N° 6080158

CV

Husky Energy
PRESSURE VESSEL INSPECTION REPORT

o# 6083528

FACILITY Minehead Field	DATE March 2, 2009	REPORT # IR090302JNc

VESSEL STATIC DATA

Prov. Insp. # **A#497953**	**CRN** **R4547.2**		**Equip Tag #** **222294**
Equipment Location (LSD)	**05-07-049-18 w5m** surface 03-07-049-18W5		Serial # **B7047-20**
Equipment Description	**Produced Water Flash Tank**		Vessel Class -
Manufacturer	**Enerflex ~~Compression~~** Pressure BM		Year Built **2004**
MAWP **675 PSI** KPag / psig @ **200°F** °C / °F			MDMT **-20°F** °C / °F
CODE : UM ☐ U ☒ U2 ☐	RT : 1 ☒ 2 ☐ 3 ☐ 4 ☐		PWHT : YES ☒ NO ☐
Diameter 24" (NPS)	Length 108" (S/S) OAL mm/in		Vertical ☒ Horizontal ☐
Shell Mat'l SA 516-70	Thickness 15.9mm mm		Corr Allowance 3.2mm mm/in
Head Mat'l SA 516-70	Thickness 14.3mm mm		Corr Allowance 3.2mm mm/in
Nozzle Mat'l	Thickness mm/in		Corr Allowance mm/in
Internal Coating : YES ☐ NO ☒	Internal Clad : YES ☐ NO ☒		Capacity **N/A** m^3
Manway : YES ☒ NO ☐	Inspection Port : YES ☒ NO ☐		Skirt ☒ Legs ☐ Saddle ☐
Nozzle Rating **300** lb ANSI	Painted : YES ☒ NO ☐		Insulated : YES ☐ NO ☐

PROCESS DATA

Product Description Sour Water		Sweet ☐ Sour ☒ PPM: 7-14%	
Operating Pressure	KPag / psig	Operating Temperature	°C / °F

PSV STATIC DATA

Tag / Serial No.	Location	Size Inlet	Size Outlet	Set Pressure	Capacity SCFM / Lbs/Hr / GPM	Manufacturer	Model / Type	Service Date
463731-2-A10	Vessel	1.5"	2"	653 PSI	4277 SCFM	Farris	26FA12-120/S7	03/04

INSPECTION HISTORY

RBI Category A☐ B☐ C☐ D☐	Last Inspection Date	W.O. #
Inspection Task List #	Inspection Type	Inspection Reason
Inspection Techniques Required	Next Inspection Type	Due Date
VE VI RT UT MT PT PT TT	Outstanding Repairs	

INSPECTION SUMMARY

An external inspection was performed to verify the vessels integrity.
The vessel was idle at the time of inspection.
The PSV is overdue for servicing.

RECOMMENDATIONS

Service the PSV prior to use of the equipment.

Inspect in 2 years. BM

REPAIRS COMPLETED

Object Name	Cause	Damage	Repair Activity
None			

VESSEL STATUS

Integrity Status	☐ *Suitable for Continued Service*	☐ *Immediate Repairs Required* ☒ *Future Repairs Required*		☐ *Replace*
Inventory Status	☐ In service 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	Minehead Field	DATE	March 2, 2009	REPORT #	IR090302JNc

INSPECTION OBSERVATIONS

NONCOMPLIANCES OR INSPECTION DEFICIENCIES ISSUED

None

EXTERNAL VISUAL INSPECTION

The overall condition of this vessel is good.

The vessel dataplate is legible and has the required information. */ Data Plate Condition - Good*
The vessel is protected with a PSV. The PSV is attached to the vessel, has a set pressure at or under MAWP. The PSV does not have a current service date and is overdue for servicing. */ PSV Condition – Poor*
The gauges are clearly legible and appear to be functioning properly. */ Gauges Condition - Good*
The vessel appears to be properly secured and level. */ Vessel Secure – Yes*
The vessel is indirectly grounded. */ Vessel Grounded – Yes*
The piping, bolting, tubing and external attachments are secure with no active leaks. */ Piping & Bolting Condition - Good*
The vessel and piping are painted with no notable corrosion found. */ Vessel Paint Condition – Good*
The floor is painted with no notable corrosion found. */ Floor Condition – Good*

EXTERNAL NDE EXAMINATION

An external ultrasonic corrosion survey was completed as requested.
No relevant indications were noted at the time of inspection.
For more details see formal UT report by Hunt Inspection - Project C2946
Wall loss of 0.053" at UT band 312-80. Set inspection interval to 2yrs. JM

INTERNAL VISUAL INSPECTION

There was no internal Visual at time of inspection.

INTERNAL NDE EXAMINATION

There was no internal NDE at time of inspection.

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	Joel Norman	Inspector's Signature	
Inspection Company	Hunt Inspection Ltd.	Date	March 2, 2009

LEAD INSPECTOR'S ACCEPTANCE & SCHEDULE CONFIRMATION

Lead Inspector	Bob Marchak	Signature		Date	May. 1. 2009
Vessel Inspection Interval	~~5 Years~~ 2yrs	Leave "as-is" ☐		Change to	
PSV Inspection Interval	4 Years	Leave "as-is" ☐		Change to	

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

SEIm changes
Monway - Yes

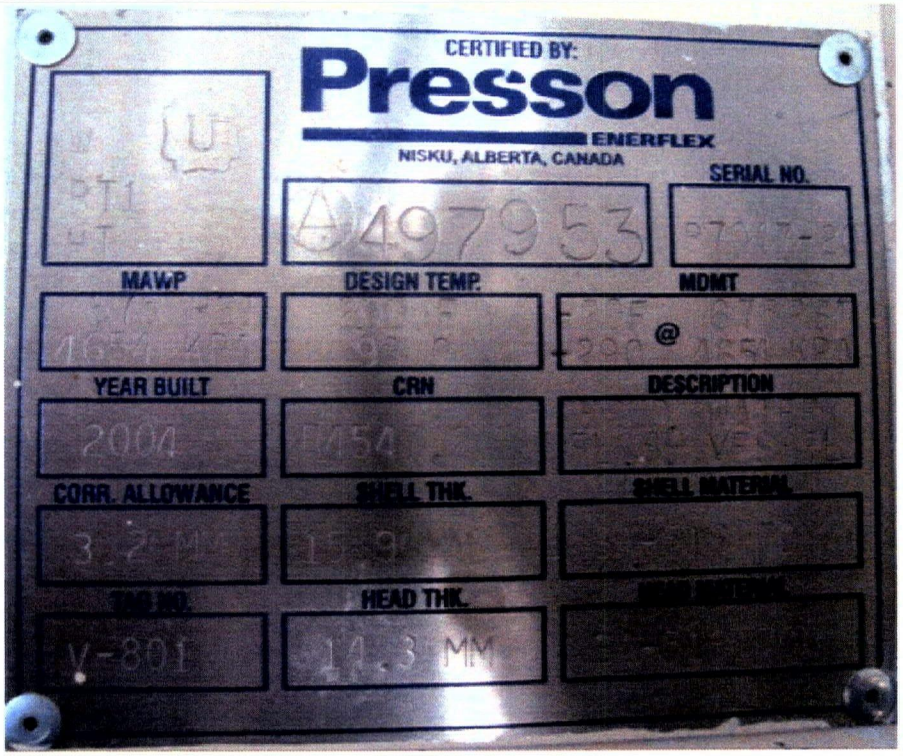
Husky Energy

PRESSURE VESSEL INSPECTION REPORT

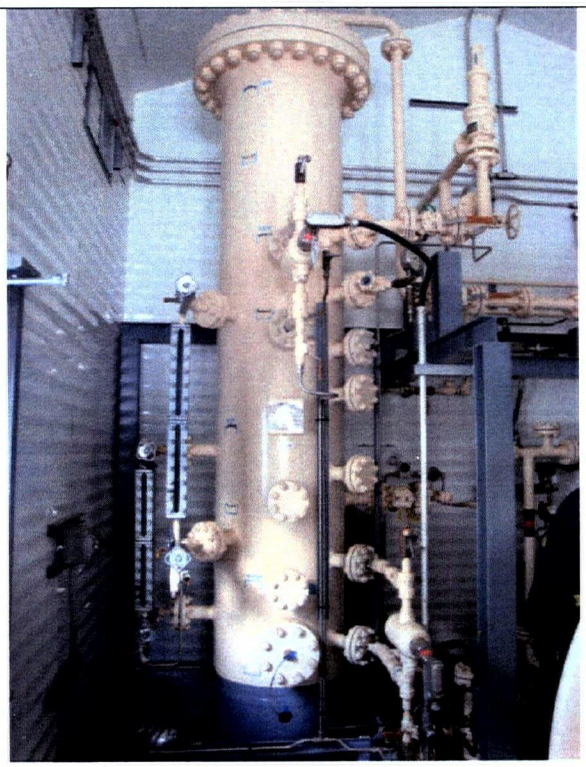
FACILITY	Minehead Field	DATE	March 2, 2009	REPORT #	IR090302JNc

