



Client	Petronas Energy Canada Ltd.	Inspection Date	Nov 4, 2014		
Prov. Reg. #	AB 0586305 BC BPV-048528	Inspection Type	VE / UT		
Equipment Type	Glycol Contactor	Location	Graham		
Tag/Equip.		LSD	AB C-087-F/094-B-08		
Status	Not In Service	Downhole LSD			
Manufacturer	lfc Industrial Fabrication Corporation	Area	Cypress A		
Serial Number	18089-01	Year Built	2007		
CRN #	U0772.21	Service	Sweet		
Comp/Unit Id	Dehy #1	Manway	None		
Nat.Board #		Coating	No		
Interim Insp'n		Interim Type			
Next Thorough Insp		Next Insp Type	VE / UT		
Length		Height			
Volume		Client Reference	1006102		
Owner	Petronas Energy Canada Ltd.	RT	1	HT	YES
Foreman	SBU	RAE Job No.	4934		
ABSA	Plant: H Vessel: P Process: G Special: B	ASME	Sec. VIII div. 1		
History Log	BC Design Registration - dated February 18, 2009 - entered December 8, 2017. PSV Service Report - dated October 14, 2014				

Component	Shell				
MAWP	1440.0 PSI @ 130 °F		MDMT	-20 °F @ 1440.0 PSI	
Material	SA-516-70N	Material Thickness		1.25 in	
Diameter		Length			
Corrosion Allowance	0.125 in				



Valve Tag No	33064-108	Relief Type	Pressure Safety Valve
Manufacturer	Taylor	Set Pressure	1440 PSI
Serial Number	33064-108	Capacity	10871 SCFM
Model	82G10651341	Last Service	Oct 14, 2014
CRN	0G01316.2C	Next Service	9999
Service Co.	Unified Valve	Service Interval	
Service Co. Tag	16900F	Inlet Size	2 in
ASME Stamp	UV	Outlet Size	2 in
NB Stamp	YES	Connection	Threaded
Relief Dest.	To Flare	Valve Loc.	On Piping
Comments		Client Reference	1011326

Component	Heads		
MAWP		MDMT	
Material	SA-516-70N	Material Thickness	1.25 in
Diameter		Length	
Corrosion Allowance	0.125 in		

Comments

The following RAE Procedure(s) was/were used in inspecting this vessel:
 INS-624B Unfired Pressure Vessels Procedure
 INS-645B PRV Inspection Procedure
 NDE-701B UT-1 Ultrasonic Thickness Measurement Procedure
 Proper LSD sign was not available at site.

Building Observations

The building was generally in serviceable condition and well supported. The building was well lit. The checker plate metal floor was clean and in serviceable condition. The doors and windows functioned well and were in serviceable condition. The cladding was generally in serviceable condition. There were no combustibles in the building. There was generally good access to the equipment in the building. The building structure was level. The ground wire was securely attached to the building structure. The building was supported by pilings. The building roof was leaking around the vessel seal.



Figure: 1



Building Overview

Piping Observations

The attached piping was generally in serviceable condition. The piping was sufficiently supported. There was no damage, distortion, short bolting or stress evident on the piping. The piping was not insulated. The piping was painted and the paint was generally in serviceable condition. There was minor scattered external corrosion on the piping surfaces. There were butt welded and threaded connections on the piping which showed no signs of leakage and appeared to be in serviceable condition

PSV Observations

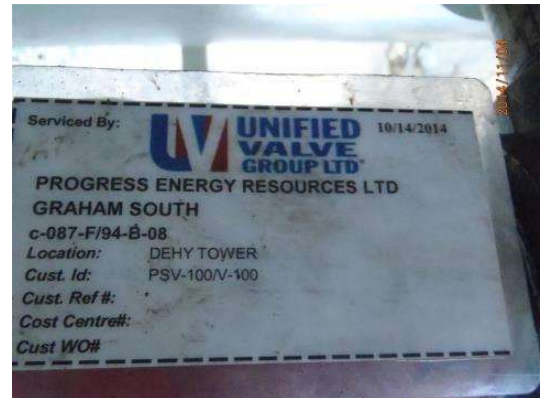
The PSV was located on associated piping within the building. The PSV was mounted in the vertical position, securely attached to the piping, and in serviceable condition. The nameplate was securely attached and legible. The set pressure was acceptable for the vessel. The service tag was securely attached. The PSV seal wire was attached and intact. The vent size was adequate and vent lines were positioned safely. The outlet piping provided positive drainage for the PSV. There were no valves on the PSV piping.

