



225408



RAE Inspection Service (1979) Ltd.

#111, 4808 - 87th Street, Edmonton, Alberta T6E 5W3
Telephone: (780) 469-2401 • Fax: (780) 468-2422

FUR 0502

FOLLOW UP REPORT

Client: CURL Date: Feb 9/02

Provincial Registration #: 225408 RAE Job #: 02-208

Location: MILLIGAN LSD: D-63-6/74-11-2

Equipment: FREE WATER KNOCKOUT

PSV overdue for service. Service PSV by _____ Date _____

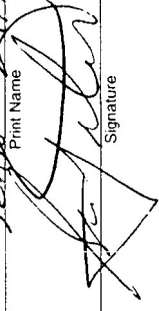
PSV seal wire broken. Service PSV by _____ Date _____

PSV service tag missing. Service PSV by _____ Date _____

PSV to be reinstalled in the vertical position by _____ Date _____

No access to PSV. Service PSV and send report to RAE Inspection Nov 30/02 Date _____

Nameplate missing. Vessel identified by Provincial Registration Number stamped on vessel. New nameplate required. _____ Date _____

Inspector: SEAN ZIFANK Date: Oct 30/02
Print Name _____
Signature 

Verified By: _____

Inspector: _____ Date: _____
Print Name _____

Signature _____

Field Inspection Report

Vessel # 225408

Client	Canadian Natural Resources Ltd.		Inspection Date	2002/08/09	
Prov. Reg.#	225408		Insp. Type	VI	
Equipment	Free Water Knock Out Drum		Location	Milligan	
Tag/Equip. #			LSD	B-63-G/94-H-2	
Vessel Status	In Service		Comp./Unit		
Manufacturer	Alco	Serial #	85C342201	MAWP/Temp	99 psi 151 F
CRN #	F5480.21	Shell Material	SA-516-70	Shell Thick.	0.748 in
Corrosion All.	0.062 in	Head Material	SA-516-70	Head Thick.	0.677 in
Manway	Yes	Head Material 2		Head Thick. 2	in
Coating	No	Channel Material		Channel Thick.	in
Diameter	144 in	Length	288 in	Height	in
Year Built	1985	Next Inspection	2004	Next Insp. Typ	RT 1 HT
Service	Sour			Job #	02-208

PSV #.	CE27748A10				
Mfg.	Farris	Serial #	CE27748A10	Set Pressure	125 psi
Type/Model	26PALO12085M	Capacity	16930 SCFM	Size	4.000 in
Date of Service	1997/07/22	Next Service	1999	Service Co.	Dalco

Observations:

Note: See FUR #0502 - No access to PSV. Service PSV and send report to RAE Inspection.

External
None at this time

Internal
No access to inlet end. Baffle is in the way. Coating is in generally good condition. Spray assembly has a few spots where coating is missing, holed through. Spray assembly is not in service. Approximately 5-10 spots on shell have coating missing. General corrosion is occurring. Approximately 1/16" missing. It is unknown how long the coating has been damaged, so a corrosion rate can not be determined. Other areas have firmly adhering coating and no corrosion. Anodes are totally consumed. Probably because of large uncoated metal baffle.

RAE Inspection Service (1979) Ltd.
#111,4808 - 87 Street, Edmonton, Alberta T6E 5W3
Phone: (780) 469-2401 Fax (780) 468-2422

Date Printed 2002/11/18

Field Inspection Report

Vessel # 225408

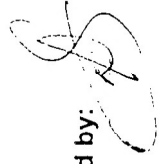
UT
None at this time

Recommendations:

Patch coating and install new anodes.

Inspector: Chris Eklund

: AB-40 to be attached



Reviewed by:

Report # 28216
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INSPECTION SERVICE (1979) LTD.

