



**PRESSURE VESSEL
VISUAL INSPECTION
REPORT**

Report #: **155741-MD-46**
 Inspect Date: 02/19/2012
 Page: 1 of 10
 Insp. Co. Job #: 155741

Criticality Designation:



Yellow

Insp. Comp: Matrix Inspection District: Grande Prairie - North Field: South Hamburg
 Location: 12-29-096-11W6 Unit / Skid #: Glycol Reboiler LSD: 12-29-096-11W6
 Jurisdiction #: A3106404 Equip Tag #: V-2400 Serial #: 95-1677
 CRN #: M8555.2 Nat'l Bd #: N/A Year Built: 1995
 Manufacturer: I. P. Constructors Equipment Description: Other: Rich Glycol Flash Drum
 Status: In Service - Equip. Type: Vessel: Separator Service: Sweet
 MAWP Shell: 150 Psi @ 200 °F Volume: 25 ft³ Code Stamp: Y N
 MAWP Tube: @ Height/Length: 24 in. Insulated: Y N
 MDMT: -20 °C RT: RT-3 Size/Diameter.: 8.625 in. O.D. PWHT: Y N
 Support: Skirt Vessel on Original CNRL Inventory List: Y N Manway: Y N
 C.A.: 0.062 in. Coated: No Clad: No J.E.: 0.85 Remote Access: -

Component	Material	Nominal Thk	Diameter	OD/ID	Tube Side	Shell Side
1 Main - Shell	SA-516-70	0.375 in.	8.625 in.	OD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 Top - Head	SA-516-70	0.337 in.	8.625 in.	OD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 Bottom - Head	SA-516-70	0.337 in.	8.625 in.	OD	<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:

Static data updated

PSV Static Data

PSV -1 Tag #: 95 Serial #: SE-12469-1 CRN: 02176.52
 Model #: JOS 15/A Capacity: 874 SCFM Set Pressure: 75 psi
 Manufacturer: Crosby Service Company: Tyco
 Inlet Size & Type: 1.50 in. - Flanged Last Service Date: 06/13/2007
 Outlet Size & Type: 2.50 in. - Flanged 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: On Vessel

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

PSV Comments

PSV is due for service

Service tag is missing



**PRESSURE VESSEL
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Report #: **155741-MD-46**
 Inspect Date: 02/19/2012
 Page: 2 of 10
 Insp. Co. Job #: 155741

Insp. Company: Matrix_Inspection LSD: 12-29-096-11W6 Jurisdiction #: A3106404

External Inspection Results – VE External Inspection Performed

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Nameplate	<input type="checkbox"/>	Accept	Firmly affixed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foundation and Supports	<input type="checkbox"/>	Accept	The skirt is anchors to skid floor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor Bolts	<input type="checkbox"/>	Accept	Tight with no deformation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grounding	<input type="checkbox"/>	Accept	Grounded directly to skirt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insulation Condition	<input type="checkbox"/>	Accept	No damage or exposed insulation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PSV	<input type="checkbox"/>	Reject	Due for service	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Shell Heads & Nozzles	<input type="checkbox"/>	Accept	Minor surface corrosion on bottom head	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal Surfaces (Paint)	<input type="checkbox"/>	Accept	Exposed coating is tightly adhered to vessel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aux Equipment	<input type="checkbox"/>	Accept	Intact and adequately supported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodic Protection	<input checked="" type="checkbox"/>		No external anode on vessel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alignment	<input type="checkbox"/>	Accept	Minor cyclic vibration noted in building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flange Connections	<input type="checkbox"/>	Accept	PSV flanged only, allothers are thread/ welded	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure Gauge	<input type="checkbox"/>	Accept	0-1100 kPa: acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperature Gauge	<input type="checkbox"/>	Accept	-20-120°C: acceptable range	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sight Glass	<input type="checkbox"/>	Accept	Both are intact with visible liquid level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ladder / Platform	<input checked="" type="checkbox"/>		No ladders or platforms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaks	<input type="checkbox"/>	No	No leaks noted during inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Piping from Vessel	<input type="checkbox"/>	Accept	Acceptable supporting on associated piping			
Previous UT Survey	<input checked="" type="checkbox"/>	No	Locations marked, no history provided	UT Company: N/A		

External Visual Observations

The bottom drain tee is a fitting with deep gouges from fabrication.

The top head and shell we insulated and the insulation (cladding) is in good condition. There is no damage cladding or exposed insulation.

The bottom head inside the skirt is exposed with minor surface corrosion noted.

The PSV service tag is missing and should be due for service.

A UT corrosion survey was performed with no significant wall losses recorded at the time of inspection.

