulation / Cathodic**

Check for External Coating Failure-

Check for internal coating –

**General Comment's: Free Water Knock Out #1 was found to be in good general condition.**

### **External Inspection:**

- Name plate was attached and readable.
- External paint was in good condition with no external corrosion present.
- Vessel is supported on saddles, shell to saddle welds were in good shape.
- Saddles were bolted securely to the floor.
- All external nozzles were in good condition, no leaking flanges, gaskets, or threaded connections.
- All bolting hardware was intact and secure.
- All associated piping was in good shape.
- Temperature and Pressure gauges were intact and in good working order.
- Liquid level sight glass was in good shape with no cracks or leaks visible.
- Shell to wall interface seal was in good condition with no signs of leakage.
- No deflection or deformation of the shell, heads or nozzles noted.
- Vessel is grounded to the building and ground cable was in good shape.
- PSV was located without restrictions, Service date and set pressure acceptable.
- UT survey found no areas of concern on shell or heads but Extreme pitting noted on Middle and West drain elbows, see attached UT Report.
- Previous coating repairs had been carried out on both drain elbows in 2009.
- Decision was made to recoat both nozzles again and pre-plan for both drain elbows to be changed out at next inspection frequency.
- Coating repairs were carried out at the time of inspection.

### **Internal inspection – Hot End:**

- Manway gasket surfaces were in good condition.
- Internal shell coating was in good shape with no corrosion or pitting noted.
- Firetube internals were intact and secure. Support has old mechanical damage from when firetubes were used before but causes no concern at all.
- All internal nozzles were in good shape.
- Internal Anode was in good shape, the supports were intact and secure.
- Horse shoe diffuser was intact with all bolting in place and secure.
- Oil collection box was in good condition.
- Thermal couple was intact and secure.
- Chevron wafer plate was intact, in good shape with all bolting hardware in place and secure.
- No deflection or deformation of the shell, head or nozzles noted.

### **Internal inspection – Cold End:**

- Manway and manway cover were in good shape.
- Gasket surfaces were in good condition.
- Internal shell coating was in good shape with no corrosion or pitting noted.
- All internal nozzles were in good shape.
- Internal Anode was in good shape, the supports were intact and secure.
- Diffuser box was intact and secure.
- Chevron wafer plate was intact, in good shape with all bolting hardware in place and secure.
- No deflection or deformation of the shell or head noted.



## Field Inspection Report


**Repairs carried out:**

**Decision was made to recoat both drain nozzles at time of inspection as UT readings from 2009 had not changed. Coating repairs were carried out at the time of inspection.**

**Recommendations:**

**Schedule to have both drain elbows removed and replaced in kind at the next required inspection frequency. Continue to carry out visual inspections and UT Corrosion surveys at the required inspection frequency.**

**Free Water Knock Out # 1 is fit for continued service.**

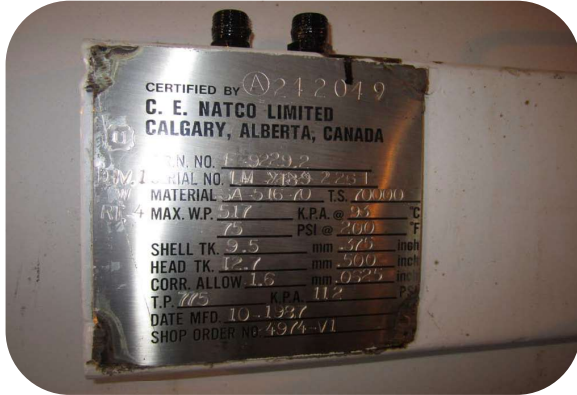
  
Digitally signed by Blair Verge  
DN: cn=Blair Verge, o,  
ou=Verge's Inspection Services  
Ltd., email=bverge@telus.net,  
c=CA  
Date: 2012.07.22 19:08:39  
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Blair Verge  
Verge's Inspection Services Ltd.

**Inspector(s) Blair Verge API 510 Certification #24212**



## Field Inspection Report



A0242049\_Name plate\_26June2012



A0242049\_South side shell view\_26June2012

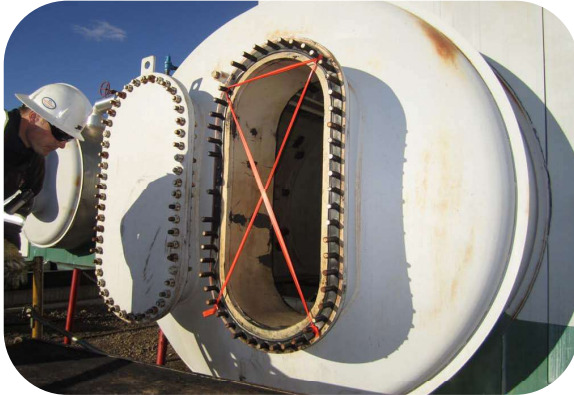


A0242049\_West head manways\_26June2012



A0242049\_North West side shell\_26June2012

## Field Inspection Report



A0242049\_Manway gasket in good condition\_27June2012



A0242049\_West Head internal knuckle region\_27June2012



A0242049\_Horse Shoe diffuser intact\_27June2012



A0242049\_Old Firetube supports\_27June2012

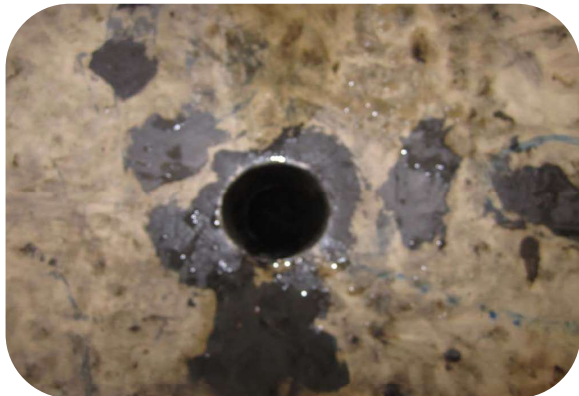
## Field Inspection Report



A0242049\_Damage to Firetube support from previous use\_27June2012



A0242049\_Previouse coating repairs still in good shape\_27June2012



A0242049\_Internal nozzle in good condition\_27June2012



A0242049\_Internal view of nozzle\_27June2012



## Field Inspection Report



A0242049\_Hot end internal  
Anode\_27June2012



A0242049\_Hot end Chevron Waffle  
Plate\_27June2012



A0242049\_Hot end Chevron Waffle plate  
supports intact\_27June2012



A0242049\_East Head manway and  
cover\_27June2012



## Field Inspection Report



A0242049\_East manway gasket in good shape\_27June2012



A0242049\_Cold end internal coating\_27June2012



A0242049\_Cold end internal Anode\_27June2012



A0242049\_Cold end view of Chevron Waffle plate and supports\_27June2012

## Field Inspection Report



A0242049\_Cold end Vortex\_27June2012



A0242049\_TML locations 60 and 65 with  
extream pitting noted\_26June2012



A0242049\_TML location 60, drain  
elbow\_27June2012



A0242049\_Repairs to TML locations 60 and  
65\_27June2012



## Field Inspection Report



A0242049\_ Internal view of the drain elbow pitting\_27June2012



A0242049\_Extreame pitting\_27June2012



A0242049\_Coating repairs carried out on both drain elbows\_27June2012



A0242049\_Drain nozzle internal coating repairs\_27June2012





## Field Inspection Report



A0242049\_Drain nozzle internal coating  
repairs\_27June2012