



244723

Client	Canadian Natural Resources				Date of Insp.	April 30, 1999		
Prov. Reg.#	244723				Location	Hoadley Plant		
Equipment	3 Phase Hor. Separator				LSD	14-2-46-1W5		
Tag/Equip. #					Comp./Unit #			
Vessel Status	In Operation				Job #	99-130		
Fabricator	Larsen D'Amico				Serial #	HS5960	MAWP/Temp	1440 psi/130F
CRN#	H5307.2				Shell Mat'l	SA-516-70	Shell Thick	44mm
Corr. All	1.6mm				Head Mat'l	SA-516-70	Head Thick	41mm
Diameter	36"				Length	10'	RT	1
Year Built	1988				Next Insp	2003	Insp. Type	VE/UT
Service	Sweet				Manway	No	Coating	No
PSV #								
Mfg	Consolidated				Serial #	88C0692	Set Pressure	1440 psi
Type/Model	1997C1-1111				Capacity	10693 SCFM	Size	1.5"
Date of Service	96/06				Next Service	2000	Service Co.	Valseal

Report# 2037

Observations:

External No evidence of corrosion, in good condition.

Internal No access at this time.

UT Inspection (measurements in mm)

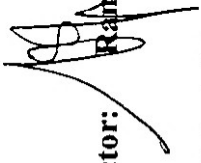
Test Point	A	B	C	D
1	43.86	43.94	43.91	43.69
2	45.80	45.85	45.86	45.81
3	46.78	46.82	46.20	46.37
4	44.05	44.37	44.26	44.03
5	32.54	32.30	32.36	32.29
6	30.03	30.11	30.12	30.08

RAE Inspection Service (1979) Ltd.
#111, 4808 – 87 Street, Edmonton, Alberta T6E 5W3
Phone: (780) 469-2401 Fax: (780) 468-2422

Field Inspection Report

Recommendations:

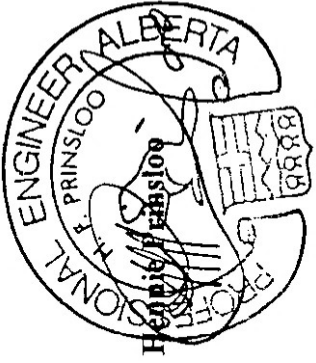
1. Next outage clean and open (access flanges) for internal inspection.

Inspector: 
Ramon Jimeno

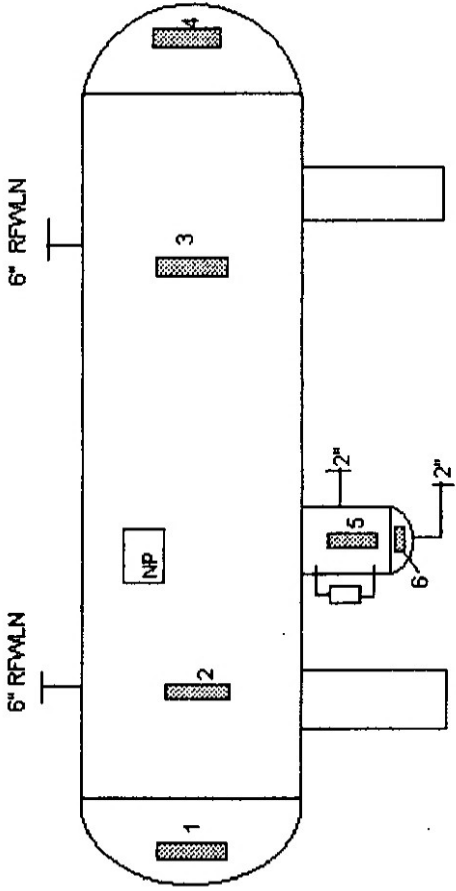
☐ AB-40 to be attached

Chief Inspector:

