SB

Silvertip INSPECTION SERVICES LTD.

SCRUBBERS INSPECTION REPORT

(Metric)

Facility:	MARIE LAKE BOOSTER	Date:	September 3, 2008	Report #:	IR080903GENb

Area Supervisor:	ROGER BUREAU			W.O. / C.C.#	70975

STATIC DATA

Alberta Reg. #:	412561	CRN:	L-5186.123	National Board #:	72
Equipment Number:	66045819	Notification #:	6068839	Classification:	-
Manufacturer:	THE HANOVER COMPANY			Serial Number:	D99-8
Equip. Description:	INLET SEPARATOR			Location (LSD):	15-15-065-02W4
Equipment Tag #:	-	Year Built:	1999	Company I.D.#:	BC-034758
Province Installed:	ALBERTA	Registration #:	-	Skid / Building #:	BC-034765
Nameplate Attached:	YES	Legible:	YES	U1A Available:	YES

MAWP:	1379	Kpa	Diameter: O.D.	610	mm	Radiography:	RT1	Efficiency:	-
MAWT:	121	°C	Diameter: I.D.	591	mm	Stress Relief:	NO	Code Stamp:	U
MDMT:	-29	°C	Length: s/s	1207	mm	Ext. Coating:	YES	Position:	VERTICAL
Capacity:	-	m3	Overall Length:	1676	mm	Insulated:	NO	Support:	SKIRT

Internal Coating:	NO	Type:	-	Thickness:	- mm	Manway:	NO	Size:	- mm
Internal Cladding:	NO	Type:	-	Thickness:	- mm	Test Pressure:	2068	kpa	
Inspection Port:	YES	Size:	51 mm	- mm	Location: #1	MID SHELL	#2	-	

	Type	Material	Thickness	Corrosion Allowance
SHELL	-	SA-106B	9.53 mm	1.59 mm
TOP HEAD	ELLIPTICAL	SA-516-70	9.53 mm	1.59 mm
BOTTOM HEAD	ELLIPTICAL	SA-516-70	9.53 mm	1.59 mm

Nozzle Description	I.D. #	NPS	Flange Rating	Type	Material	Thickness	Length
Inlet	-	254 mm	150 #	RFWN	SA-106B	9.3 mm	152 mm
Outlet	-	254 mm	150 #	RFWN	SA-105N	9.3 mm	203 mm
Drain	-	25 mm	- #	NPT	N/A	- mm	- mm

PROCESS DATA

Product Description:	NATURAL GAS			Service:	SWEET -
Operating Pressure:	21 Kpa	Operating Temperature:	- °C		

PSV STATIC DATA

Tag Number:	-	Manufacturer:	TAYLOR		
Company I.D. #:	-	Model # / Type:	T-7900-2	Equipment # :	-
Serial Number:	72205-45	CRN:	OG1316.2341YT	Code Stamp:	UV NB
Inlet Size:	25 mm	Rating: - #	Set Pressure: 1034 Kpa	Back Pressure:	Kpa
Outlet Size:	25 mm	Rating: - #	Capacity: 667 SCFM	Service Date:	09/2006
Location of PSV:	ON FILTER INLET PIPING				

INSPECTION DETAILS

Inspection Reason:	CODE INSPECTION	Inspections Required:	VE	UT						
Inspection Test Plan:	-	Inspection Type Used:	VE	UT						
Last Inspection Date:	-	Next Inspection Type:	VE	UT						
Next Inspection Due:	2013	Outstanding Repairs:	NO	RBI Category:	A		B		C	D

VESSEL STATUS

Integrity Status:	SUITABLE FOR CONTINUED SERVICE	Inventory Status:	ISF
This IR completes a thorough inspection; reschedule as indicated.	YES	Partial inspection; do not reschedule.	-

INSPECTION SUMMARY

A thorough inspection to verify the equipments integrity was done by VE and UT.
There were no rejectable defects observed at this time; the vessel can be recommended fit for service.
There are no recommendations to be made at this time.
There were no repairs performed that were related to this inspection.
No NCR's were issued at this time.
No IDR's were issued at this time.
There was no internal inspection performed at this time.
There was no internal NDE performed during this inspection.

