

# Pressure Vessel External Visual Inspection Report



Organization: Husky

Inspection Date: 22/11/2011 12:00:00AM

Plant: Heavy Oil & Gas

Equipment ID: 62066206

Asset No: 62066206

System: N/A

Operating Unit: L7-02-007 Morgan

## Background

Description:	TREATER, H-100
Asset Type:	Treater

## Inspection

Inspector:	Ray Trachuk	Company:	Husky Energy	Insulated:	N
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## External Location Categories

Barrier Penetrations:	0	Damaged Insulation:	0	Vessel Supports:	0	Insulation Rings:	0
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## Inspection Comments

ID	Description	Condition	Location	NCR	Comments
V7	Heads	Fair			Acceptable
V13	Gauge/Site Glass	Fair			Acceptable
V14	Shell	Fair			Acceptable
V22	Foundation	Fair			Acceptable
V23	Anchor Bolts	Yes			Acceptable
V24	Saddle/Skirt	Fair			Saddles - Acceptable
V31	Connections Other (Please explain)	Fair			Associated Piping - Acceptable
V41	Insulation Other (Please explain)	Fair			Acceptable

## ***Pressure Vessel External Visual Inspection Report***

### **Inspection Summary**

An external and internal visual inspection was performed to verify the vessels integrity. The treater was found to be generally in fair condition although immediate repairs to the fire tubes were required.

The vessel is totally insulated with the insulation and cladding found to be in acceptable condition.

The nameplate, piping, bolting and external attachments are in fair condition.

The gauges are clear and in good condition.

The saddles and supports are in good condition.

See attached Internal Visual Inspection report for additional details and recommendations.

cc: Lyle Nerbas

## Pressure Vessel External Visual Inspection Report

### Inspection Planning

Date of Inspection: \_\_\_\_\_ Date of last Inspection: \_\_\_\_\_ Date of Next Inspection: \_\_\_\_\_

The signature below certify that the above is a true report of the inspection / test of the equipment specified and consider fit for service until the date of next inspection.

Competent Inspector: \_\_\_\_\_ Report Generation Date: \_\_\_\_\_

### Reviewed and Accepted by:

Next Inspection Date: 2016-10-07

### Approved by:

Signature: \_\_\_\_\_  Date: 2011-11-22

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# Pressure Vessel Internal Visual Inspection Report



Organization: Husky

Plant: Heavy Oil & Gas

Inspection Date: 07/10/2011 12:00:00AM

Equipment ID: 62066206

Asset No: 62066206

System: N/A

Operating Unit: L7-02-007 Morgan

## Background

Description:	TREATER, H-100
Asset Type:	Treater

## Inspection

Inspector:	Ray Trachuk	Company:	Husky Energy	Internal Lining/Coating:	N
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## Inspection Comments

ID	Description	Condition	Location	NCR	Comments
V7	Heads	Fair			Acceptable
V8	Welds	Fair			Acceptable
V9	Nozzles	Fair			Acceptable
V10	Shell	Fair			Several gouges in the vessel shell were observed - left as is.
V11	Gasket Surfaces	Fair			Acceptable
V21	Internals Other (Please explain)	Fair			Acceptable
V31	Tubes	Poor			Firetube was badly bowed and require immediate repair.

# ***Pressure Vessel Internal Visual Inspection Report***

## **Inspection Summary**

Generally the internal surfaces and components of the Flash Treater were found to be in fair condition although one leg on the firetube was found to be badly bowed and required immediate repairs. The leg was replaced by L& L Oilfield of Lloydminster prior to recommissioning the Flash Treater.

The fire tube flange, throat flange and fire tube throat are in fair condition. There did not appear to be any distortion on the flange faces at time of inspection. The gasket surfaces are acceptable.

The internal piping and supports are in acceptable condition.

The internal surfaces of the vessels are in fair to good condition with no pitting observed, however there were several gouges found in the vessel shell. These were all found near the circ seams of the vessel and are believed to have been caused from "dogging" (aligning of shell plates) the vessel shell during fabrication. These gouges were left as is.

Inspect the vessel in five years.

cc: Lyle Nerbas

## Pressure Vessel Internal Visual Inspection Report

### Inspection Planning

Date of Inspection: \_\_\_\_\_ Date of last Inspection: \_\_\_\_\_ Date of Next Inspection: \_\_\_\_\_

The signature below certify that the above is a true report of the inspection / test of the equipment specified and consider fit for service until the date of next inspection.