Figure: 2



PSV Overview

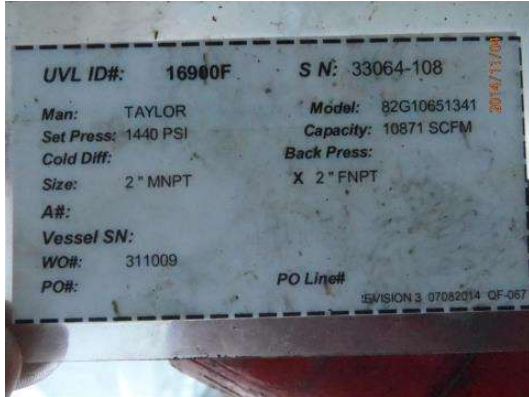
Figure: 3



PSV Service Tag



Figure: 4



PSV Service Tag 1

External Observations

The vessel is located partially inside a building. The nameplate was legible and securely mounted to the vessel. The heads and shell appeared to be in serviceable condition. The vessel is not insulated. The vessel was fully painted and the paint was in serviceable condition. There was minor scattered corrosion visible on the vessel surfaces. There was no damage, distortion, or stress evident on piping connections. The vessel was vertical and adequately supported by a skirt which was bolted to the floor. There are no structural attachments on vessel.

Figure: 5

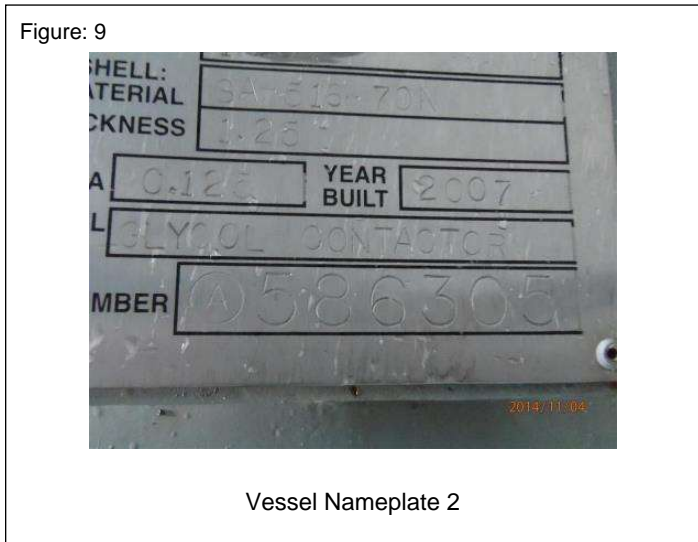
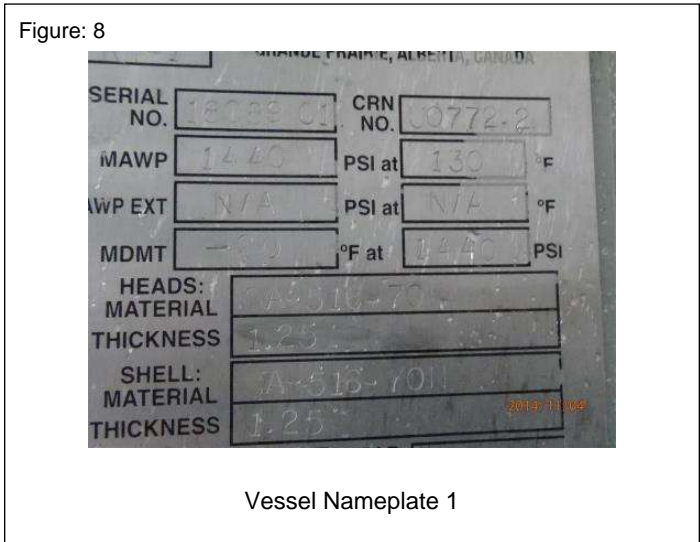
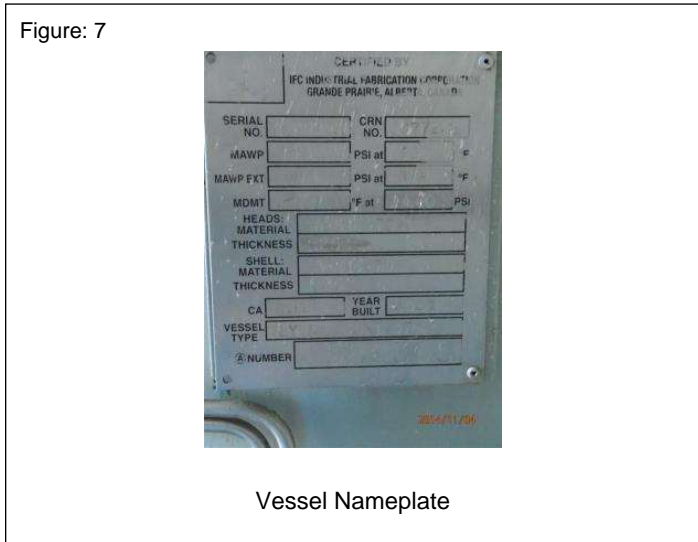