WO# 6071599

EQ # 66045819		NO # 6068839	
Copied ✓	Scanned ✓	Entered SB	HDMS Linked

RECOMMENDATIONS

REPAIRS COMPLETED

Facility:	MARIE LAKE BOOSTER	Date:	September 3, 2008	Report #:	IR080903GENb

INSPECTION OBSERVATIONS

NON COMPLIANCES ISSUED

INSPECTION DEFICIENCIES ISSUED

EXTERNAL VISUAL INSPECTION

The nameplate is in tact and legible.
The instrumentation and its tubing is in good working condition with no detectable leaks.
The site glass drain is properly connected and in good condition.
The pressure retaining welds are in tact with no evidence of deterioration or visible cracking.
The vessel support is securely welded to the skid floor.
There is adequate access to the bottom head.
The vessel's ground connection is through the skid's ground rod.
The vessel is protected by a PSV that is in fair condition.
The vessel is painted with no notable coating defects.
The piping and piping attachments are in fair condition with no detectable leaks.
The piping bolt up grading is B7m and 2Hm.
The attached piping is painted with no notable defects.

EXTERNAL NDE

NDE inspections were performed by Silvertip Inspection Services Ltd.
Some of the UT values recorded on the vessel are below nominal; however, they are still within corrosion allowance.
See the attached NDE reports for more detailed information.

INTERNAL VISUAL INSPECTION

INTERNAL NDE

PRESSURE TESTS

Test Completed:	-	Test Pressure:	- Kpa	Test Acceptable:	-	Test Report #:	-

INSPECTOR CERTIFICATION AND ACCEPTANCE

I, the undersigned, certify that the equipment stated above has been inspected in accordance with the assigned task list and that the statements within this report are correct and represent my inspection findings.

External Inspector's Name:	Inspector's Certification:	Inspector's Signature:	Date:
GUY NORMAND C.E.T.	API 510, 653, ABSA PESL, NACE		SEPTEMBER 3, 2008
Internal Inspector's Name:	Inspector's Certification:	Inspector's Signature:	Date:
-	-		-

CHIEF OR LEAD INSPECTOR'S ACCEPTANCE AND SCHEDULE CONFIRMATION

Inspector's Name:	Inspector's Certification:	Inspector's Signature:	Date:
JIM RICE			sept 29, 08

Vessel Inspection Interval:	Leave "As Is":	Change to:	PSV Inspection Interval:	Leave "As Is":	Change to:
5 Years		Years	5 Years		Years

Office Use Only: Report Entered to SEQA Database by: _____ Date: _____
Static Data Verified by: _____ Date: _____

NAMEPLATE

OVERALL VIEW

Silvertip INSPECTION SERVICES LTD.

SCRUBBER UT REPORT

Rev. 8-06-08

FACILITY:	MARIE LAKE BOOSTER	DATE:	SEPTEMBER 03, 2008	REPORT #:	IR080903GENb
AREA SUPERVISOR:	ROGER BUREAU			W.O. / C.C.#	70975

STATIC DATA

Alberta Reg. #:	412561	CRN:	L-5186.123	National Board #:	72
Equipment Number:	66045819	Notification #:	6068839	Vessel Class:	
Manufacturer:	THE HANOVER COMPANY			Serial Number:	D99-8
Equip. Description:	INLET SEPARATOR			Location (LSD):	15-15-065-02W4
Equipment Tag #:	-	Year Built:	1999	Company I.D.#:	BC-034758
Province Installed:	ALBERTA	Registration #:	-	Skid / Building #:	BC-034765

MAWP:	1379	Kpa	Diameter: O.D.	610	mm	Radiography:	RT1	Nozzle Rating:	- #	Position:	VERTICAL
MAWT:	121	°C	Diameter: I.D.	591	mm	Stress Relief:	NO	Code Stamp:	U	Support:	SKIRT
MDMT:	-29	°C	Length: S/S	1207	mm	External Coating:	YES	Capacity:	m3	Insulated:	NO
Internal Coating:	NO		Thickness:		mm	Internal Cladding:	NO	Type:	-	Thickness:	mm