Photos

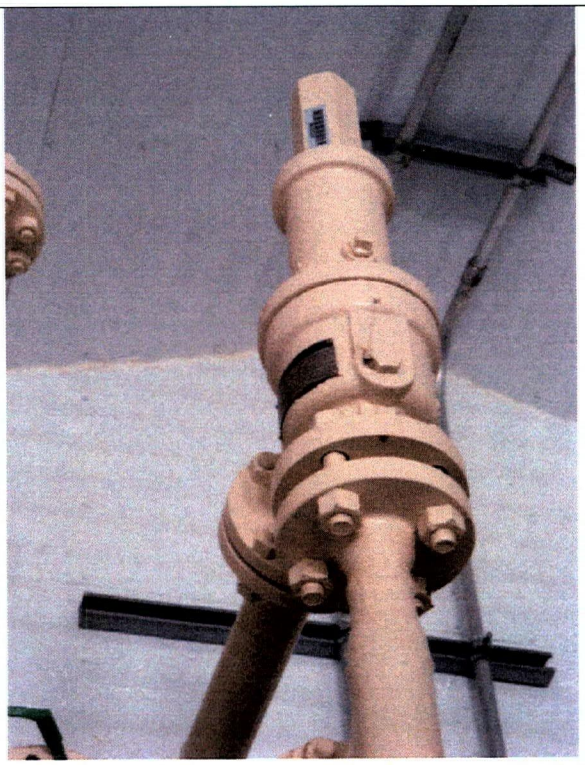
Data Plate



Vessel



PSV

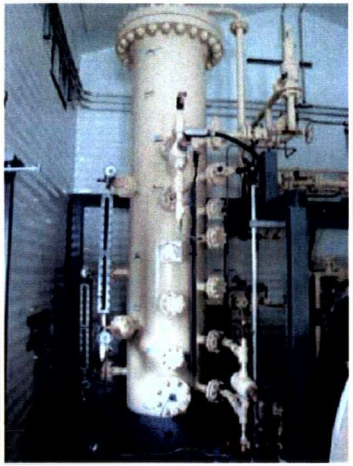


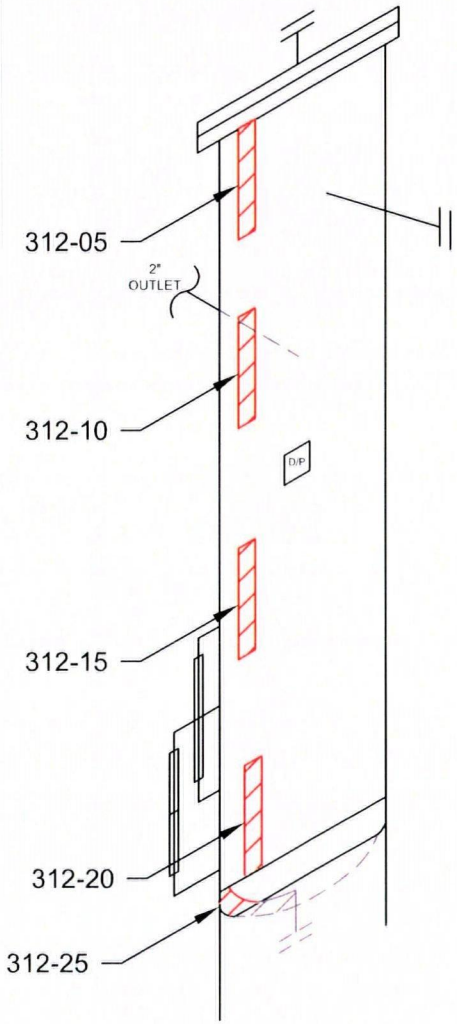
FACILITY	Minehead Field	DATE	March 2, 2009	REPORT #	IR090302JNc

Photos

Building	LSD Sign
	

ITEM: **PRODUCED WATER FLASH VESSEL** A 0497953





HUNT INSPECTION LTD.

STETTLER, AB (403) 742-4868
LACOMBE, AB (403) 782-7855
BROOKS, AB (403) 501-8029
GRANDE PRAIRIE, AB (866) 422-9732

TECHNICIAN:

JOEL NORMAN
SNT LEVEL III
CGSB 48.9712
LEVEL III # 6951

DATE:	**03/02/09**
DWG #	**312**
CLIENT:	**HUSKY ENERGY**
LSD:	**05-07-049-18-W5M**
INSPECTOR :	BOB MARCHAK
LOCATION :	MINEHEAD FIELD
DISTRICT UNIT :	FH-FW
BLDG/SKID :	-
PROCESS :	SOUR
CODE :	ASME SEC VIII DIV 1
SPECIFICATION :	AS PER ASME SE 797
TECHNIQUE :	UT 1-1, REV .1
METHOD :	UT CONTINUOUS / A SCAN
SURFACE COND :	PAINTED
SURFACE TEMP :	AMBIENT

VESSEL INFORMATION

VESSEL # :	**A 0497953**
CRN # :	R4547.2
SERIAL # :	B7047-20
MANUFACTURER :	PRESSON/ENERFLEX
DATE BUILT :	2004
CLIENT ID / TAG :	BC# 222294
M.A.W.P. :	675 PSI
M.A.W.T. :	200 °F
JOINT EFFICIENCY/RT :	RT 1
STRESS RELIEVED :	YES
INSULATED :	NO
MANWAY :	YES

VESSEL SPECIFICATIONS

	OD	NOMINAL	MATERIAL	CA
VESSEL HEAD	24"	.563"	SA-516-70	.125"
VESSEL SHELL	24"	.626"	SA-516-70	.125"
BOOT HEAD	-	-	-	-
BOOT SHELL	-	-	-	-

COMMENTS:

PROJECT: **C2946**

ULTRASONIC CORROSION SURVEY

Survey Name: HUSKY ENERGY

						Survey Date:	3/02/09
LSD:	05-07-049-18W5 Dwg: 312	Vessel Number:	A0497953	Manufacturer:	PRESSON/ENERFLEX	Inspector:	BOB MARCHAK
District Unit:	FH-FW	Vessel Name:	PRODUCED WATER FLASH VESSEL	Serial Number:	B7047-20	Process:	SOUR
Location:	MINEHEAD FIELD	Year Built:	2004	Shell MAWP PSI:	675 MAWT F: 200	Project #:	C2946
Skid:	-	Tag Number:	BC#222294	Tube MAWP PSI:	0 MAWT F: 0		
		CRN:	R4547.2	Vessel CA:	0.1250		

Band	Description			Readings 1	2	3	4	5	6	Year	Avg Inches	Min Inches	Nominal	CA	TMIN	Recommended Next Inspection	Recommended Retirement Date
312-05	Upper	Shell	Baseline	0.630	0.632	0.630	0.632	0.634	0.635	2009	0.632	0.630	0.6260	0.1250	0.3918	2010	2029
Shape	Cylindrical	Shell Side	Previous										Comments-->				
OD	24		Current	0.630	0.632	0.630	0.632	0.634	0.635	2009	0.632	0.630					
Spec.	VIII Div 1										ST Loss MPY		OK				
Material	SA 516 - 70										LT Loss MPY	0.000					
312-10	Mid	Shell	Baseline	0.642	0.645	0.643	0.645	0.645	0.645	2009	0.644	0.642	0.6260	0.1250	0.3918	2010	2029
Shape	Cylindrical	Shell Side	Previous										Comments-->				
OD	24		Current	0.642	0.645	0.643	0.645	0.645	0.645	2009	0.644	0.642					
Spec.	VIII Div 1										ST Loss MPY		OK				
Material	SA 516 - 70										LT Loss MPY	0.000					
312-15	Mid	Shell	Baseline	0.642	0.642	0.641	0.641	0.643	0.643	2009	0.642	0.641	0.6260	0.0000	0.3918	2010	2029
Shape	Cylindrical	Shell Side	Previous										Comments-->				
OD	24		Current	0.642	0.642	0.641	0.641	0.643	0.643	2009	0.642	0.641					
Spec.	VIII Div 1										ST Loss MPY		OK				
Material	SA 516 - 70										LT Loss MPY	0.000					
312-20	Lower	Shell	Baseline	0.640	0.639	0.636	0.634	0.634	0.633	2009	0.636	0.633	0.6260	0.1250	0.3918	2010	2029
Shape	Cylindrical	Shell Side	Previous										Comments-->				
OD	24		Current	0.640	0.639	0.636	0.634	0.634	0.633	2009	0.636	0.633					
Spec.	VIII Div 1										ST Loss MPY		OK				
Material	SA 516 - 70										LT Loss MPY	0.000					