Hennie Prinsloo



Client	Canadian Natural Resources	Location	Hoadley Plant
Prov. Reg.#	244723	LSD	14-2-46-1W5
Equipment	3 Phase Hor. Separator	RAE Job#	99-130
Diameter	36"	Shell Material	Shell Thickness
			44mm
Length/Height	10'	Head Material	Head Thickness
			41mm



QR7 INSPECTION AND TEST REPORT - PSV / PRV

Customer: CNRL Location: HOADLEY COMP STATION CUST PO#: Date: 99.10.13
SO#: 52-15191 10 OF 27 00 CST Tag #14 14-2 HORIZONTAL SEP PCI ID: PI6924 Assoc. Doc #:
Revision: 9-830 Date: 01.09.24

Customer Instructions: REPAIR RUSH Contact: _____
Requested Completion Date: ? LSD: 14-02-46-01W5 ~Phone: _____

Male: CONSOLIDATED Model: 1997CL1-L1-L1 Shop # _____ CRN#: 01802-52
Size: 1.5 In Orf: 2 Out Ends: RF RTJ Clamp Screwed FF Cap Assy: Open Closed Lift Lever
Visual Condition: Good Fair Poor Foulting Dirty Plugged New Sample Taken: Inlet Outlet None
Seal Condition: Top: ACC Bottom: Insignia: YSL Last Service Date: Data Plate Condition: GOOD
Op. Temp.: 120 F Capacity: 10693 SCFM/AIR Code Symbol: V UV HV None Other
Set Press.: 1440 psig 9929 kpag Back Press.: psig kpag Cold Diff. Set: psig kpag Adj. Screw Meas. 1722

Set Pressure: _____ psig kpag Testing Medium: _____ No Reset: _____
Comments: _____ Relieve Press.: _____ psig kpag Reseat Press.: _____ psig kpag

LABOUR:		Disassemble		Inspection		GB		Reassemble		ML	
ITEM	DESCRIPTION	DC	DC	DC	DC	DC	DC	DC	DC	DC	DC
1	Recondition & Test										
2	Priority Rate										
3	Certification Test Only										
4	Pre Pop Test										
5	Back Pressure Test										
6	Bellovs Test										
7	Cap Assembly										
8	Repack Lift Lever										
9	Adjusting Screw / Nut										
10	Bonnet										
11	Spring / Number										
12	Spring Buttons										
13	Spindle / Stem										
14	Stem Retainer										
15	Guide										
16	Bellovs										
17	Ring Pin										
18	Blowdown Ring(s)										
19	Disc Holder										
20	Disc										
21	Nozzle										
22	Ball Keeper										
23	Keeper Seal										
24	Ball										
25	Ball / Seat Assembly										
26	Seat Frame										
27	Body										
28	Gaskets										
29	Machine Body RF's										
30	Lap Nozzle to Base										
31	Sub Contractor										

IN PROCESS INSPECTION & RECONDITIONING (REF. SPM 03; 04; 07; 08; 09; 10; 11; 12)
SEVERITY OF INTERNALS CONDITION (1) MILD (2) SUBSTANTIAL (3) SEVERE
Additional: Cleaning Lapping Nozzle Lapping Disc Lapping Disc Pipe Fitting for Reassembly & Test Recommended Replacements

IM&T Equipment (REF. SPM 05) Linial# 3201 Pressure# 301920 Test Bench# 3307
Min. Man. Specified Dimensions Dimensions As Found
Disc Ht. 0.6150 Step 0.0100 Disc Ht. 0.6220 Step 0.0150
Nozzle Ht. 0.3600 Step Nozzle Ht. 0.3750 Step

MEASMT. DATA
Definition Of Set Point: POP
Set Pressure Change: Yes No New Spring 9929 kpag
Set Pressure: 1440 psig
Back Pressure: psig kpag
Cold Diff. Set: psig kpag
Bellovs Test @: psig kpag
Back Press. Test: 100 psig kpag
Leakage @ 90%: 0 BPM (Ref. API 527)
Comments: _____
TEST DATA
Set Using: Air Steam H2O Air / H2O
Set Pressure: 1440 psig
Capacity: 10693 SCFM/AIR
Ring Setting: Upper: +5 Lower: +5
Date: 01.09.25
Tested By: ML
Witness: GB
Final Inspection: JR



INSPECTION SERVICE (1979) LTD.