Vessel Overview

Figure: 6



Vessel Overview 1



Internal Observations

No internal inspection was performed at this time.

UT1 Observations

Please see the attached Appendices for UT Data.

General Observations

Equipment was not in operation at time of inspection. There was no rotational equipment in or around this building. There was no vibration apparent at the time of inspection. No vibration induced damage was evident. The gauge(s), associated equipment and instrumentation all appeared to be in serviceable condition and operational.



Recommendations

1. Fix roof seal around the vessel.

The vessel appeared suitable for continued service.

Ken McNeil


Alberta IBPV #A-75085
API 510 #39628, API 570 #66961
API 653 #47993, CWB Level III #483

Brett Peterson, P.Eng.

Alberta IBPV #A-77750
API 510 #41752
TSASK Pressure Equipment Class I #251
API 653 #46578
API 570 #85212

Inspector : Ken McNeil

Reviewed By: Brett Peterson

	RAE Engineering and Inspection Ltd 4810 - 93 Street Edmonton, AB, T6E 5M4 ph: 780-469-2401 fx: 780-468-2422	Inspection Date:	4-Nov-14	Ultrasonic Thickness Examination
		Page:	1 of 4	
Client:	Progress	RAE Report #:	14-4934-LC-UT-05	
Address:	Suite 1200, 205-5th Ave, SW, Calgary, T2P2V7	Project #:	4934	
Client P.O.#:	NS	Location/LSD:	Graham/c-87-F/94-B-8	
Client Representative:	Lee Wizniuk	Procedure:	UT-1 - #701B Rev. 3	
		Acceptance Code:	Client Spec., Thickness	

JOB DESCRIPTION

A or RAE Number	A 0586305	Material:	Carbon Steel	Nominal Thickness:	Various
Vessel Description	Glycol Conctactor	Surface	<input checked="" type="checkbox"/> Coated <input type="checkbox"/> Bare Steel <input type="checkbox"/> Machined	Condition:	<input type="checkbox"/> As Ground <input type="checkbox"/> Shot Blasted <input type="checkbox"/> As Welded
		Surface Temp:	<input type="checkbox"/> < 0 °C <input checked="" type="checkbox"/> 0-120 °C <input type="checkbox"/> 120-260 °C <input type="checkbox"/> >260 °C		