ULTRASONIC CORROSION SURVEY

Survey Name: HUSKY ENERGY

						Survey Date:	3/02/09
LSD:	05-07-049-18W5 Dwg: 312	Vessel Number:	A0497953	Manufacturer:	PRESSON/ENERFLEX	Inspector:	BOB MARCHAK
District Unit:	FH-FW	Vessel Name:	PRODUCED WATER FLASH VESSEL	Serial Number:	B7047-20	Process:	SOUR
Location:	MINEHEAD FIELD	Year Built:	2004	Shell MAWP PSI:	675 MAWT F: 200	Project #:	C2946
Skid:	-	Tag Number:	BC#222294	Tube MAWP PSI:	0 MAWT F: 0		
		CRN:	R4547.2	Vessel CA:	0.1250		

Band	Description			Readings 1	2	3	4	5	6	Year	Avg Inches	Min Inches	Nominal	CA	TMIN	Recommended Next Inspection	Recommended Retirement Date
312-25	Bottom	Head	Baseline	0.606	0.604	0.607	0.604	0.605	0.594	2009	0.603	0.594	0.5630	0.1250	0.3873	2010	2029
Shape	Ellipsoidal	Shell Side	Previous										Comments-->				
OD	24		Current	0.606	0.604	0.607	0.604	0.605	0.594	2009	0.603	0.594					
Spec.	VIII Div 1								ST Loss MPY				OK				
Material	SA 516 - 70								LT Loss MPY		0.000						
312-30		Piping	Baseline	0.298	0.296	0.285	0.286	0.283	0.295	2009	0.291	0.283	0.3000	0.0375	0.0581	2010	2029
Shape	90° Elbow	Shell Side	Previous										Comments-->				
OD	3.5		Current	0.298	0.296	0.285	0.286	0.283	0.295	2009	0.291	0.283					
Spec.	B31.3								ST Loss MPY				OK				
Material	A 234 - WPB								LT Loss MPY		0.000						
312-35		Piping	Baseline	0.184	0.182	0.180	0.182	0.185	0.184	2009	0.183	0.180	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	Previous										Comments-->				
OD	2.375		Current	0.184	0.182	0.180	0.182	0.185	0.184	2009	0.183	0.180					
Spec.	B31.3								ST Loss MPY				Caution				
Material	A 234 - WPB								LT Loss MPY		0.000						
312-40		Piping	Baseline	0.196	0.198	0.199	0.197	0.198	0.196	2009	0.197	0.196	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	Previous										Comments-->				
OD	2.375		Current	0.196	0.198	0.199	0.197	0.198	0.196	2009	0.197	0.196					
Spec.	B31.3								ST Loss MPY				OK				
Material	A 234 - WPB								LT Loss MPY		0.000						

ULTRASONIC CORROSION SURVEY

Survey Name: HUSKY ENERGY

						Survey Date:	3/02/09
LSD:	05-07-049-18W5 Dwg: 312	Vessel Number:	A0497953	Manufacturer:	PRESSON/ENERFLEX	Inspector:	BOB MARCHAK
District Unit:	FH-FW	Vessel Name:	PRODUCED WATER FLASH VESSEL	Serial Number:	B7047-20	Process:	SOUR
Location:	MINEHEAD FIELD	Year Built:	2004	Shell MAWP PSI:	675 MAWT F: 200	Project #:	C2946
Skid:	-	Tag Number:	BC#222294	Tube MAWP PSI:	0 MAWT F: 0		
		CRN:	R4547.2	Vessel CA:	0.1250		

Band	Description			Readings 1	2	3	4	5	6	Year	Avg Inches	Min Inches	Nominal	CA	TMIN	Recommended Next Inspection	Recommended Retirement Date
312-45		Piping	**Baseline**	0.189	0.187	0.188	0.184	0.185	0.184	2009	0.186	0.184	0.2180	0.0272	0.0394	2010	2029
Shape	45° Elbow	Shell Side	**Previous**										Comments-->				
OD	2.375		**Current**	0.189	0.187	0.188	0.184	0.185	0.184	2009	0.186	0.184					
Spec.	B31.3										**ST Loss MPY**		Caution				
Material	A 234 - WPB										**LT Loss MPY**	0.000					
312-50		Piping	**Baseline**	0.202	0.201	0.196	0.198	0.201	0.201	2009	0.200	0.196	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	**Previous**										Comments-->				
OD	2.375		**Current**	0.202	0.201	0.196	0.198	0.201	0.201	2009	0.200	0.196					
Spec.	B31.3										**ST Loss MPY**		OK				
Material	A 234 - WPB										**LT Loss MPY**	0.000					
312-55		Piping	**Baseline**	0.299	0.294	0.285	0.279	0.283	0.293	2009	0.289	0.279	0.3000	0.0375	0.0581	2010	2029
Shape	90° Elbow	Shell Side	**Previous**										Comments-->				
OD	3.5		**Current**	0.299	0.294	0.285	0.279	0.283	0.293	2009	0.289	0.279					
Spec.	B31.3										**ST Loss MPY**		OK				
Material	A 234 - WPB										**LT Loss MPY**	0.000					
312-60		Piping	**Baseline**	0.183	0.182	0.188	0.211	0.204	0.193	2009	0.194	0.182	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	**Previous**										Comments-->				
OD	2.375		**Current**	0.183	0.182	0.188	0.211	0.204	0.193	2009	0.194	0.182					
Spec.	B31.3										**ST Loss MPY**		Caution				
Material	A 234 - WPB										**LT Loss MPY**	0.000					