File #: 97-108 Report #: 1296
 Client: CANADIAN NATURAL RESOURCES
 Location: MILLIGAN BATTERY
 LSD: B-63-G/94-H-2
 Distribution: Randy Stamp

FIELD INSPECTION REPORT

Last Edited : 6/23/97

Date of Inspection: 06/03/97 Next Inspection Due: 06/03/2001

EQUIPMENT INFORMATION:

Prov. Reg. #: **225408** CRN: F5480.21 Tag #: _____
 Province of Registration: B.C. Plant: MILLIGAN BATTERY
 Equipment Name: FREE WATER KNOCK OUT Manway: YES Coating: YES
 MAWP: 681 kPa 66 °C Service: OIL/SOURGAS

ITEMS FROM PREVIOUS INSPECTIONS:

EXAMINATION METHODS: Visual UT MPI RT LPI PT Other: _____

INSPECTION:

Initial Reinspection

CLEANING:

Good Poor Unacceptable

ACCESS:

Internal External

PRESSURE TESTS: Hydro Pneumatic Other: _____ Shell _____ Tube _____ kPa _____ kPa

SAFETY VALVES: MAWP (kPa)

PSV Tag No.

SET PRESSURE(kPa)

CAPACITY(m3/min)

LOCATION

Shell Side:

681

PSV225408

862

479

B-63-G/94-H-2

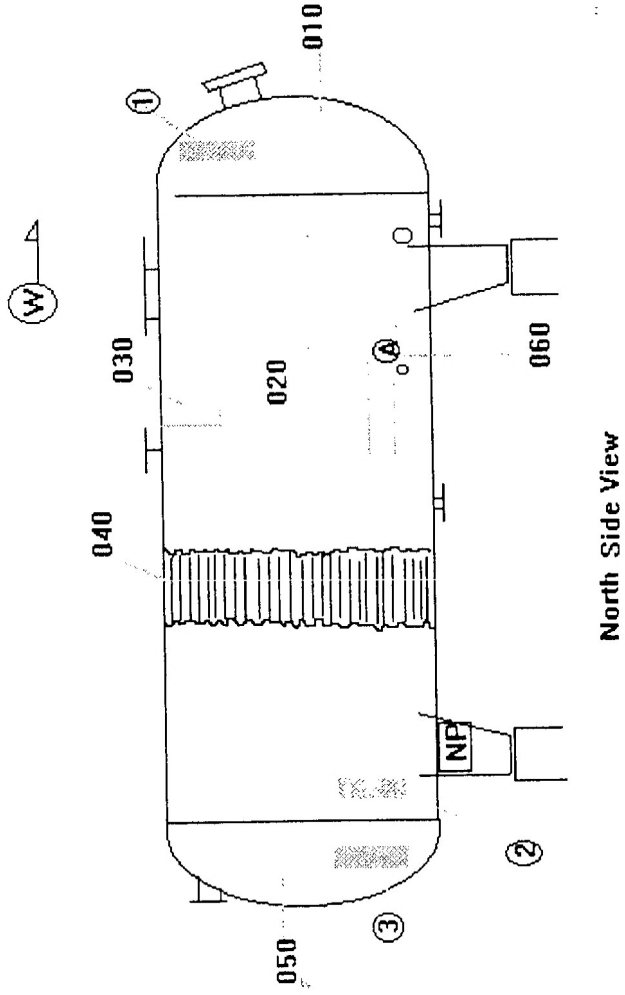
Tube Side:



INSPECTION SERVICE
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Report No.: 1296

VESSEL SKETCH:



EXTERNAL CONDITION:



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Report No.: 1296

OBSERVATIONS:

AREA	COMMENTS
010	Coating in excellent condition. Manway in good condition.
020	Shell coating in excellent condition. Attachment welds, nozzles, piping and brackets are in good condition.
030	Top shell box externally in good condition. Internal not inspected at this time.
040	Filter/screen is a plastic type material, clean, solid, mounted in place and in good condition.
050	No internal access to inspect the east head and shell east of filter/screen.
060	Anode was about 90% consumed and replaced during shutdown.
External	Vessel painted and in good condition. Nozzles, flanges, instrumentation and gauges are in good condition.

ULTRASONIC THICKNESS RESULTS:

LOCATION	1	2	3	4	5	UNITS



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Report No.: 1296

DISCUSSION:

No access internally to the east end of the vessel.

RECOMMENDATIONS:

- Next inspection in the year 2001.