EQUIPMENT, TECHNIQUE & CALIBRATION

Instrument Mfr:	GE	Model:	DMS-Go	S/N:	USMGO11075063	Cal. Due:	10-Jul-15								
Cal Block S/N:	12-4693	1 or 2 Point Cal:	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2	Calibrated Range:	0.250"-1.000"	Couplant:	UTX								
Probe Model	Freq MHz	Angle	Dia. (in)	Probe Type		Manufacturer	Serial #	Cable length	Delay line	Vel. (m/sec)	Transfer Value	Ref dB	Ref %FSH	Scan dB	Range (in)
1	Stresstel	5.0	0°	0.25	<input type="checkbox"/> Single <input checked="" type="checkbox"/> Dual	NA	023PXX	4'	<input type="checkbox"/>	5850	NA	60	80	As Needed	2.5
2					<input type="checkbox"/> Single <input type="checkbox"/> Dual				<input type="checkbox"/>						
3					<input type="checkbox"/> Single <input type="checkbox"/> Dual				<input type="checkbox"/>						
4					<input type="checkbox"/> Single <input type="checkbox"/> Dual				<input type="checkbox"/>						

Scope: Conduct 0° straight beam ultrasonic testing on the glycol contactor looking for any signs of wall thinning due to corrosion, erosion, laminations or inclusions.

Results: The measurements obtained from the inspection locations show the thickness of all of the components inspected to be at or around nominal. There were no signs of wall thinning, internal corrosion, erosion, laminations or inclusions at the time of inspection. All piping measurements were within the 12.5% mill tolerance, as per ASTM specifications.

Please see the following pages for the pictures of the overall view, the isometric drawings, and the thickness measurements.

Client Representative	Lee Wizniuk	SIGNATURE	CGSB#:	17600	CGSB Level:	I
1 ST Technician	Leah Colp	SIGNATURE	SNT#:		SNT Level:	
2 ND Technician		SIGNATURE	CGSB#:		CGSB Level:	
			SNT#:		SNT Level:	



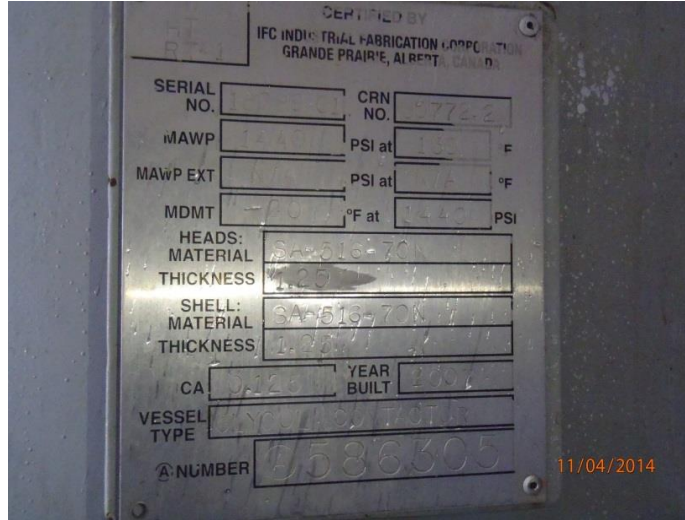
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 ph: 780-469-2401 fx: 780-468-2422

Date: 4-Nov-14
 Page: 2 of 4
 RAE Report #: 14-4934-LC-UT-05
 Project #: 4934
 Location/LSD: Graham/c-87-F/94-B-8
 Procedure: UT-1 - #701B Rev. 3
 Acceptance Code: Client Spec., Thickness

Ultrasonic Thickness Examination

Client: Progress
 Item Number: A 0586305
 Item Description: Glycol Conctactor

Photographs of Equipment and Nameplate



View of Nameplate



Overall View of Equipment

Client Representative	Lee Wizniuk PRINT	SIGNATURE	CGSB#:	17600	CGSB Lvl:	I
1 ST Technician	Leah Colp PRINT	SIGNATURE	SNT#:		SNT Lvl:	
2 ND Technician	PRINT	SIGNATURE	CGSB#:		CGSB Lvl:	
			SNT#:		SNT Lvl:	