ULTRASONIC CORROSION SURVEY

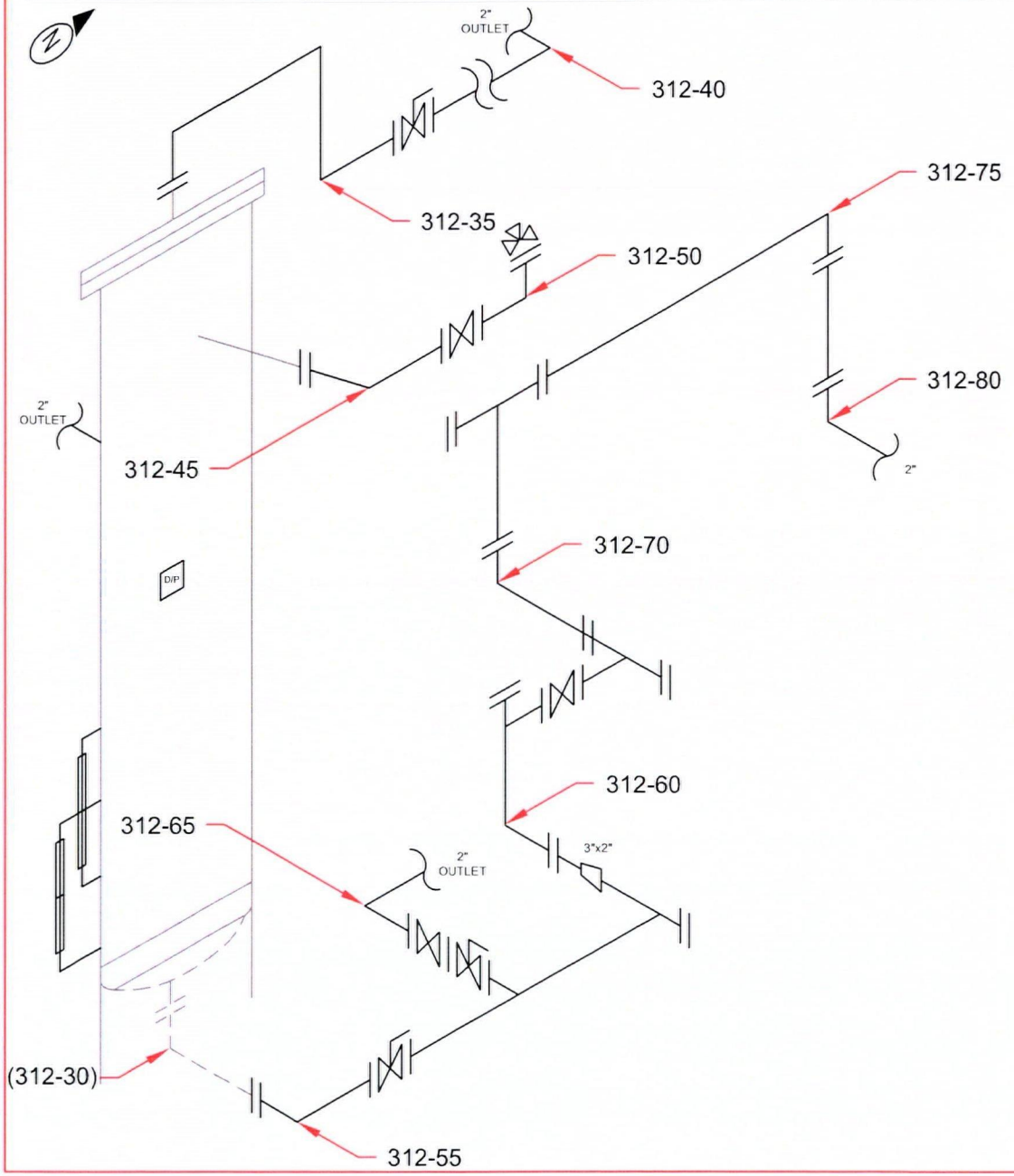
Survey Name: HUSKY ENERGY

						Survey Date:	3/02/09
LSD:	05-07-049-18W5 Dwg: 312	Vessel Number:	A0497953	Manufacturer:	PRESSON/ENERFLEX	Inspector:	BOB MARCHAK
District Unit:	FH-FW	Vessel Name:	PRODUCED WATER FLASH VESSEL	Serial Number:	B7047-20	Process:	SOUR
Location:	MINEHEAD FIELD	Year Built:	2004	Shell MAWP PSI:	675 MAWT F: 200	Project #:	C2946
Skid:	-	Tag Number:	BC#222294	Tube MAWP PSI:	0 MAWT F: 0		
		CRN:	R4547.2	Vessel CA:	0.1250		

Band	Description			Readings 1	2	3	4	5	6	Year	Avg Inches	Min Inches	Nominal	CA	TMIN	Recommended Next Inspection	Recommended Retirement Date
312-65		Piping	**Baseline**	0.193	0.193	0.192	0.191	0.191	0.192	2009	0.192	0.191	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	**Previous**										Comments-->				
OD	2.375		**Current**	0.193	0.193	0.192	0.191	0.191	0.192	2009	0.192	0.191					
Spec.	B31.3								**ST Loss MPY**				OK				
Material	A 234 - WPB								**LT Loss MPY**		0.000						
312-70		Piping	**Baseline**	0.187	0.186	0.181	0.194	0.203	0.179	2009	0.188	0.179	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	**Previous**										Comments-->				
OD	2.375		**Current**	0.187	0.186	0.181	0.194	0.203	0.179	2009	0.188	0.179					
Spec.	B31.3								**ST Loss MPY**				Caution				
Material	A 234 - WPB								**LT Loss MPY**		0.000						
312-75		Piping	**Baseline**	0.195	0.191	0.181	0.183	0.183	0.187	2009	0.187	0.181	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	**Previous**										Comments-->				
OD	2.375		**Current**	0.195	0.191	0.181	0.183	0.183	0.187	2009	0.187	0.181					
Spec.	B31.3								**ST Loss MPY**				Caution				
Material	A 234 - WPB								**LT Loss MPY**		0.000						
312-80		Piping	**Baseline**	0.175	0.174	0.165	0.202	0.176	0.177	2009	0.178	0.165	0.2180	0.0272	0.0394	2010	2029
Shape	90° Elbow	Shell Side	**Previous**										Comments-->				
OD	2.375		**Current**	0.175	0.174	0.165	0.202	0.176	0.177	2009	0.178	0.165	GENERAL WALL LOSS				
Spec.	B31.3								**ST Loss MPY**				Caution				
Material	A 234 - WPB								**LT Loss MPY**		0.000						

C.R = 0.0106"/yr
RL = 3.3 yrs using 0.125" t.min.

ITEM: **PRODUCED WATER FLASH VESSEL - PIPING** A 0497953



HUNT INSPECTION LTD.

STETTLER, AB (403) 742-4868
LACOMBE, AB (403) 782-7855
BROOKS, AB (403) 501-8029
GRANDE PRAIRIE, AB (866) 422-9732

TECHNICIAN:

JOEL NORMAN
SNT LEVEL III
CGSB 48.9712
LEVEL III # 6951

DATE:	**03/02/09**
DWG #	**312A**
CLIENT:	**HUSKY ENERGY**
LSD:	**05-07-049-18-W5M**
INSPECTOR :	BOB MARCHAK
LOCATION :	MINEHEAD FIELD
DISTRICT UNIT :	FH-FW
BLDG/SKID :	-
PROCESS :	SOUR
CODE :	ASME B31.3
SPECIFICATION :	AS PER ASME SE 797
TECHNIQUE :	UT 1-1, REV .1
METHOD :	UT CONTINUOUS / A SCAN
SURFACE COND :	PAINTED
SURFACE TEMP :	AMBIENT

PIPING INFORMATION

PIPING ID	SIZE	SCH	NOM	M.A.W.P. (VESSEL)	M.A.W.T. (VESSEL)	FLANGE RATING
312-30	3.50"	XS	.300"	675 PSI	200 °F	600
312-35	2.375"	XS	.218"	"	"	-
312-40	"	"	"	"	"	"
312-45	"	"	"	"	"	"
312-50	"	"	"	"	"	"
312-55	3.50"	XS	.300"	"	"	"
312-60	2.375"	XS	.218"	"	"	"
312-65	"	"	"	"	"	"
312-70	"	"	"	"	"	"
312-75	"	"	"	"	"	"
312-80	"	"	"	"	"	"

COMMENTS:

PROJECT: C2946

HDMS✓ 05-07 A0497953 66146411

V-801

ABSA
the pressure equipment safety authority

Please submit to:
9410 – 20th Avenue
Edmonton, AB T6N 0A4
Tel (780) 437-9100 Fax (780) 437-7787

AB-10 2008-04

BOILER AND PRESSURE VESSEL STATUS REPORT

Note: This form may be used to provide notification of changes in ownership, location, operating status or scrapping of boilers and pressure vessels.

Please review the responsibilities of the vendor and the new owner under Section 36 of the Pressure Equipment Safety Regulation.

Re: Vessel (A)	**1)** see attach	**2)**	**3)**
Serial No.			
CRN			

☒ Vessel(s) **sold or purchased**. Please transfer the registration of the vessel(s) to:
Name of New Owner: Husky Oil Operation Ltd
Mailing Address: _____
New Location of Vessel: _____
(Street Address or LSD)
Contact Person: _____ Tel: _____
Date of Sale: June 6, 2008 PO No.: _____

☐ Vessel(s) removed from service[1] on _____

☐ Vessel(s) relocated _____
(Street Address or LSD)

☐ We own but do not know the location of this vessel. *(our records will indicate the vessel location is unknown, the applicable annual fee is charged unless you tell us it is not in service).*

☐ We are not operating this vessel, we sold it but do not know to whom. *(Your name will remain as owner in our records).*

☐ Vessel(s) operating outside of the Province of Alberta since _____ (Date). Please remove from annual registration[1].

☐ The above vessel(s) returned to service on: _____ (Date).

Inspected on: _____ (Date). Inspection Report attached ☐

☐ The above vessel(s) **are unfit for service** and were destroyed and/or disposed of as scrap material on: _____ (Date).

The Alberta Identification (A) Number has been obliterated.

NOTE: Scrapped and Destroyed vessels **Shall Not** return to service.

Company Name: PetroCanada Oil and Gas Limited
Position Title: Asset Integrity Supervisor Tel: 403 296 6363
(Please print name): Philip Girard E-mail: pgirard@petro-canada.ca
Signature: _____ Date: July 29, 2008

Note [1]: *The owner of the boiler or pressure vessel is responsible for ensuring that the above equipment is inspected by ABSA prior to it being returned to service in the Province of Alberta*

