



**PRESSURE VESSEL  
VISUAL INSPECTION  
REPORT**

Report #: **91517-MD-58**  
 Inspect Date: 05/02/2011  
 Page: 1 of 10  
 Insp. Co. Job #: 91517

**Criticality Designation:**



**Yellow**

Insp. Comp: Matrix\_Inspection District: St Albert - South Field: Brightview 1431  
 Location: 14-02-046-01W5 Unit / Skid #: Inlet Bld LSD: 14-02-046-01W5  
 Jurisdiction #: A0244723 Equip Tag #: \_\_\_\_\_ Serial #: HS-5960  
 CRN #: H5307.2 Nat'l Bd #: \_\_\_\_\_ Year Built: 1988  
 Manufacturer: LARSEN D' AMICO MFG LTD Equipment Description: Other: SEPARATOR  
 Status: In Service - Equip. Type: Vessel: Separator Service: Sweet  
 MAWP Shell: 1440 Psi @ 130 °F Volume: 1.78 m³ Code Stamp:  Y  N  
 MAWP Tube: \_\_\_\_\_ Psi @ \_\_\_\_\_ °F Height/Length: 120.00 in. Insulated:  Y  N  
 MDMT: -10 °F RT: RT-1 Size/Diameter.: 36.00 in. O.D. PWHT:  Y  N  
 Support: Saddle Vessel on Original CNRL Inventory List:  Y  N Manway:  Y  N  
 C.A.: 1.6 mm 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	44.000 mm	36.000 in.	OD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2 North - Head	SA-516-70	41.000 mm	36.000 in.	OD	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3 South - Head	SA-516-70	41.000 mm	36.0 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. Vessel is not running shutdown for 2011 TA

**PSV Static Data**

PSV -1 Tag #: PSV244723 Serial #: 88C0692 CRN: 01832.52  
 Model #: 1997C1-1-1-1-1 Capacity: 10693 Set Pressure: 1440 psi  
 Manufacturer: Consolidated Service Company: \_\_\_\_\_  
 Inlet Size & Type: 1.50 in. - Last Service Date: 6/21/2006  
 Outlet Size & Type: \_\_\_\_\_ in. - Block Valve: N/A - -  
 Carseal Intact: \_\_\_\_\_ Code Stamp: \_\_\_\_\_  
 Shell Side / Tube Side: Shell Side Out for Service During Insp.: Y 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**

PV removed for service during 2011 TA



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**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	secure and legible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foundation and Supports	<input type="checkbox"/>	Accept	acceptable condition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anchor Bolts	<input type="checkbox"/>	Accept	tight with no signs of deformation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grounding	<input type="checkbox"/>	Accept	goaded to building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insulation Condition	<input checked="" type="checkbox"/>		separator is not insulated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PSV	<input type="checkbox"/>	Accept	proper venting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shell Heads & Nozzles	<input type="checkbox"/>	Accept	minor surface corrosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal Surfaces (Paint)	<input type="checkbox"/>	Accept	minor paint flaking and chipping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aux Equipment	<input type="checkbox"/>	Accept	secure and well supported	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodic Protection	<input checked="" type="checkbox"/>		no anode for inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alignment	<input type="checkbox"/>	Accept	level with building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flange Connections	<input type="checkbox"/>	Accept	proper thread engagement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pressure Gauge	<input type="checkbox"/>	Accept	0-1500 psi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temperature Gauge	<input checked="" type="checkbox"/>		to twp gauge on separator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sight Glass	<input type="checkbox"/>	Accept	clean and intact	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ladder / Platform	<input checked="" type="checkbox"/>		no ladder or platform for separator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaks	<input type="checkbox"/>	Yes	evidence of leak from sight glass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Piping from Vessel	<input type="checkbox"/>	Reject	inlet saddle clamp is not secure			
Previous UT Survey	<input checked="" type="checkbox"/>					

UT Company:

**External Visual Observations**

Overall condition of the separator is good. Minor paint flaking and chipping noted on vessel, supports and piping. There is minor surface corrosion noted where the previous UT corrosion survey was performed as well as between the flanges. There is evidence of a process leak from the upper sight glass top packing. The inlet piping saddle clamp has poor thread engagement. A UT corrosion survey was performed at the time of inspection with no metal loss noted. .

**Recommendations:**

Tighten or replace upper sight glass packing. Tighten inlet piping saddle clamp support to ensure full thread engagement. Maintain the inspection and UT corrosion survey frequency.



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**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	<input checked="" type="checkbox"/>		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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**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 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:**

NDE Performed: UT  Report#: \_\_\_\_\_ ET  Report#: \_\_\_\_\_  
MT  Report#: \_\_\_\_\_ RT  Report#: \_\_\_\_\_  
PT  Report#: \_\_\_\_\_ Other  Report#: \_\_\_\_\_

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

There is minor surface corrosion noted where the previous UT corrosion survey was performed as well as between the flanges. There is evidence of a process leak from the upper sight glass top packing. The inlet piping saddle clamp has poor thread engage

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

Tighten or replace upper sight glass packing. Tighten inlet piping saddle clamp support to ensure full thread engagement. Maintain the inspection and UT corrosion survey frequency.

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

No actions to correct at the time of inspection

**Additional Visual Observations**

vessel is shut down for 2011 TA

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

No safety concerns noted at the time of inspection



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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)? **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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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



Yellow

Vehicle #: 380 Kms:
Time In: 00:00 Time Out: 00:00 Hrs
Time In: 00:00 Time Out: 00:00 Hrs
Personnel:
Billing Info: AFE :

Inspector (Name): MatthewB Dickinson PESL:
Inspector (Signature): 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 minor surface corrosion at previous UT location



04 evidence of leak from sight glass top packing



05 inlet piping anchor bolting thread engagement



06 minor surface corrosion between flanges