Competent Inspector: \_\_\_\_\_ Report Generation Date: \_\_\_\_\_

Reviewed and Accepted by:

Next Inspection Date: 2016-10-07

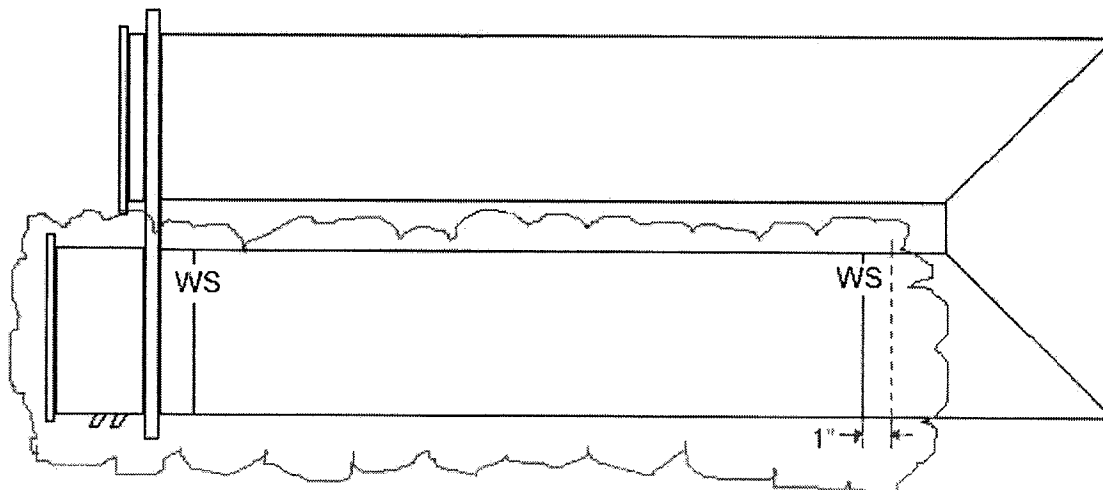
Approved by:

Signature:  Date: 2011-11-22

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

# PRESSURE EQUIPMENT REPAIR / ALTERATION PROCEDURE

Repair Request by Marie Lafontaine		Accepted by Operations Superintendent <input type="checkbox"/> Yes <input type="checkbox"/> No	
Plant Name Morgan Battery	Location (LSD) 10-34-051-04W4	Job # 62066206-10/06/2011-R1	
Equipment Description Non-Code Treater Firetube	Eq # 62066206	A # non-code	
Manufacturer Colt	Serial # H-100	CRN A5889.23	
Work to be Performed is a <input checked="" type="checkbox"/> Routine Repair <input type="checkbox"/> Non Routine Repair <input type="checkbox"/> Alteration			
Authorized Inspector Acceptance n/a – non-code vessel			
A. I. Location _____		Signature _____ Date _____	
Contractor Name & Address L&L Oilfield Maintenance Ltd.		A. I. Inspection waived <input type="checkbox"/>	
Contractor Quality Program Reg. # AQP-2677		Expiry Date 2013-03-17	
Work Start Date 2011-10-06		Contact Rick Hutchinson Phone (780)205-0350	
Code of Design <input type="checkbox"/> ASME I <input type="checkbox"/> ASME IV <input type="checkbox"/> ASME VIII Div 1			
Shell Side Process Fluid Oil Emulsion		<input checked="" type="checkbox"/> Sweet <input type="checkbox"/> Sour <input type="checkbox"/> Low Temp	
Tube Side Process Fluid n/a		<input type="checkbox"/> Sweet <input type="checkbox"/> Sour <input type="checkbox"/> Low Temp	
Shell Side Design MAWP 15psi @ 200F		MDMT _____	
<input type="checkbox"/> RT-1 <input type="checkbox"/> RT-2 <input type="checkbox"/> RT-3 <input type="checkbox"/> RT-4 PWHT <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Test Press n/a	
Tube Side Design MAWP n/a KPag @ _____ °C		MDMT _____ °C	
<input type="checkbox"/> RT-1 <input type="checkbox"/> RT-2 <input type="checkbox"/> RT-3 <input type="checkbox"/> RT-4 PWHT <input type="checkbox"/> Yes <input type="checkbox"/> No		Test Press _____	



## MATERIAL LIST

Item	Description	Size	Material & Grade	Sch / Rating	Qt'y
1	18" pipe for firetube leg	18" OD	SA-106 Gr B	Sch STD (0.375")	As req'd

## REPAIR PROCEDURE

The following Husky Specifications form part of the requirements of this Procedure

Spec Number	Name	Spec Number	Name
PS-MW-01	Welding		

**PRESSURE EQUIPMENT REPAIR / ALTERATION PROCEDURE**

Repair Procedure (Additional Detailed Procedure Attached)

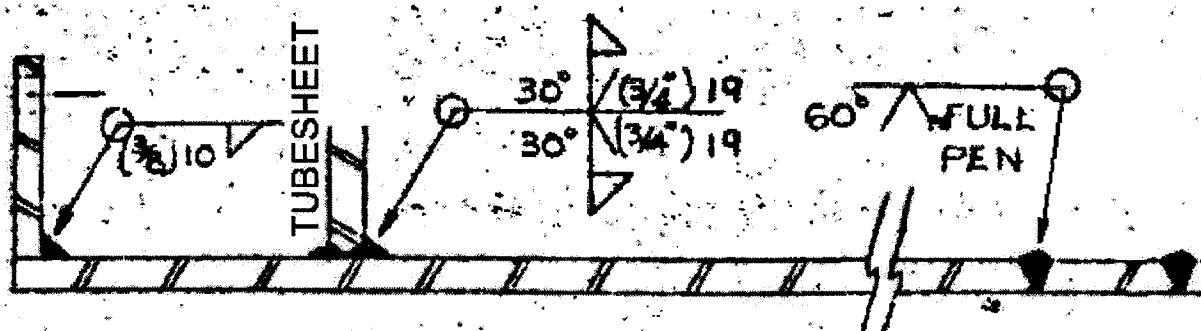
No

The treater was down for turnaround. The firetube was sandblasted and brought to L&L Oilfield Maintenance. The burner leg was bowed with hot spots and will be replaced through the flange to 1" past an existing circ weld. IRIS NDT is scheduled to perform 100% MPI on welds. If cracking is found stop the repair and contact Marie to reassess.