	Material	Thickness	Corrosion Allowance
Shell	SA-106B	9.53 mm	1.59 mm
Top Head	SA-516-70	9.53 mm	1.59 mm
Bottom Head	SA-516-70	9.53 mm	1.59 mm

Nozzle Descripption	I.D. #	NPS	Flange Rating	Type	Material	Thickness	Length
Inlet	-	254 mm	150 #	RFWN	SA-105N	9.3 mm	152 mm
Outlet	-	254 mm	150 #	RFWN	SA-105N	9.3 mm	203 mm
Drain	-	25 mm	- #	NPT	N/A	- mm	- mm

PROCESS DATA

Product Description:	NATURAL GAS	Service:	SWEET
Operating Pressure:	21 Kpa	Operating Temperature:	°C

NOTES:

ALL VALUES ARE IN METRIC UNITS
FOR FITTINGS THE CORROSION ALLOWANCE IS EQUAL TO 12.5% MILL TOLERANCE

S.O.B. = START OF BAND
E.O.B. = END OF BAND
LOW POINT= LOWEST READING IN THE BAND

TML	TML LOCATION ITEM DESC.		THICKNESSES NOM.	C.A	MIN.	UT READINGS - POINTS 1	2	3	4	5	6	LOW RDG @ POINT	BELOW NOMINAL	BELOW MINIMUM
1-05	TOP HEAD	B-T	9.5	1.6	7.9	10.3	10.1	10.0	10.0	9.7	-	5	-	-
1-10	TOP SHELL	T-B	9.5	1.6	7.9	10.4	10.4	10.4	10.3	10.4	10.4	4	-	-
1-15	SHELL @ LIQ. LEVEL	T-B	9.5	1.6	7.9	10.4	10.2	10.1	10.2	10.1	10.1	5	-	-
1-20	BOTTOM HEAD	T-B	9.5	1.6	7.9	10.1	9.2	9.2	9.1	9.2	-	4	0.4	-
1-25	BTM HEAD SCAN	N-E-S-W	9.5	1.6	7.9	9.2	9.2	9.2	9.2	-	-	2	0.4	-

Husky Energy 66045819 QPSCUS33076 N# 6018873 C.T.

PRESSURE VESSEL INSPECTION REPORT

FACILITY	Jackfish Creek CS	DATE	August 22, 2002	REPORT #	IR_020822_MKY- 11

VESSEL STATIC DATA

Prov. Insp. #	A 0412561	CRN	L-5186.123	Equip Tag #	N.B # 72
Equipment Location (LSD)	15-15-65-02 W4M "Marie Lake South" Booster			Serial #	D99-8
Equipment Description	"2 chamber" Suction Scrubber			Vessel Class	
Manufacturer	Collicutt Hanover Services Ltd.			Year Built	1999
MAWP	200 psig	@	250 °F	MDMT	-20 °F
CODE : UM ☐ U ■ U2 ☐ ASME Sect VIII, Div 1		RT : 1 ■ 2 ☐ 3 ☐ 4 ☐		PWHT : YES ☐ NO ■	
Diameter	24"	Length (T/T)	5'- 00" (OAL) 58"	Vertical ■	Horizontal ☐
Shell Mat'l	Unknown - smls	Thickness	0.375" Mm/ in	Corr Allowance	0.0625" Mm/ in
Head Mat'l	unknown	Thickness	0.375" Mm/ in	Corr Allowance	0.0625" Mm/ in
Nozzle Mat'l		Thickness	Mm/ in	Corr Allowance	Mm/ in
Internal Coating :	YES ☐ NO ■	Internal Clad :	YES ☐ NO ■	Capacity	ft^3
Manway :	YES ☐ NO ■	Inspection Port :	YES ■ NO ☐	Skirt ■	Legs ☐ Saddle ☐
Nozzle Rating	150 lb ANSI	Painted :	YES ■ NO ☐	Insulated	: YES ☐ NO ■