INSPECTOR: I have witnessed/done the above inspections and certify that they have been done in accordance with our approved manual and that the information is accurate. I certify that the status of the Pressure equipment detailed here is:

Suitable to be returned to service	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Repairs are still required	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Repairs are complete (CB-40) attached	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Suggested inspection interval	48 months	<input checked="" type="checkbox"/> N/A

Jim Longstreet
Inspector

Signature

6/23/97

Date

CHIEF INSPECTOR: I certify that the information on this report is true and all inspections as required by our Owner/User Quality Assurance Program # AQP 8039 which expires in June 1999 have been done.

Hennie Prinsloo
Chief Inspector



6/23/97
Date

File Number: 97-109 Date: June 3 1997 Page 1A of 7

Equipment Identification

Owner	CNRL	In Service	S/n	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
LSD	b-63-6/94-H-2			
Location Name	MILLIGAN BATTERY			
Description	FRESH WATER KNOCKOUT DRUM			
Manway	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes - Number <u>2</u> Size <u>18"</u>	Coated Vessel		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Provincial Number	(A) 225408	CRN	F-548024
Tag Number		Serial Number	85C-3422.01
Manufacturer	ALCO	Year Built	1985
MAWP	681 kPa @ 66°C	MDMT	@
Test Pressure		U Stamp	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Shell Material	SA 51670	Thickness	19mm
Head Material	SA 51670	Thickness	17.2mm
Tube Material		Thickness	
Corrosion Allowance	1.5 mm	Diameter	3657mm
Length	7315 mm	Height	
Volume		Radiography Code	RT - 1
Heat Treatment		Drawing Reference	A 9381
Flange Rating (ANSI)	Nozzles: 150#	Flange Rating (ANSI)	Manway:
Support	<input type="checkbox"/> Skirt <input checked="" type="checkbox"/> Saddle <input type="checkbox"/> Other:		

Last Inspection	n/a	Next Inspection	2001
Inspection Type	<input checked="" type="checkbox"/> Inventory <input checked="" type="checkbox"/> Visual <input type="checkbox"/> RT <input type="checkbox"/> MPT <input type="checkbox"/> LPT <input checked="" type="checkbox"/> Ultrasonic <input type="checkbox"/> Coating <input type="checkbox"/> Initial <input type="checkbox"/> Reinspection		
Cleaning	<input type="checkbox"/> Good <input type="checkbox"/> Poor <input type="checkbox"/> Unacceptable	Access	<input type="checkbox"/> Internal <input type="checkbox"/> External <input type="checkbox"/> Manway <input type="checkbox"/> Thru Nozzle
Service	<input type="checkbox"/> Steam <input type="checkbox"/> LPG <input checked="" type="checkbox"/> Oil <input type="checkbox"/> Air <input type="checkbox"/> Gas <input checked="" type="checkbox"/> Sour Gas <input type="checkbox"/> Multiphase Sour <input type="checkbox"/> Water <input checked="" type="checkbox"/> Other: <u>PLAN. SACTN 9</u>		
PSV Off for Service	<input type="checkbox"/> YES - service report to be obtained <input checked="" type="checkbox"/> NO - details to be included on revers		

SAFETY VALVE IDENTIFICATION

PSV ID Number		MAWP	
Vessel/Line Identification		Model Number	26PA60-120/85M
Manufacturer	FARIS	Set Pressure	125PSI
Serial Number	CE-27748-A10		
Service Description	<input type="checkbox"/> Sweet <input checked="" type="checkbox"/> Sour <input checked="" type="checkbox"/> Gas <input type="checkbox"/> Liquid <input type="checkbox"/> Multiphase <input type="checkbox"/> Cryogenic <input type="checkbox"/> Amine		
Valve Size	INLET: 4" OUTLET: 6"		
Capacity	16730	<input type="checkbox"/> ft ³ /min <input type="checkbox"/> lb/hr <input type="checkbox"/> gpm <input checked="" type="checkbox"/> other <u>SCFH</u>	
Date Placed in Service			
Date of Previous Service	June 97		
Previous Service Company	DALEO		
LSD where PSV is located			

This PSV protects the following vessels:	
A	Primary: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
A	Primary: <input type="checkbox"/> Yes <input type="checkbox"/> No
A	Primary: <input type="checkbox"/> Yes <input type="checkbox"/> No

COMMENTS



INSPECTION SERVICE (1979) LTD.

