



**PRESSURE VESSEL
VISUAL INSPECTION
REPORT**

Report #: **123862-CS-01**
 Inspect Date: 06/02/2010
 Page: 1 of 11
 Insp. Co. Job #: 123862

Criticality Designation: **Green**

Insp. Comp: Matrix Inspection District: St Albert Field: Byemoor
 Location: 08-32-034-17W4M Unit / Skid #: N/A LSD: 08-32-034-17W4M
 Jurisdiction #: A0227029 Equip Tag #: N/A Serial #: 27344A
 CRN #: C4936.2314 Nat'l Bd #: N/A Year Built: 1985
 Manufacturer: Western Rock Bit Co. Ltd. Equipment Description: Other: LPG Bullet
 Status: In Service - Equip. Type: Vessel: Bullet Service: Sweet
 MAWP Shell: 1724 kPa @ N/A --- Volume: 68.66 m³ Code Stamp: Y N
 MAWP Tube: N/A --- @ N/A --- Height/Length: 12125 mm Insulated: Y N
 MDMT: N/A RT: RT-2 Size/Diameter.: 2743 mm I.D. PWHT: Y N
 Support: Saddle Vessel on Original CNRL Inventory List: Y N Manway: Y N
 C.A.: _____ Coated: Yes Clad: No J.E.: N/A Remote Access: - _____

Component	Material	Nominal Thk	Diameter	OD/ID	Tube Side	Shell Side
1 Main - Shell	SA-516-70	19.760 mm	2743.000	ID	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 East - Head	SA-516-70	19.760 mm	2743.000	ID	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 West - Head	SA-516-70	19.760 mm	2743.000	ID	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4 -					<input type="checkbox"/>	<input type="checkbox"/>
5 -					<input type="checkbox"/>	<input type="checkbox"/>

Static Data: Confirmed Changed (See Comments)

Comments:

-Data plate was securely attached to the vessel and legible.

PSV Static Data

PSV -1 Tag #: N/A Serial #: B105530X-1-3 CRN: OG0449.2
 Model #: 1990-LCC Capacity: 482 SCFM Set Pressure: 250 psi
 Manufacturer: Consolidated Service Company: Powell Canada Inc
 Inlet Size & Type: 1.00 in. - Threaded Last Service Date: 05/19/2010
 Outlet Size & Type: 1.00 in. - Threaded Block Valve: N/A - -
 Carseal Intact: Yes Code Stamp: Yes
 Shell Side / Tube Side: Shell Side Out for Service During Insp.: N Location of PSV: Upstream

PSV -2 Tag #: N/A Serial #: N/A CRN: N/A
 Model #: N/A Capacity: N/A Set Pressure: N/A
 Manufacturer: N/A Service Company: N/A
 Inlet Size & Type: 0.00 - Last Service Date: N/A
 Outlet Size & Type: 0.00 - Block Valve: N/A - -
 Carseal Intact: N/A Code Stamp: _____
 Shell Side / Tube Side: _____ Out for Service During Insp.: --- Location of PSV: _____

PSV Comments

-PSV is in good condition, properly installed and rated for the vessel.



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External Inspection Results – VE N/A (Not Applicable)

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Nameplate	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foundation and Supports	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor Bolts	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grounding	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insulation Condition	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PSV	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shell Heads & Nozzles	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal Surfaces (Paint)	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aux Equipment	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodic Protection	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alignment	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flange Connections	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure Gauge	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperature Gauge	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sight Glass	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ladder / Platform	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaks	<input checked="" type="checkbox"/>		No External Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping from Vessel	<input checked="" type="checkbox"/>		No External Inspection Carried Out			
Previous UT Survey	<input checked="" type="checkbox"/>		No External Inspection Carried Out			UT Company:

External Visual Observations

No External Inspection Carried Out

Recommendations:

No External Inspection Carried Out



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Internal Inspection Results – VI Internal Inspection Performed