PROCESS DATA

Product Description	Gas	Sweet ■ Sour ☐ PPM:	
Operating Pressure	6 psig	Operating Temperature	76 °F

PSV STATIC DATA

Tag / Serial No.	Location	Size Inlet	Size Outlet	Set Pressure	Capacity	Manufacturer	Model / Type	Service Date
77205-45	On inlet piping	2"	2"	150 psi	687 scfm	Taylor	T-7900-2	2-08-2002
	Of sand filter							new
	A 0411708							

INSPECTION HISTORY

RBI Category	A☐ B☐ C☐ D☐	Last Inspection Date	W.O. # 6019113
Inspection Task List #		Inspection Type	Inspection Reason: No inspection history
Inspection Techniques Required		Next Inspection Type	Due Date
VE X, VI, RT, UT X, MT, PT, PT, TT		Outstanding Repairs	

INSPECTION SUMMARY

Vessel has excellent external appearance.

No significant findings. Vessel is a component of compressor package "# FH 107".

Vessel is suitable for continued service.

RECOMMENDATIONS

REPAIRS COMPLETED

Object Name	Cause	Damage	Repair Activity

VESSEL STATUS

Integrity Status	■ ***Suitable for Continued Service***	☐ ***Immediate Repairs Required*** ☐ ***Future Repairs Required***	☐ ***Replace***
Inventory Status	■ **Inservice Fully Utilized**	☐ **Idle** ☐ **Surplus**	☐ **Scrap**
This IR completes a thorough inspection. Reschedule as indicated	■	Partial IR only. Do not reschedule	☐

Husky Energy

PRESSURE VESSEL INSPECTION REPORT

FACILITY	Jackfish Creek CS	DATE	August 22, 2002	REPORT #	IR_020822_MKY- 11

INSPECTION OBSERVATIONS

NONCOMPLIANCES OR INSPECTION DEFICIENCIES ISSUED

None.

EXTERNAL VISUAL INSPECTION

The vessel has excellent external appearance. No visible corrosion.

Foundation and skirt is in good condition.
Piping and nozzles are in good alignment and are well supported. Bolts are secure.

No signs of leakage.

EXTERNAL NDE EXAMINATION

Ultrasonic wall thickness measurements were performed at random locations.

No significant findings, current wall thickness is acceptable. UT readings are all greater than nominal except for the bottom head, near the drain nozzle. A reading of 0.373" was obtained and this is just below the nominal 0.375" wall thickness stated on the nameplate. This is still considerably greater than the minimum allowable 0.3125" and no problems are expected.

INTERNAL VISUAL INSPECTION

INTERNAL NDE EXAMINATION

PRESSURE TEST

Test Completed ☐ Yes ☐ No	Test Acceptable ☐ Yes ☐ No	Test Report #

INSPECTOR CERTIFICATION

I, the undersigned certify that the above equipment has been inspected in accordance with the assigned task list and that statements within this report are correct and represent inspection findings

Inspectors Name	**Manley Yuen**	Inspector's Signature	Manley Yuen
Inspection Company	**Ramtech Consulting Inc.**	Date	**August 22, 2002**

LEAD INSPECTOR'S ACCEPTANCE & SCHEDULE CONFIRMATION

Lead Inspector	**Greg Murray**	Signature		Date	Oct 27/02
Vessel Inspection Interval	**5 years**	Leave "as-is"	☒	Change to	
PSV Inspection Interval	**5 years**	Leave "as-is"	☒	Change to	

Office Use Only — Report Entered to SEQA Database by — Date

Static Data Verified by — Date

10" Ø outlet
0.379"
0.397"
0.401"
0.418"
A 0412561
0.423"
0.404"
0.422"
10" Ø inlet
0.419"
0.415"
0.398"
0.373"
1" Ø drain
0.284"

Jackfish Creek CS "Marie Lake South" Booster
100/ 15-15-65-02 W4M

Suction Scrubber A 0412561