File #: 97-228 Report #: 299
Client: CANADIAN NATURAL RESOURCES
Location: HOADLEY
LSD: 14-2-46-1W5
Distribution: Murray Anderson

FIELD INSPECTION REPORT

Last Edited : 10/8/97

Date of Inspection: 09/15/97 Next Inspection Due: 09/15/2001

EQUIPMENT INFORMATION:

Prov. Reg. #: 244723 CRN: H5307.2 Tag #:
Province of Registration: ALBERTA Plant: HOADLEY
Equipment Name: SEPARATOR Manway: Coating:
MAWP: 9928 kPa 54 °C Service:

ITEMS FROM PREVIOUS INSPECTIONS:

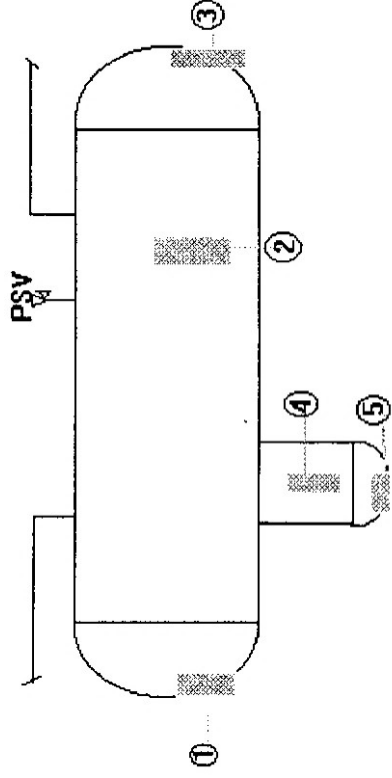
EXAMINATION METHODS: ☐ Visual ☒ UT ☐ MPI ☐ RT ☐ LPI ☐ PT Other:					
INSPECTION: ☐ Initial ☐ Reinspection	CLEANING: ☐ Good ☐ Poor ☐ Unacceptable	ACCESS: ☐ Internal ☒ External			
PRESSURE TESTS: ☐ Hydro ☐ Pneumatic Other:					
SAFETY VALVES:	MAWP (kPa)	PSV Tag No.	SET PRESSURE(kPa)	CAPACITY(m3/min)	LOCATION
Shell Side:	9928	PSV244723	9929	303	14-2-46-1W5
Tube Side:					



INSPECTION SERVICE
(1979) LTD.

Report No.: 299

VESSEL SKETCH:



EXTERNAL CONDITION:



INSPECTION SERVICE
(1979) LTD.

Report No.: 299

OBSERVATIONS:

AREA	COMMENTS
General	UT only.

ULTRASONIC THICKNESS RESULTS:

LOCATION	1	2	3	4	5	UNITS
1	1.735	1.747	1.73	1.735		inches
2	1.841	1.843	1.844	1.841		inches
3	1.741	1.744	1.732	1.741		inches
4	1.303	1.292	1.3	1.296		inches
5	1.181	1.189	1.194	1.188		inches



INSPECTION SERVICE
(1979) LTD.

Report No.: 299

DISCUSSION:

RECOMMENDATIONS:
Next inspection September 2001.

INSPECTOR: I have witnessed/done the above inspections and certify that they have been done in accordance with our approved manual and that the information is accurate. I certify that the status of the Pressure equipment detailed here is:

Suitable to be returned to service	☒ YES	☐ NO
Repairs are still required	☐ YES	☒ NO
Repairs are complete (CB-40) attached	☐ YES	☐ NO
Suggested inspection interval	48 months	
	N/A	

Kevin Billesberger

Inspector

Signature

10/8/97

Date

CHIEF INSPECTOR: I certify that the information on this report is true and all inspections as required by our Owner/User Quality Assurance Program # AQP 8039 which expires in June 1999 have been done.