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Shell	<input type="checkbox"/>	Accept	Light surface corrosion, no pitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heads	<input type="checkbox"/>	Accept	Light surface corrosion, no pitting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manway	<input type="checkbox"/>	Accept	In good condition, no corrosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gasket Surfaces	<input type="checkbox"/>	Accept	In good condition, no wear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Welds	<input type="checkbox"/>	Accept	In good condition, no corrosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refractory	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating Coils	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demister Pad	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vane Pack	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baffles	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trays	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filter	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal Coating	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube sheet	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube Bundle	<input checked="" type="checkbox"/>		Not Applicable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Internal Visual Observations

An internal inspection was performed on this vessel, the following was noted during the inspection:

- Light surface corrosion was found on the shell and the heads.
- WFMT was performed on all of the internal welds with no relevant indications being found, see attached report.
- All longitudinal and circular were noted in to be in good visual condition.
- No corrosion or wear was found inside of the attached nozzles.
- Internal auxiliary equipment was found to be in good operating condition.
- Gasketing surface of the manway was found to be in good condition.
- PSV protecting the vessel was found properly installed and rated for the vessel.
- Vessel is fit for continued service.

Recommendations:

- Continue with current inspection and PSV maintenance interval to ensure the integrity of this vessel.



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Firetube Static Data N/A (Not Applicable)

Diameter: Not Applicable Nom Thickness: Not Applicable Bend: Not Applicable
 Length: Not Applicable Firetube Description: Not Applicable
 Firetube NDE Performed: UT Report#: Not Applicable ET Report#: Not Applicable
 MT Report#: Not Applicable RT Report#: Not Applicable
 PT Report#: Not Applicable Other Report#: Not Applicable

Firetube Inspection Results

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Burner	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stack	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flange (Throat)	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube Sheet	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hot Side	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Miter	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Return Bend	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supports	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Butt Welds	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fillet Welds	<input checked="" type="checkbox"/>		No Firetube Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Firetube Visual Observations

No Firetube Inspection Carried Out

Recommendations:

No Firetube Inspection Carried Out



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Vessel NDE and Final Summary:

UT Report#: _____ ET Report#: _____
NDE Performed: MT Report#: 123862-CS-02 RT Report#: _____
PT Report#: _____ Other Report#: _____

Maxi-Trak Observations Summary (Summarize inspection results Max 255 Characters):

-Vessel is in good condition and is fit for continued service.

Maxi-Trak Recommendations Summary (Summarize Recommendations Max 255 Characters):

-Continue with current inspection and PSV maintenance interval to ensure the integrity of this vessel.

Actions Corrected at Time of Inspection: (If actions were corrected at the time of Inspection – note the corrected actions here.)

-Not Applicable

Additional Visual Observations

-Not Applicable

Any other safety concerns or observations from associated equipment: (for example associated piping, buildings, pumps etc...)

-Not Applicable



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Thickness and Remaining Life Evaluation “ Must be Completed”

MUST BE COMPLETED AND RESOLVED WITH CNRL IMMEDIATELY UPON DISCOVERY OF LOW WALL THICKNESS AREAS

Step 1: Was any thickness measurement location found to be less than (Nominal WT – Corrosion Allowance)?: **No**

If YES, proceed to Step 2; if NO, proceed to “Crack Evaluation” and “CNRL Criticality Designation”.

Step 2: Which component(s) were found below (Nominal WT – Corrosion Allowance)?

Components found below Nom - CA:

Components
N/A - N/A
N/A - N/A
N/A - N/A
N/A - N/A
N/A - N/A

Perform Steps 3 – 8 for each component with actual thickness less than (Nominal WT – Corrosion Allowance).

Step 3: Describe Location and Extent of Corrosion:

Components	Location and Extent of Corrosion
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection
N/A - N/A	Not Applicable for this Inspection

Notes:
Not Applicable for this Inspection

Step 4:

- For shells and nozzles, calculate minimum required thickness (T-min) as per ASME Section VIII UG-27.
- For heads, calculate minimum required thickness (T-min) as per ASME Section VIII UG-32.

Components	T-Min
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A



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Thickness and Remaining Life Evaluation (Continued)

Step 5: Is any measured thickness less than calculated minimum required thickness (T-min)? **No**

*If YES, complete Step 6
If NO, proceed to Step 7..*

Step 6: Is nature and extent of pitting acceptable as per API 510? **N/A**

Step 7: Calculate Remaining Life as per API 510. How? (Find last reading; use nominal thickness if nothing available). Short Term Corrosion Rates and Long Term Corrosion Rates.