File #: 95-171 **Report #:** 5
Client: CANADIAN NATURAL RESOURCES
Location: MILLIGAN BATTERY
LSD: B-63-G/94-H-2
Distribution: *By RAE Inspection
 Boilers Branch
 Mike Catley*

FIELD INSPECTION REPORT

Last Edited : 7/19/95

Date of Inspection: 05/07/95 **Next Inspection Due:** 05/07/96

EQUIPMENT INFORMATION:	Prov. Reg. #: 225408	CRN: F5480.21	Tag #:
	Province of Registration: ALBERTA		Plant:
	Equipment Name: FREE WATER KNOCK OUT		Manway: YES Coating: YES
	MAWP: 862 kPa 66 °C		Service: MULTIPHASE SOUR

ITEMS FROM PREVIOUS INSPECTIONS:

Outstanding NCR: NO #:

	EXAMINATION METHODS:	CLEANING:	ACCESS:	kPa	Tube	kPa	LOCATION
SAFETY VALVES:	MAWP (kPa)	PSV Tag No.	SET PRESSURE(kPa)	CAPACITY(m3/min)			
Shell Side:							
Tube Side:							

EXAMINATION METHODS: Visual UT MPI RT LPI PT Other: _____
INSPECTION: Initial Reinspection **CLEANING:** Good Poor Unacceptable **ACCESS:** Internal External

PRESSURE TESTS: Hydro Pneumatic Other: _____ Shell Tube kPa



INSPECTION SERVICE
(1979) LTD.

Report No.: 5

DISCUSSION:

Vessel is in excellent condition throughout. Minor damage to coating in manway nozzle. Isolated pit in nozzle (BDC next to door). Estimated depth of pit is approximately 0.150".

RECOMMENDATIONS:

1. Recoat vessel at next turnaround.
2. Attach PSV service report to this report.

INSPECTOR: I have witnessed/done the above inspections and certify that they have been done in accordance with our approved manual and that the information is accurate. I certify that the status of the Pressure equipment detailed here is:

Suitable to be returned to service	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Repairs are still required	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Repairs are complete (CB-40) attached	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Suggested inspection interval	12 months	<input checked="" type="checkbox"/> N/A

Ron Baker, P. Eng.

Inspector

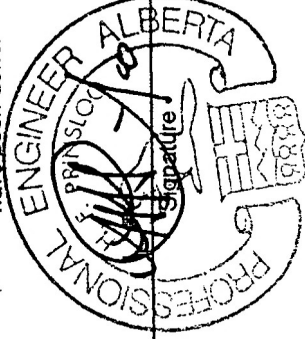
Signature

Date

CHIEF INSPECTOR: I certify that the information on this report is true and all inspections as required by our Owner/User Quality Assurance Program # _____ which expires in _____ have been done.

Hennie Prinloo, P. Eng.

Chief Inspector



July 19/95
Date



INSPECTION SERVICE
(1979) LTD.

Non Conformance Report (NCR)

Canadian Natural Resources - British Columbia

Prov. Reg. #: 225408

NCR Number: 1038

Equipment #:

Tag #:

Vessel Name: FREE WATER KNOCK OUT

DESCRIPTION OF NON CONFORMITY:

Damage Procedure NCR Inadequate Documentation Other

Location: Milligan Battery
LSD: b-63-G/94-H-2

The vessel MAWP is 681 kPa and the PSV set pressure is 662 kPa.

Signature _____

Title _____

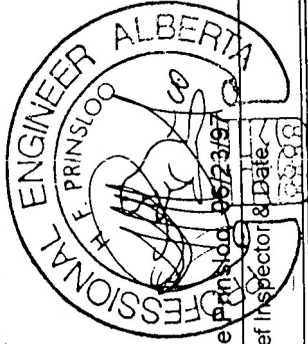
6/23/97

Date

PROPOSED ACTION/DISPOSITION:

FURTHER ASSESSMENT REQUIRED? YES NO

Verify the PSV set pressure and reset as required.



Hennie Prinsloo 6/23/97

Chief Inspector & Date

Authorized Inspector & Date

REMEDIAL ACTION COMPLETED: USE "AS IS" REPAIR RERATE REPLACE MONITOR OTHER

Chief Inspector & Date

Authorized Inspector & Date

CORRECTIVE ACTION (IF APPLICABLE):