Hennie Prinsloo

Chief Inspector

Signature

10/15/97

Date



INSPECTION SERVICES

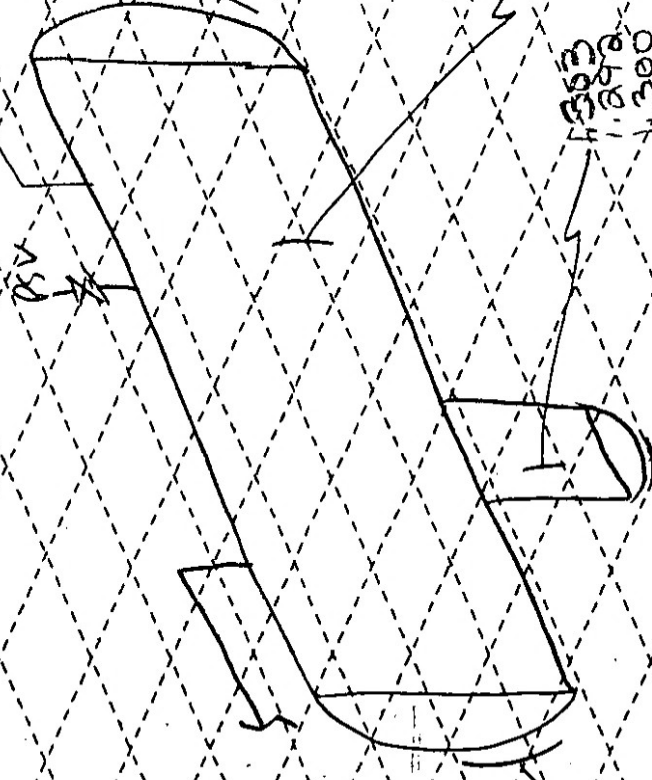
#111, 8930 - 99 Avenue, Ft. Saskatchewan, Alberta T8L 3L1 Phone: (403) 998-4524 Fax: (403) 998-0686

Ultrasonic Corrosion Survey - "UCS"

N

DWG#

PSV



1.735
1.747
1.730
1.735

1.353
1.298
1.300
1.296

1.241
1.243
1.244
1.241

1.181
1.189
1.194
1.188

1.741
1.744
1.732
1.741

Facility: CNRL

Equipment: SEPARATOR

MAWP: Oper. temp:
Corrosion Allowance:
"A" Number: A244723
Serial/CRN #:

Location: 14-246-1025
Testing Temp.:

Shell nominal:
Head nominal:
Shell Material:
Head Material:

File Number: 97-227 Date 09/15/97 Page of

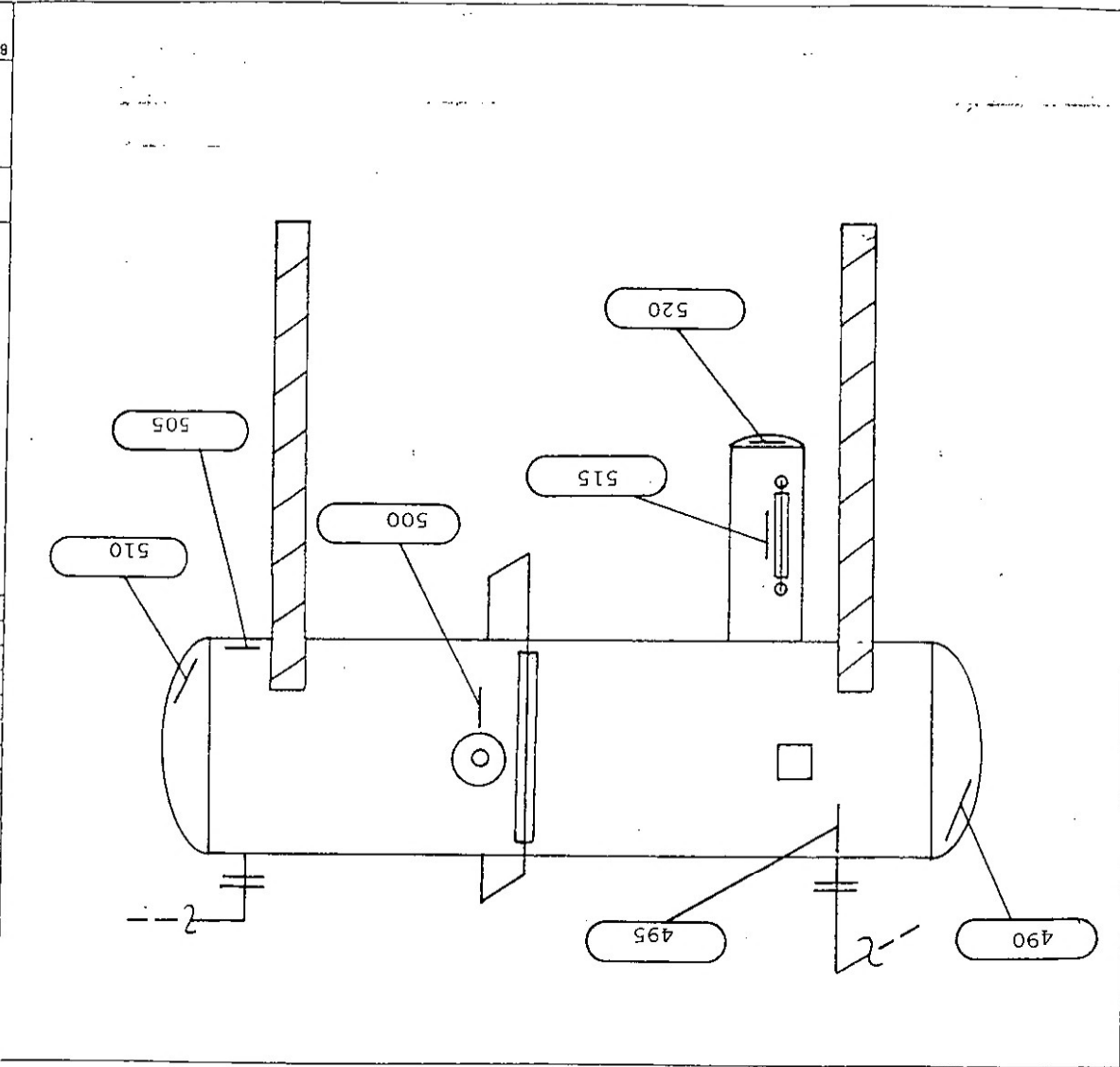
Equipment Identification

Owner	ENRCL	In Service	☒ Yes ☐ No
LSD	14-2-46-105		
Location Name	Hoodley comp.		
Description	SEPARATOR		
Manway	☒ No ☐ Yes - Number <u> </u> Size <u> </u>	Coated Vessel	☐ Yes ☐ No

Provincial Number	A244723	CRN	H5307.2
Tag Number		Serial Number	H5-5960
Manufacturer	LARSEN + DANICO	Year Built	1988
MAWP	1440 PSI @ 130°F	MDMT	@
Test Pressure		U Stamp	☒ Yes ☐ No
Shell Material	SA516-70	Thickness	44mm
Head Material	SA516-70	Thickness	41mm
Tube Material		Thickness	
Corrosion Allowance	1.6mm	Diameter	38"
Length	8'	Height	
Volume		Radiography Code	RT-1
Heat Treatment	YES	Drawing Reference	
Flange Rating (ANSI)	Nozzles: 600#	Flange Rating (ANSI)	Manway:
Support	☐ Skirt ☒ Saddle ☐ Other:		