The firetube leg is to be repaired as follows:

**Weld Joint Design**

Weld joint design for replacement shall be in accordance with the original detail and dimensions:


**Firetube Preparation**

- 1) Remove the firetube from the tubesheet weld by suitable methods such as air-carbon arc gouging, and cut out the degraded area of pipe 1 inch beyond the existing circ weld repair on the leg.
- 2) Bevel dress the firetube and tubesheet per original detail. Parent material to be cleaned to shiny metal at weld and adjacent 50mm minimum. Perform MPI on prepared surfaces (below).

**Welding**

Assemble firetube per original dimensions. Weld using L&L's WP L&L-15 Rev 1 (SMAW; F3 E6010 and F4 E7018-1):

Circ weld on leg:

- 1) Run first weld pass. Perform MPI on first weld pass (below).
- 2) Complete filling weld. Perform MPI and RT on final cap (below).

Fillet welds:

- 1) Run first weld pass. Perform MPI on first weld pass (below). Complete filling weld. Perform MPI on final pass.

**Inspection & Testing**

- 1) Perform MPI on prepped bevel, root pass and final cap; acceptance criteria to ASME Section VIII, Div 1; Appendix 6.
- 2) Perform 100% RT on circ weld; acceptance criteria in accordance with ASME Section VIII, Div 1 UW 51.
- 3) All welds are to be visually inspected.
  - All welds to be cleaned of slag and other deposits prior to inspection.
  - Undercut exceeding 1/64" shall be ground out and re-welded.
  - Porosity open to the surface shall be ground out and re-welded.



**PRESSURE EQUIPMENT REPAIR / ALTERATION PROCEDURE**
**Activity Responsibilities**

The following tasks are the Responsibility of	HUSKY	CONTRACTOR	Comments
Design Submission to AI	<input type="checkbox"/>	<input type="checkbox"/>	N/A
Repair Alteration Procedure	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Material Control	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Welding Control	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
NDE	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Per provided repair procedure
Heat Treatment	<input type="checkbox"/>	<input type="checkbox"/>	n/a
Leak Test	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Service test

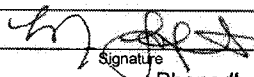
**WELDING REQUIREMENTS**

Welding Procedure Specification Number	L&L-15 Rev 1
Min Preheat Temp 10°C	PWHT Required <input type="checkbox"/> Yes (see PWHT Instruction Sheet) <input checked="" type="checkbox"/> No

**LEAK TEST REQUIREMENTS**

<input type="checkbox"/> Hydro	<input type="checkbox"/> Pneumatic	<input checked="" type="checkbox"/> Service	<input type="checkbox"/> Alternate (see Alternative Test Report)
Required Hydrotest Pressure _____			

**PROCEDURE PREPARED BY**

Marie Lafontaine	780-205-4820		2011-10-06
Print Name	Phone	Signature	Date
Husky Field Contact	Lyle Nerbas	Phone # 780-205-2375	

**ATTACHMENTS**

The following Husky attached documents form part of the requirements of this Procedure

PS-MW-01

**CRITICAL JOB ACTIVITIES**
**AIA: ABSA/Sask. Boilers Branch** (The AIA may identify hold points by initialing the task(s) they would like to witness)

All activities are considered to be the responsibility of the Contractor and should be reflected / transferred to the required documentation referenced in their registered QA / QC Program Manual.

No.	Activity	Husky Energy	Contractor	AIA
1	Material checked against drawing / bill of material			
2	Mill tests checked on weld fittings and pipe		X	
3	Flange and fitting ratings check		X	
4	Fit up checked		X	
5	Welder's ID / Qualifications checked	V	X	
6	In Process VT Completed		X	
7	External inspection complete	H		
8	Radiographs reviewed	V		

H = Hold V = Verify \* = Required Inspection / Test / Activity (Can be indicated by % required)

**QUALITY DOCUMENTS**

The following documents along with this Pressure Equipment Repair/Alteration Procedure shall be completed by the approved contractor and the completed "Quality Job File" submitted to the Facility Lead Inspector.

Document Name	Review for Acceptance prior to start of Repair / Alteration	Developed By
Jurisdictional Repair / Alteration Report	n/a	Contractor
Copy of QA Program Certificate (AQP)	Yes	Contractor
Copy of Weld Procedure(s) used	Yes	Contractor
Copy of Welder Certificates	Yes	Contractor
NDE Interpretation Reports		
Radiographic Film	n/a	

**10-34-51-4W4M MORGAN BATTERY 18" FIRE TUBE REPAIR**