520291		IPS MANUFACTURING	V-3024-001B	01-23-049-19W5	TO211.2	VS	3 PHASE VERTICAL SEPARATOR
528016		IPS MANUFACTURING	V-3304-001E	07-31-048-18W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
495600		PRESSON	B6940-50	03-06-049-18W5	E9867.2, E9865.	FL	14-06 WELLSITE HEATER
506454	2003	PRESSON	B6994-20	03-06-049-18W5	R3254.2	VS	VERTICAL SOUR GAS SEPARATOR
520757		ENERFLEX MANUFACTURING	050021-06	03-06-049-18W5	P6185.213	VB	2ND STAGE DISCHARGE BOTTLE
520758		ENERFLEX MANUFACTURING	050021-05	03-06-049-18W5	L6206.213	VB	2ND STAGE SUCTION BOTTLE
520759		ENERFLEX MANUFACTURING	050021-03	03-06-049-18W5	L6204.213	VB	1ST STAGE SUCTION BOTTLE
520788		ENERFLEX MANUFACTURING	050021-04	03-06-049-18W5	T1493.213	VB	1ST STAGE DISCHARGE BOTTLE
523529		ENERFLEX MANUFACTURING	050021-02	03-06-049-18W5	P6183.213	VS	2ND STAGE SUCTION SCRUBBER
523541		ENERFLEX MANUFACTURING	050021-01	03-06-049-18W5	P6182.213	VS	1ST STAGE SUCTION SCRUBBER
526475		RUSHTON	C2391A.H.S	03-06-049-18W5	T1583.2	VS	HORIZONTAL SEPARATOR
526476		RUSHTON	C2391.A.HB	03-06-049-18W5	T1656.2	VS	BLOWCASE
526623		ENERFLEX MANUFACTURING	040819-04	03-06-049-18W5	K-6363.213	VS	COMPRESSOR FUEL GAS FILTER
526699		AIR-X-CHANGERS	045289.3	03-06-049-18W5	R7618.213	HA	COMPRESSOR INTERCOOLER
526700		AIR-X-CHANGERS	045289.4	03-06-049-18W5	R7619.213	HA	COMPRESSOR AFTERCOOLER
528420		BILTON WELDING & MANUFACTURING LTD	13728	03-06-049-18W5	R8180.2	VS	FLARE KNOVK OUT DRUM
495593		PRESSON	B6940-20	03-07-049-18W5	R3254.2	VS	VERTICAL SOUR GAS SEPARATOR
497953		PRESSON	B7047-20	03-07-049-18W5	R4547.2	VS	WATER BOOT
506462		PRESSON	B 6994-50	03-07-049-18W5	E9865.213	FL	05-07 WELLSITE HEATER
509893		MARQUINN INDUSTRIES	135-10-04	03-07-049-18W5	R4156.2	VF	#2 PRODUCED WATER FILTER
509894		MARQUINN INDUSTRIES	135-11-04	03-07-049-18W5	R4156.2	VF	#1 PRODUCED WATER FILTER
527837		IPS MANUFACTURING	V-3151-001C	05-14-049-19W5	R4582.231	VS	3 PHASE VERTICAL SEPARATOR
577647		MARQUINN	148-87-07	06-16-048-18W5	P3289.213	VS	3 PHASE SEPARATOR
528042		IPS MANUFACTURING	V-3304-001B	06-01-049-19W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
536245		IPS MANUFACTURING	V-4043-001	06-18-049-18W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
527994		IPS MANUFACTURING	V-3193-001E	06-29-048-18W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
527944		IPS MANUFACTURING	V-3193-001C	07-21-048-18W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
497985		PRESSON	B7054-20	07-32-048-18W5	R3254.2	VS	VERTICAL SOUR GAS SEPARATOR
497987		PRESSON	B7054-50	07-32-048-18W5		FL	11-32 WELLSITE HEATER
502846		PRESSON	K3012-21	07-32-048-18W5	R4763.2C	VS	VERTICAL SEPARATOR
495735		MARQUINN INDUSTRIES	133-24-03	08-13-049-19W5	R4156.2	VF	#2 PRODUCED WATER FILTER
495736		MARQUINN INDUSTRIES	133-25-03	08-13-049-19W5	R4156.2	VF	#1 PRODUCED WATER FILTER
495768		PRESSON	B6977-20	08-13-049-19W5	R3254.2	VS	VERTICAL SOUR GAS SEPARATOR
502821		PRESSON	B6982-20	08-13-049-19W5	E4547.2	VS	PRODUCED WATER FLASH VESSEL
502824		PRESSON	B6977-50	08-13-049-19W5	E9867.213, E986	FL	01-13 WELLSITE HEATER
516664		MARQUINN INDUSTRIES	138-02-04	08-13-049-19W5	R9125.213	VS	Sour Horizontal Inlet Separator (Rental)
518339		ENERFLEX MANUFACTURING	040634-01	08-13-049-19W5	P8054.213	VS	COMPRESSOR SUCTION SCRUBBER
520710		AIR-X-CHANGERS	045585.3	08-13-049-19W5	R8538.213	HA	COMPRESSOR INTERCOOLER
520711		AIR-X-CHANGERS	045585.4	08-13-049-19W5	T0393.213	HA	COMPRESSOR AFTERCOOLER
521072		ENERFLEX MANUFACTURING	040820-01	08-13-049-19W5	L2030.213	VS	COMPRESSOR FUEL GAS SCRUBBER
522612		SUNWELL INDUSTRIES	04-393	08-13-049-19W5	R8991.213	VS	MINI-BLOWCASE
522799		SUNWELL INDUSTRIES	05-006	08-13-049-19W5	T0932.2	VS	BLOWCASE
523479		ENERFLEX MANUFACTURING	040844-02	08-13-049-19W5	T0674.213	VB	1ST STAGE SUCTION BOTTLE
523480		ENERFLEX MANUFACTURING	040844-03	08-13-049-19W5	T0675.213	VB	1ST STAGE DISCHARGE BOTTLE
526681		ENERFLEX MANUFACTURING	040844-01	08-13-049-19W5	R9967.213	VS	SLUG CATCHER
550849		IPS MANUFACTURING	V4631-001	08-36-048-19W5	T5094.2	VS	3 PHASE VERTICAL SEPARATOR
527954		IPS MANUFACTURING	V-3193-001A	10-18-048-18W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
536195		IPS MANUFACTURING	V-4042-001	10-26-049-19W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
549492		RJV	2006	11-01-049-18W5	P7217.2	VS	3 PHASE VERTICAL SEPARATOR
527830		IPS MANUFACTURING	V-3151-001C	11-11-049-19W5	R4582.231	VS	3 PHASE VERTICAL SEPARATOR
547686		IPS MANUFACTURING	V-4664-001	11-12-049-19W5	R6694.213	VS	3 PHASE VERTICAL SEPARATOR
525094		NUSCO	9930-200	11-16-048-18W5	R2959.213	VS	3 PHASE VERTICAL SEPARATOR
527961		IPS MANUFACTURING	V-3193-001D	11-16-048-18W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR
550869		IPS MANUFACTURING	V-4688-001	14-30-048-18W5	R6694.213	VS	3 PHASE VERTICAL SEPARATOR
536246		IPS MANUFACTURING	V-4044-001	14-35-049-19W5	T0211.2	VS	3 PHASE VERTICAL SEPARATOR

Hdms ✓

PETRO-CANADA

INSPECTION REPORT

EQUIPMENT NO: 750VS507B

FACILITY: Harlan Robb — PROV. REG. NO: A 497953

EQUIPMENT NAME: Water Boot — TAG NO: 50-0507-V-801

	SHELL			TUBE		
MAWP		kpag@	°C		kpag@	°C
MDMT		kpag@	°C		kpag@	°C
PSV Tag		set@	kpag		set@	kpag

ITEM INSPECTED: — MANWAY ☐ YES ☐ NO

SERVICE: ☐ SOUR ☐ SWEET ☐ CRYOGENIC — FLUID:

SCOPE OF INSPECTION	TYPE OF INSPECTION:	CLEANING:	ACCESS:
☑ PRECOMMISSIONING	☐ AE ☐ MT ☐ RT	☐ GOOD	☐ FULL
☐ INITIAL	☐ ET ☐ MFL ☐ UT	☐ FAIR	☐ PARTIAL
☐ REINSPECTION	☐ LT ☐ PT ☑ VT	☐ INADEQUATE	☑ EXTERNAL
	☐ OTHER		

ADD PAGES AND SKETCHES AS NEEDED (TURN OVER FOR CHECK LISTS)

OBSERVATIONS: ☑ EXTERNAL ☐ INTERNAL

~~Pad Defects~~

There are 6 2"-300 Blind flanges tapped 1" NPT without Hub

NCR 04-09

RECOMMENDATIONS: Replace with Proper flanges before start-up

SUITABLE FOR FURTHER SERVICE: ☑ YES ☐ NO

REMEDIAL ACTION PRIORITY: ☐ HIGH ☐ MEDIUM ☐ LOW

INSPECTION PERFORMED BY: Brian Paulson — DATE OF INSPECTION: June 8/04

FOLLOW-UP INSPECTION REQ'D: ☐ YES ☐ NO — BY DATE:

PETRO-CANADA

INSPECTION REPORT

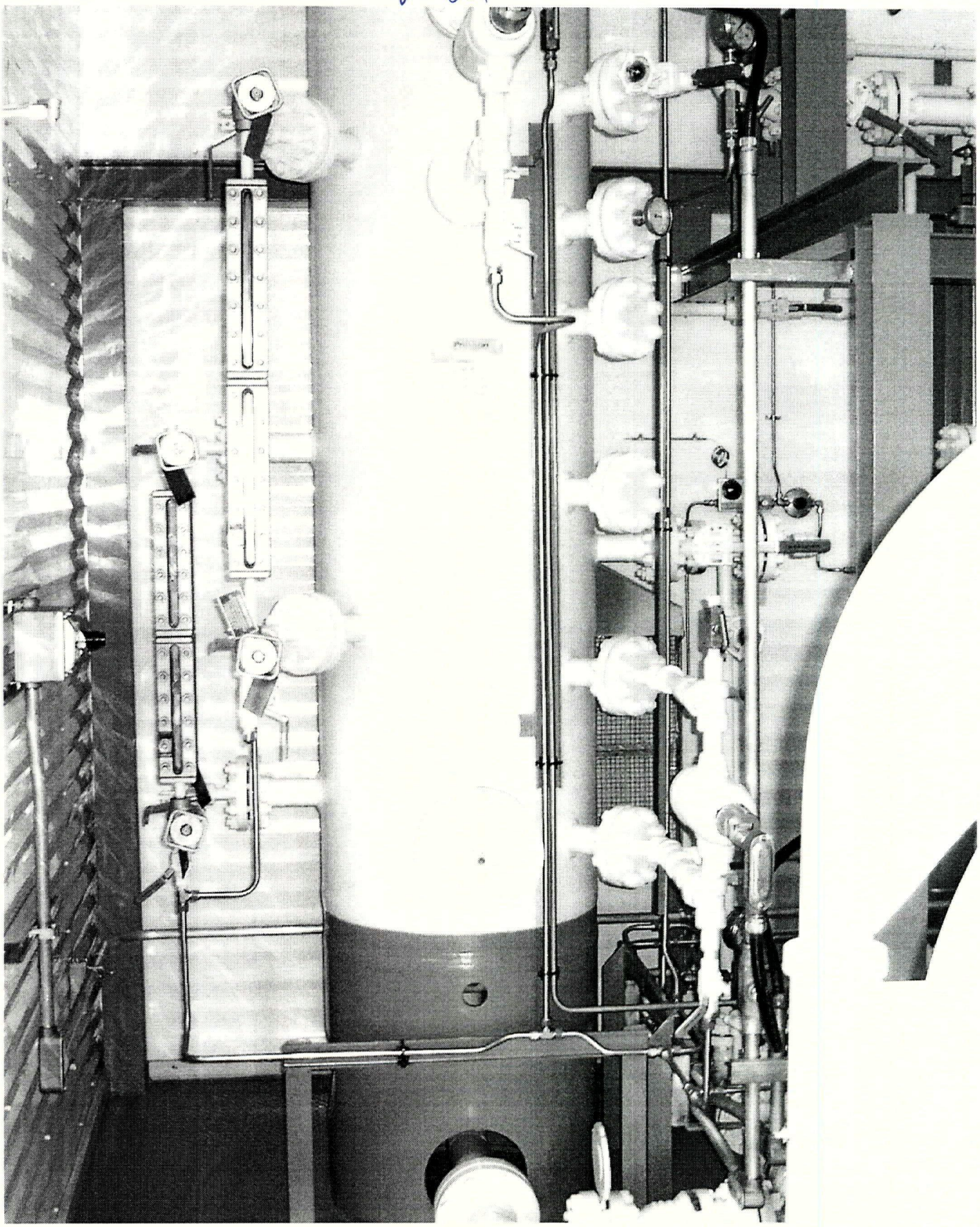
EQUIPMENT NO:

External Inspection Check List			
Item	**N/A**	**OK**	**Comments**
1. Ladders, platforms	✓		
2. Foundation and supports		✓	
3. Dyke	✓		
4. Double floor/wall, interstitial space	✓		
5. Nozzles		✓	
6. Ground connections		✓	skid
7. Protective coatings and insulation		✓	
8. External metal surfaces		✓	
9. Pressure relief devices		✓	
10. Name plate		✓	
11. Leak test	✓		
12. Cathodic protection	✓		
13.			
14.			
15.			

Internal Inspection Check List			
Item	**N/A**	**OK**	**Comments**
1. Safe vessel entry secured			
2. Cleaning adequate for VT			
3. Fouling before cleaning including tubes			
4. Internal equipment checked (trays/baffles/etc)			
5. Condition of internal surfaces			
6. Protecting coating			
7. Welds checked for defects			
8. Tubes: ends/ligaments/joints/walls/fins			
9. Tubes: thinning/pitting (internal/external)			
10. Nozzles			
11. Burner			
12. Refractory			
13. Damage marked for further inspection/nde			
14. Cleaning for nde adequate			
15. Nde completed			
16. Condition of anodes			
17. Leak test			
18.			
19.			
20.			

50-0507 WELLSITE JUNE 2004

V-801



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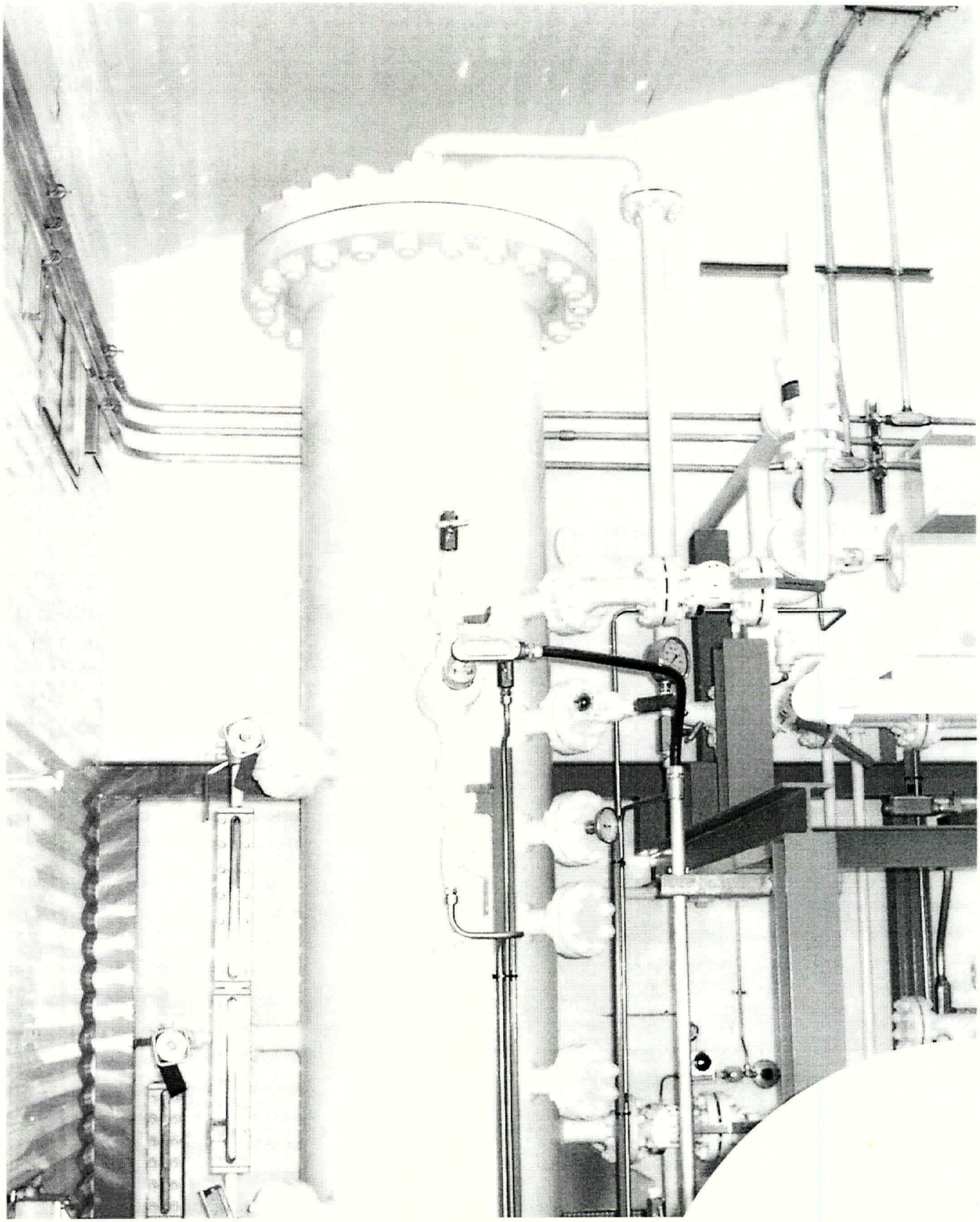
50-0507 WELLSITE JUNE 2004

V-801



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V-801


CERTIFIED
Presson
SERIAL NO.
MAWP
DESIGN TEMP
675PSI
WATER
SHELL MATERIAL
HEAD MATERIAL
2004/06/08

Homs ✓

PCR EQUIPMENT STATIC DATA FORM - PAGE 1

EQUIPMENT NO. 750 VS 507B (Unique Numb. System)

PCR DATA

TAG NO. 50-0507-V-801 (Plant Code No.) PROV. REG. NO. (A) 497953 (AB, BC, MANB, NWT) PROP. CODE NO.