Components	Remaining Life (Yrs)
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A
N/A - N/A	N/A

Step 8: Contact CNRL Integrity Coordinator to discuss above results.

- Name of CNRL contact: Not Applicable for this Inspection
- Date and time of conversation: Not Applicable for this Inspection

Summary/results of conversation:
Not Applicable for this Inspection

Crack Evaluation by Magnetic Particle or Alternative Inspection “Must be Completed”

MUST BE COMPLETED AND RESOLVED WITH CNRL IMMEDIATELY UPON DISCOVERY OF CRACK-LIKE INDICATIONS

Were any indications found to suggest the vessel contained cracks? **No**

If NO, proceed to “CNRL Criticality Designation”.

If YES, Contact CNRL Integrity Coordinator to discuss results.

- Name of CNRL contact: Not Applicable for this Inspection
- Date and time of conversation: Not Applicable for this Inspection

Summary/results of conversation:
Not Applicable for this Inspection



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CNRL Criticality Evaluation – “MUST BE COMPLETED”

The CNRL In-Service Pressure Vessel Inspector MUST answer all the following questions

1. Is the vessel fit-for-service? : **Yes**
2. Was the measured thickness less than the calculated minimum required thickness (T-min) for any component?: **No**
3. Were MT indications found?: **No**
4. Was the remaining life less than 6 years for sour service vessels or less than 10 years for sweet service vessels?: **No**
5. Were NCR's or Action Items generated as a result of the inspection? : **No**
6. Were UT readings below (Nominal WT – Corrosion Allowance) found? : **No**

Information on CNRL Owner User Program - Criticality Designation and Required Review

RED – Vessel Inspection Results are deemed RED if one of the following occurred:

- The measured thickness was less than the calculated minimum required thickness (T-min) for any component.
- MT indications were found.
- The remaining life was calculated to be less than 6 years for sour-service vessels or less than 10 years for sweet-service vessels.

RED inspection reports must be signed off by the CNRL Chief Inspector.

YELLOW – Vessel Inspection Results are deemed YELLOW if one or more of the following occurred:

- The vessel was declared NOT fit-for-service by the 3rd Party In-Service PV Inspector.
- NCR's or Action Items were generated as a result of the inspection.
- UT readings below (Nominal WT – Corrosion Allowance) were found.

YELLOW inspection reports must be signed off by the CNRL Pressure Equipment Integrity Coordinator.

GREEN – Vessel Inspection Results are deemed GREEN if all of the following are true:


- The vessel was declared fit-for-service by the 3rd Party In-Service PV Inspector.
- UT readings below (Nominal WT – Corrosion Allowance) were NOT found.
- MT indications were NOT found.
- NCR's or Action Items were NOT generated as a result of the VE inspection.

GREEN inspection reports must be signed off by the 3rd Party In-Service Pressure Vessel Inspector.

Criticality Designation



Vehicle #: _____ Kms: _____
 Time In: 00:00 Time Out: 00:00 Hrs _____
 Time In: 00:00 Time Out: 00:00 Hrs _____
 Personnel: C. Sinclair N. Aggrey
 Billing Info: _____

Inspector (Name): Curtis Sinclair PESL: N/A
 Inspector (Signature):  API: 35229
Curtis Sinclair
CN = Curtis Sinclair, C =
CA, O = Matrix
2010.10.04 15:23:30 -06'00'
 CNRL Coordinator (Name): Keith McIntosh
 CNRL Coordinator (Signature): _____
 CNRL Chief Inspector (Signature): (I am in full agreement with report contents)

 (I am in full agreement with report contents)

Equipment Photographs:



001_A0227029_Data Plate



002_A0227029_Overview



003_A0227029_Manway Gasket Surface



004_A0227029_Manway Cover Gasket Surface



005_A0227029_Circ-Seam and Long-Seam Intersection



006_A0227029_Head



007_A0227029_Nozzle and Attachment Weld



008_A0227029_Manway and Attachment Weld



009_A0227029_Auxiliary Equipment



010_A0227029_PSV



011_A0227029_PSV Service Tag (1)



012_A0227029_PSV Service Tag (2)