Recommendations:

Clean and touch up the coating on the bottom head
 Service the PSV



**PRESSURE VESSEL
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Report #: **155741-MD-46**
Inspect Date: 02/19/2012
Page: 3 of 10
Insp. Co. Job #: 155741

Insp. Company: Matrix Inspection LSD: 12-29-096-11W6 Jurisdiction #: A3106404

Internal Inspection Results – VI N/A (Not Applicable)

Item	N/A	Condition	Comment (Check Status Bar or Press F1 for Help)	NCR	Action Item Integrity	Action Item Maintenance
Shell	<input type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heads	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manway			No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gasket Surfaces	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Welds	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Refractory	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating Coils	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Demister Pad	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vane Pack	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baffles	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trays	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Filter	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internal Coating	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tubesheet	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tube Bundle	<input checked="" type="checkbox"/>		No Internal Inspection Carried Out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Internal Visual Observations

No Internal Inspection Carried Out

Recommendations:

No Internal Inspection Carried Out



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REPORT**

Report #: **155741-MD-46**
 Inspect Date: 02/19/2012
 Page: 4 of 10
 Insp. Co. Job #: 155741

Insp. Company: Matrix Inspection LSD: 12-29-096-11W6 Jurisdiction #: A3106404

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



PRESSURE VESSEL
VISUAL INSPECTION
REPORT

Report #: **155741-MD-46**
Inspect Date: 02/19/2012
Page: 5 of 10
Insp. Co. Job #: 155741

Insp. Company: Matrix_Inspection LSD: 12-29-096-11W6 Jurisdiction #: A3106404

Vessel NDE and Final Summary:

NDE Performed: UT Report#: _____ ET Report#: _____
MT Report#: _____ RT Report#: _____
PT Report#: _____ Other Report#: _____

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

The PSV is due for service
Minor surface corrosion on the bottom head

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

Clean and touch up the coating on the bottom head
Service the PSV

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

No actions were corrected at the time of inspection

Additional Visual Observations

No additional visual observations were made at the time of inspection

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

Use caution when performing UT; the cladding is sharp



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Report #: **155741-MD-46**
Inspect Date: 02/19/2012
Page: 6 of 10
Insp. Co. Job #: 155741

Insp. Company: Matrix Inspection LSD: 12-29-096-11W6 Jurisdiction #: A3106404

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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VISUAL INSPECTION
REPORT

Report #: **155741-MD-46**
Inspect Date: 02/19/2012
Page: 7 of 10
Insp. Co. Job #: 155741

Insp. Company: Matrix_Inspection LSD: 12-29-096-11W6 Jurisdiction #: A3106404

Thickness and Remaining Life Evaluation (Continued)

Step 5: Is any measured thickness less than calculated minimum required thickness (T-min)? **N/A**

*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? **N/A**

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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Report #: 155741-MD-46
Inspect Date: 02/19/2012
Page: 8 of 10
Insp. Co. Job #: 155741

Insp. Company: Matrix_Inspection LSD: 12-29-096-11W6 Jurisdiction #: A3106404

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?: N/A
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? : Yes
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.

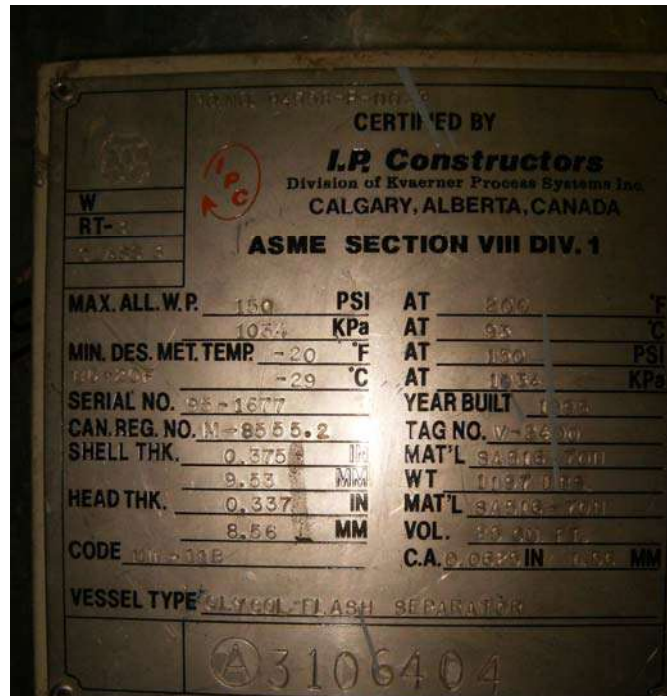
Criticality Designation



Vehicle #: 501 Kms:
Time In: 00:00 Time Out: 00:00 Hrs
Time In: 00:00 Time Out: 00:00 Hrs
Personnel: BI, LP
Billing Info: AFE :

Inspector (Name): Matthew B Dickinson PESL: 601
Inspector (Signature): [Signature] Matthew Dickinson 2012.11.15 16:42:49 -07'00' API: 39483
CNRL Coordinator (Name):
CNRL Coordinator (Signature):
CNRL Chief Inspector (Signature): (I am in full agreement with report contents)

Equipment Photographs:



01 nameplate



02 overview



03 PSV overview