FACILITY Hanlan Kobb (Plant/Field Name) LOCATION 05-07 (Plant Area/Unit) YR. INSTALLED 2004

EQUIP. NAME Water Boot (As Designated in Field) TYPE (See NOTE 1) PCR DWG NO.

SERVICE Sour Water (See NOTE 2) M/WAY No (Yes/No) HANDHOLE No (Yes/No) S/D REQT. Partial (Shutdown Requirements)

MANUFACTURER DATA

MFG. Pressun DWG. NO. Ser.No. B7047-20 YR. BUILT 2004

Produced with Flat Vessel

DESIGN & MATERIALS DATA

CRN # R4547.2 (Canadian Registration No.) CODE/DIV. (E.g. ASME Sec. VIII, Div.1 etc.) PARA. (E.g. UHT-5 (d), Pt. 5) CODE STAMP U (E.g. U, U2, UM etc.)

MAWP 4654 (Design Pressure) kPa @ TEMP. 93 (Max. Design Temp.) °C MDMT -29 (Min. Design Temp.) °C

OP. PRESS. kPa OP. TEMP. °C ORIG. TEST PRESS. kPa

MATERIAL DATA (Specify material spec. and grade E.g. SA 516 Gr. 70N)

SHELL SA-516 70N NOM. THK 15.9 mm CA 3.2 mm MIN. THK mm

HEAD TOP SA-516 70N TYPE (See Note 3) NOM. THK 14.3 mm CA 3.2 mm MIN. THK mm

HEAD BTM TYPE NOM. THK mm CA mm MIN. THK mm

(Other, e.g. Boot, Column, Shell/Head and Material) NOM. THK mm CA mm MIN. THK mm

(Other, e.g. Boot, Column, Shell/Head and Material) NOM. THK mm CA mm MIN. THK mm

PWHT Yes (Yes/No) REASON Service (Code, Service) RADIOGRAPHY RT-1 (RT, 1, 2, 4, or Full Partial/Spot)

SIZE ID mm LENGTH/HEIGHT (Seam to Seam) mm SUPPORT (Skirt/Leg/Lugs/Saddle/Leg)

FLANGE RATING (ANSI Class) INSULATION TYPE (Hot/Cold) THK (Insulation Thickness) mm

TUBING DATA (Complete for Exchangers, Coolers, Line Heaters or Boilers etc.)

MATERIAL (Specify material spec. and grade) TEMA CLASS (R,C,B) TYPE E.g. BEM

TUBES O.D. mm GAUGE (See NOTE 4) mm TYPE E.g. Straight, U

TUBESHEET O.D. mm NOM. THK mm CA mm

CHANNEL I.D. mm NOM. THK mm CA mm

DESIGN PRESS. (Tubeside) kPa DESIGN TEMP. °C TEST PRESS. kPa

TRAY/PACKING DATA (Complete for Towers, Columns, etc.)

TRAY TYPE (Bubble, Valve, Sieve) MATERIAL (E.g. Gr. 304L) NUMBER PACKING: (Type/Mat. (NOTE 7))

PROTECTIVE COATING DATA (Complete for internally/externally coated vessels)

EXTERNAL: TYPE MATERIAL YR. APPLIED

INTERNAL: TYPE (See NOTE 5) MATERIAL (Brand Name) YR. APPLIED

LINING/CLADDING DATA (Complete for lined or cladded vessels)

TYPE (Metal, Refractory, Cement, Rubber, PVC, etc.) MATERIAL (Material Grade/Brand Name) YR. APPLIED

PRESSURE RELIEF DEVICES DATA

1. TAG NO. TYPE (See NOTE 6) MANUFACTURER

SIZE mm x mm MODEL NO. SER. NO.

FLG. RATING (ANSI Class) SET PRESSURE kPa DISCHARGE (Capacity, see Conversions)

LOCATION (Vessel or Connecting Piping) BLOCK VALVE (Y/N) CARSEAL (Lock Open Y/N) LAST TEST YR

2. TAG NO. TYPE (See NOTE 6) MANUFACTURER

SIZE mm x mm MODEL NO. SER. NO.

FLG. RATING (ANSI Class) SET PRESSURE kPa DISCHARGE (Capacity, see Conversions)

LOCATION (Vessel or Connecting Piping) BLOCK VALVE (Y/N) CARSEAL (Lock Open Y/N) LAST TEST YR

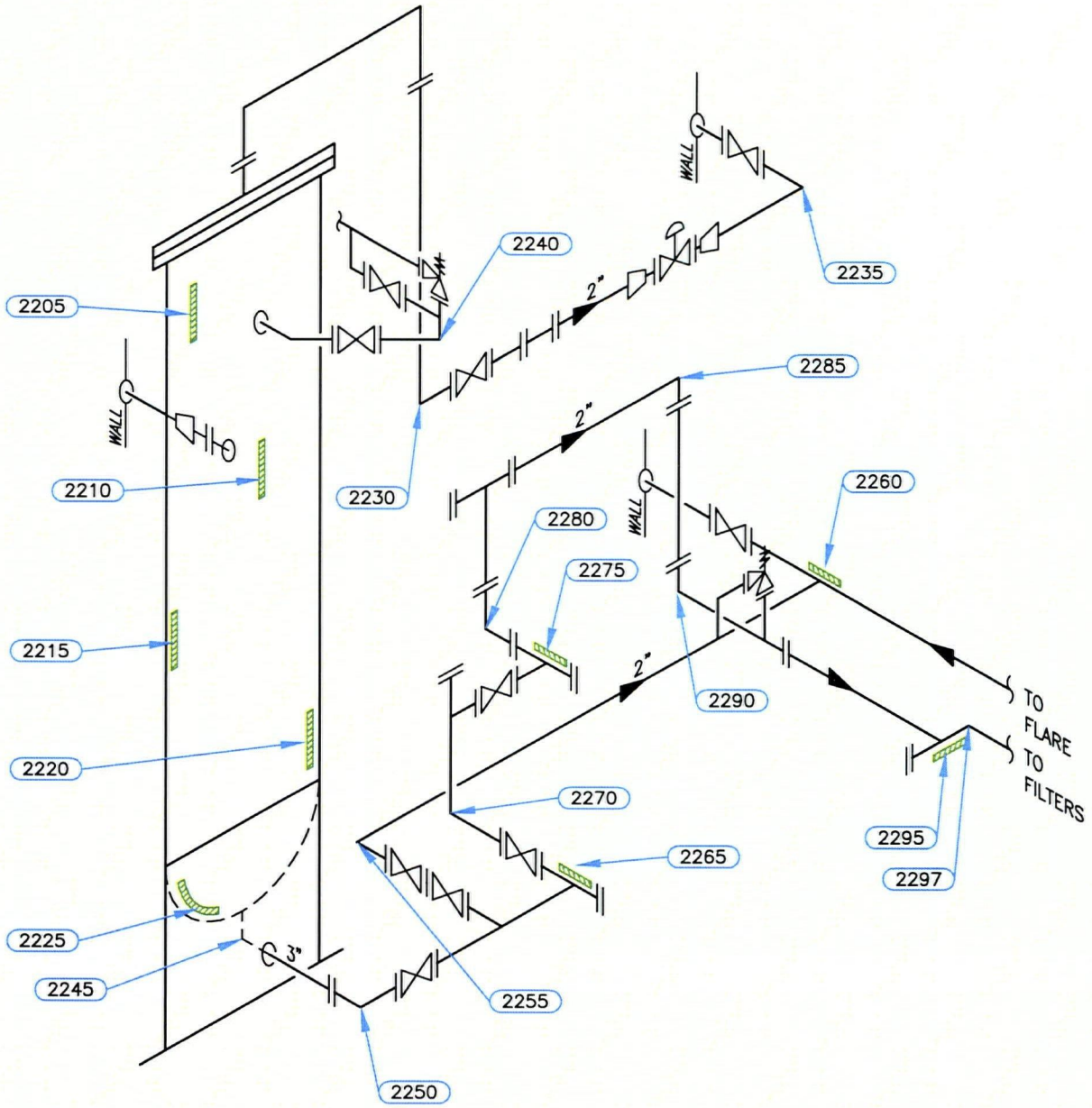
SCHEDULE DATA

ASSGN. CATEGORY 3 (Category I, II or III) PREVIOUS VT (Visual Insp. Year) PREVIOUS UT (UT Thk. Year)

Completed by: Brian Palsen Date: June 8/04 Reviewed by:

66146411

RTD QUALITY SERVICES



Equip. No. V-801 Prov. Reg. No. Ⓐ 497953 C.R.N. R 4547.2 Serial No. B 7047-20 Yr. Inst. _____