Last Inspection		Next Insp.	
Inspection Type	☐ Inventory Only ☐ Visual ☐ RT ☐ MPT ☐ LPT ☐ Ultrasonic ☐ Coating ☐ Initial ☐ Reinspection		
Cleaning	☐ Good ☐ Poor ☐ Unacceptable	Access	☐ Internal ☐ External ☐ Manway ☐ Thru Nozzle
Service	☐ Steam ☐ LPG ☐ Oil ☐ Air ☐ Gas ☐ Sour Gas ☐ Multiphase Sour ☐ Water ☐ Other:		
PSV Off for Service	☐ YES - service report to be obtained ☐ NO - details to be included on reverse		

CANADA INSPECTION ASSOCIATES

[illegible]

CANADA INSPECTION ASSOCIATES

Date	Point	----- Readings -----	Nom. Min.	Remarks
------	-------	----------------------	-----------	---------

1996	490	44.6 43.9 44.3 43.4 43.6 43.7	41.0 39.4	
1996	495	46.2 46.9 46.9 46.9 46.9 47.0	44.0 42.4	
1996	500	46.1 46.5 46.6 46.4 46.6 46.5	44.0 42.4	
1996	505	46.1 46.1 46.1 46.0 46.0 45.9	44.0 42.4	
1996	510	44.2 44.2 44.5 44.6 44.6 44.9	41.0 39.4	
1996	515	32.4 32.3 32.5 32.4 32.4 32.5		
1996	520	30.3 30.9 30.8 30.8 30.1 30.1		

Prov. Reg. No. A24723	Nominal Thickness:	Head: 41.0	Shell: 44.0	Channel: 44.0	Corr. Allow. 1.6	Design Pressure: 9928 KPA	Design Temp: 130 F	Service:	Location	Date	Set	PSV Data:
Plant Equip No. CRN H5307.2	Built: 1988	Customer: SCEPTRE RESOURCES LIMITED	Plant: HOADLEY	Section: HOADLEY	Description: 3 PHASE HORIZONTAL SEPARATOR	Drawing: 26						

VESSEL NAME Hoadley Group Separator LSD
 LOCATION Hoadley Plant North COMP EQ NO
 PROV "A" NO 244723 CRN NO H5307.2 YEAR BUILT
 LAST INSPECTION DATE (Method I/E) 1988 NEXT INSP DATE
 MAX WORKING PRESSURE 1440 psi DESIGN TEMP
 DIAMETER 36" LENGTH/HEIGHT

14-02-46-01 W5M COST CENTRE QDV001
 1988 FABRICATOR Larsen & D'Amico
 1988 SERIAL NO HS-5960
 130° F INSP. FREQUENCY 10 years
 10' SUBJECT TO FEES yes

	THICKNESS		MATERIAL
	SHELL	HEAD	
H2S	44 mm		SA51670
	41 mm		SA51670
MANWAYS	YES	☐	OIL ☐
	NO	☒	GAS ☐
	YES	☐	STEAM ☐
	NO	☒	WATER ☐
INSULATION	YES	☐	AIR ☐
	NO	☒	NGL ☐
			OTHER ☐

INSPECTION COMMENTS:

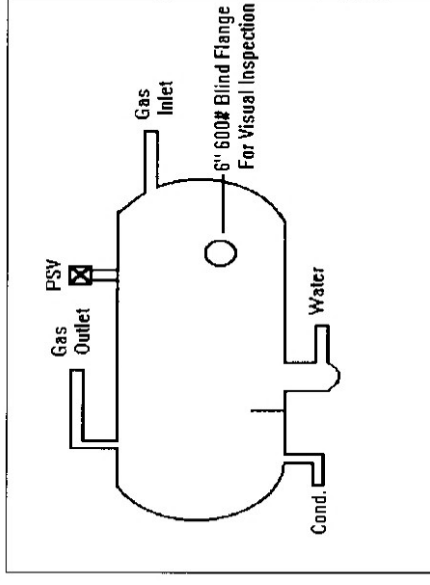
Inspection methods, metal loss, coatings/linings, internal parts, anodes scales/sludge, method of cleaning, tubes, etc

Vessel has never been inspected or opened up.

Only circulated with hot diesel every 2 years.

CORR. ALLOW
1.6 mm

SKETCH



Operates at 50 psi

PRESSURE SAFETY VALVES

LOCATION	MANU. MODEL/SN	SET PRESS	SEAL Y/N	CRN	CAP	DATE TESTED	SERVICE BY	NEXT SERVICE DATE
1. Top of Separator	Consolidated	1440 psi	yes			May, 1992	Valseal	2002
2.								
3.								

SUITABLE FOR SERVICE

YES

☒

BLOCK VALVES OPEN & LOCKED Y/N

NO

Field Inspector:

Tom Roth

Signature:

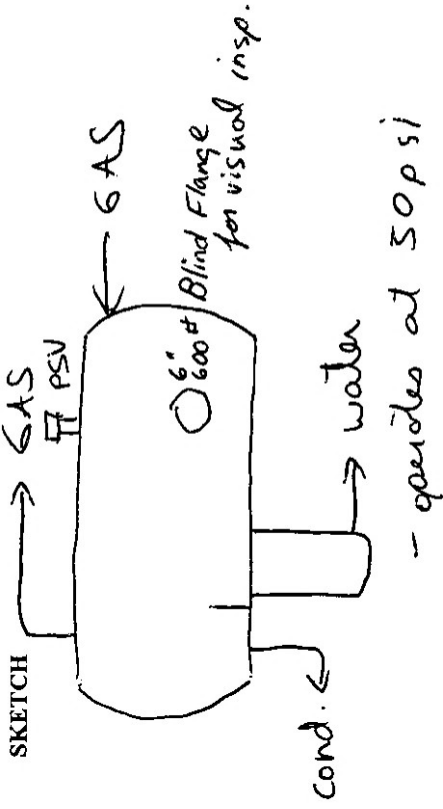
Chief Inspector Sign:

May 1994

VESSEL NAME: Headley Group Sep LSD: 14-2-46-1ws POST CENTRE: 020001
 LOCATION: N. Headley Plant COMP E.Q. NO.: LARSEN & D'Amico
 DV "A" NO.: 244723 CNR NO.: 45307.2 YEAR BUILT: 1988 SERIAL NO.: HS 5960
 ST INSP DATE (Method IIE): 1988 NEXT INSP DATE: 1998 INSP. FREQUENCY: 10 yrs
 MAX WORKING PRESS: 1440 psi DESIGN TEMP: 130°F
 DIAMETER: 36" LENGTH/HEIGHT: 10'

THICKNESS MATERIAL CORR. ALLOW
 SHELL: 44 mm SA51670 1.6 mm
 HEAD: 41 mm SA51670

H2S YES ☐ OIL ☐
 NO ☒ GAS ☒
 MANWAYS YES ☐ STEAM ☐
 NO ☒ WATER ☒
 INSULATION YES ☐ AIR ☐
 NO ☒ NGL ☒
 OTHER ☐



INTERTEXT COMMENT:

Inspection methods, metal loss, coatings/linings, internal parts, anodes, scale/slag, method of cleaning tubes, etc.

Vessel has never been
inspected or opened up
only circulated w/ hot diesel
every 2 years

PRESSURE SAFETY VALVES

LOCATION	MANU. MODEL/S/N	SET PRESS.	CAP	CRN	SEALED	DATE TESTED	SERVICE BY	NEXT SERV. DATE
1. <u>top of Sep</u>	<u>Consolidated</u>	<u>1440psi</u>		<u>-</u>	<u>yes</u>	<u>5/92</u>	<u>Visual</u>	<u>2002</u>
2.								

SUITABLE FOR SERVICE Yes ☒ No ☐

Field Inspector: Tom Roth
 Signature: Tom Roth
 Chief Inspector Sign.: _____