Code/Div. ASME Size: N/S Manufacturer: PRESSON Yr. Blt. 2004

C. Stamp: U Service: SOUR PWHT: YES Radiography: RT-1 Insulated: NO

Design & Materials Data

HEAD:
Mat'l. SA 516 70N Nom. 14.3mm C.A. 3.2mm
Mat'l. SA 516 70N Nom. 14.3mm C.A. 3.2mm

CHANNEL:
Material: _____ Nominal: _____ C.A. _____

BOOT
Head Mat'l. _____ Head Nom. _____ Head C.A. _____
Shell Mat'l. _____ Shell Nom. _____ Shell C.A. _____

SHELL
Material: SA 516 70N Nominal: 15.9mm C.A. 3.2mm

MAWP Shell Side: 4654 kPa @ Temp. 93°C

MAWP Tube Side: _____ @ Temp. _____

CLIENT PETRO CANADA OIL AND GAS

FACILITY HANLAN-ROBB GAS PLANT
MINEHEAD FIELD UNIT#50
LSD 05-07-49-18 W5M

ITEM PRODUCT WATER FLASH TANK

BY: EG DATE: 05/2004 DWG.# 22

RTD QUALITY SERVICES

UTS DATA

CLIENT: PETRO-CANADA OIL AND GAS
FACILITY: UNIT 50 MINEHEAD
EQUIPMENT: PRODUCED WATER FLASH TANK
SERVICE: SOUR
EQUIPMENT ID#: V-801
LOCATION: 05-07-49-18 W5M
PROV REG: A 497953
RTD JOB #: 2121176
TESTED ON STREAM
REFER TO DRAWING: 22

THICKNESS DATA

Test Point		2004 7	2005 4	2006 4	2007 5	Flag	Crit	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Flag Date
2205													
	Description: TOP SHELL												
	Min. Thick.	16.3	16.3	16.3	16.3	12.7	12.7	3.2	15.9	0	0	L	
	Average:	16.4	16.4	16.4	16.4					0	0	L	
	Analysis:												
2210													
	Description: UPPER SHELL OPPOSITE I/L												
	Min. Thick.	16.8	16.8	16.8	16.8	12.7	12.7	3.2	15.9	0	0	L	
	Average:	16.9	16.9	16.9	16.9					0	0	L	
	Analysis:												
2215													
	Description: MID SHELL												
	Min. Thick.	16.6	16.6	16.6	16.6	12.7	12.7	3.2	15.9	0	0	L	
	Average:	16.7	16.7	16.7	16.7					0	0	L	
	Analysis:												
2220													
	Description: BOTTOM SHELL												
	Min. Thick.	16.3	16.3	16.3	16.3	12.7	12.7	3.2	15.9	0	0	L	
	Average:	16.4	16.4	16.4	16.4					0	0	L	
	Analysis:												
2225													
	Description: BOTTOM HEAD												
	Min. Thick.	15.4	15.4	15.4	15.4	11.1	11.1	3.2	14.3	0	0	L	
	Average:	15.6	15.6	15.7	15.7					0	0	S	
	Analysis:												
2245													
	Description: 3" 90° ELBOW												
	Min. Thick.	7.4	7.4	7.4	7.4	4.4	4.4	3.2	7.6	0	0	L	
	Average:	7.7	7.7	7.7	7.7					0	0	L	
	Analysis:												

UTS DATA

CLIENT: PETRO-CANADA OIL AND GAS
FACILITY: UNIT 50 MINEHEAD
EQUIPMENT: PRODUCED H2O FLASH TANK PIPING
SERVICE: SOUR
EQUIPMENT ID#:
LOCATION: 05-07-49-18 W5M
PROV REG:
RTD JOB #: 2121176
TESTED ON STREAM
REFER TO DRAWING: 22

THICKNESS DATA

Test Point		2004 7	2005 4	2006 4	2007 5	Flag	Crit	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Flag Date
2230													
Description:	2" 90° ELBOW												
	Min. Thick.	4.8	4.8	4.8	4.8	2.5	2.5	3.0	5.5	0	0	L	
	Average:	5.0	5.0	5.0	5.0					0	0	L	
	Analysis:												
2235													
Description:	2" 90° ELBOW												
	Min. Thick.	5.1	5.1	5.1	5.1	2.5	2.5	3.0	5.5	0	0	L	
	Average:	5.3	5.3	5.3	5.3					0	0	L	
	Analysis:												
2240													
Description:	2" 90° ELBOW												
	Min. Thick.	5.3	5.3	5.3	5.3	2.5	2.5	3.0	5.5	0	0	L	
	Average:	5.5	5.5	5.5	5.5					0	0	L	
	Analysis:												
2250													
Description:	3" 90° ELBOW												
	Min. Thick.	7.4	7.4	7.4	7.4	2.5	2.5	5.1	7.6	0	0	L	
	Average:	7.7	7.7	7.7	7.7					0	0	L	
	Analysis:												
2255													
Description:	2" 90° ELBOW												
	Min. Thick.	4.9	4.9	4.9	4.9	2.5	2.5	3.0	5.5	0	0	L	
	Average:	5.1	5.1	5.1	5.1					0	0	L	
	Analysis:												
2260													
Description:	2" TEE												
	Min. Thick.	6.8	6.8	6.8	6.8	2.5	2.5	3.0	5.5	0	0	L	
	Average:	7.8	7.8	7.8	7.8					0	0	L	
	Analysis:	2004/07 MIN SCAN @ D.S.W.											

UTS DATA

CLIENT: PETRO-CANADA OIL AND GAS
FACILITY: UNIT 50 MINEHEAD
EQUIPMENT: PRODUCED H2O FLASH TANK PIPING
SERVICE: SOUR
EQUIPMENT ID#:
LOCATION: 05-07-49-18 W5M
PROV REG:
RTD JOB #: 2121176
TESTED ON STREAM
REFER TO DRAWING: 22

THICKNESS DATA

Test Point		2004 7	2005 4	2006 4	2007 5	Flag	Crit	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Flag Date
2265													
	Description:	3" TEE											
	Min. Thick.	9.2	9.2	9.2	9.2	2.5	2.5	5.1	7.6	0	0	L	
	Average:	10.2	10.2	10.2	10.2					0	0	L	
	Analysis:	2004/07 MIN SCAN @ D.S.W.											
2270													
	Description:	2" 90° ELBOW											
	Min. Thick.	4.8	4.8	4.8	4.8	2.5	2.5	3.0	5.5	0	0	L	
	Average:	5.1	5.1	5.1	5.1					0	0	L	
	Analysis:												
2275													
	Description:	2" TEE											
	Min. Thick.	7.2	7.2	7.2	7.2	2.5	2.5	3.0	5.5	0	0	L	
	Average:	7.9	7.9	7.9	7.9					0	0	L	
	Analysis:	2004/07 MIN SCAN @ D.S.W.											
2280													
	Description:	2" 90° ELBOW											
	Min. Thick.	4.8	4.8	4.8	4.8	2.5	2.5	3.0	5.5	0	0	L	
	Average:	5.1	5.1	5.1	5.1					0	0	L	
	Analysis:												
2285													
	Description:	2" 90° ELBOW											
	Min. Thick.	4.9	4.9	4.9	4.9	2.5	2.5	3.0	5.5	0	0	L	
	Average:	5.1	5.1	5.1	5.1					0	0	L	
	Analysis:												
2290													
	Description:	2" 90° ELBOW											
	Min. Thick.	4.5	4.5	4.5	4.5	2.5	2.5	3.0	5.5	0	0	L	
	Average:	4.7	4.7	4.7	4.7					0	0	L	
	Analysis:												

UTS DATA

CLIENT: PETRO-CANADA OIL AND GAS
FACILITY: UNIT 50 MINEHEAD
EQUIPMENT: PRODUCED H2O FLASH TANK PIPING
SERVICE: SOUR
EQUIPMENT ID#:
LOCATION: 05-07-49-18 W5M
PROV REG:
RTD JOB #: 2121176
TESTED ON STREAM
REFER TO DRAWING: 22

THICKNESS DATA

Test Point		2004 7	2005 4	2006 4	2007 5	Flag	Crit	C.A.	Nom.	Short Term	Long Term	Ave. mm/py	Flag Date
2295													
	Description:	2" TEE											
	Min. Thick.	6.4	6.4	6.5	6.5	2.5	2.5	3.0	5.5	0	0	S	
	Average:	7.4	7.4	7.4	7.4					0	0	L	
	Analysis:	2004/07 MIN SCAN @ D.S.W.											
2297													
	Description:	2" 90° ELBOW											
	Min. Thick.	4.4	4.4	4.4	4.4	2.5	2.5	3.0	5.5	0	0	L	
	Average:	4.7	4.7	4.7	4.7					0	0	L	
	Analysis:												