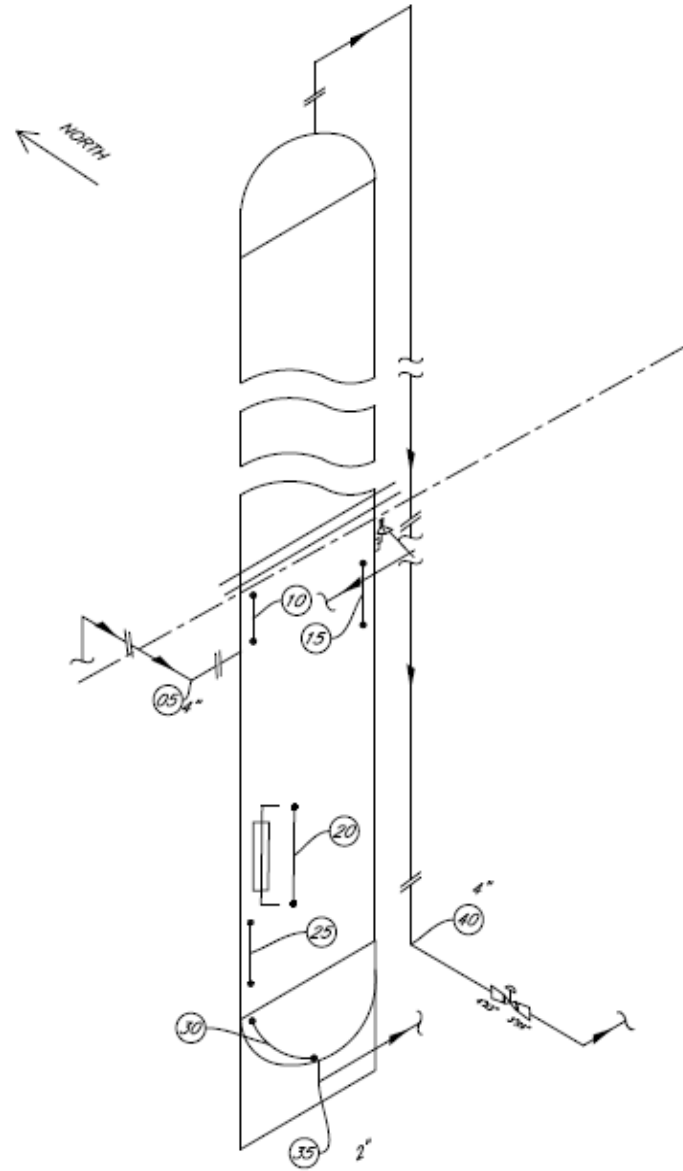
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Ultrasonic Thickness Examination

Client: Progress
 Item Number: A 0586305
 Item Description: Glycol Conductor

ISO Drawing of Equipment and TMLs



Glycol Conductor (586305)

Client Representative	Lee Wizniuk PRINT	SIGNATURE			
1 ST Technician	Leah Colp PRINT	SIGNATURE	CGSB#: 17600	CGSB Lvl: I	
			SNT#:	SNT Lvl:	
2 ND Technician		SIGNATURE	CGSB#:	CGSB Lvl:	
			SNT#:	SNT Lvl:	



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 Page: 4 of 4
 RAE Report #: 14-4934-LC-UT-05
 Project #: 4934
 Location/LSD: Graham/c-87-F/94-B-8
 Procedure: UT-1 - #701B Rev. 3
 Acceptance Code: Client Spec., Thickness

Ultrasonic Thickness Examination

Client:	Progress	Project #:	4934	
Item Number:	A 0586305	Location/LSD:	Graham/c-87-F/94-B-8	
Item Description:	Glycol Conductor		Procedure:	UT-1 - #701B Rev. 3
		Acceptance Code:	Client Spec., Thickness	

Measurements in:		TML Data											
inches		1	2	3	4	5	6	7	8	9	10	11	12
05	4" XH 90° Elbow	0.354	0.357	0.363	0.365	0.361	0.367	0.360	0.364	0.358	0.360		
	Nom. 0.337 Min. 0.295 Direc. N-E									Min. =	0.354	Ave. =	0.361
10	Mid Upper Shell	1.280	1.280	1.280	1.281	1.281	1.280	1.279	1.281	1.279	1.279	1.278	1.277
	Nom. 1.250 Min. 0.282 Direc. T-B									Min. =	1.277	Ave. =	1.280
15	Mid Shell	1.290	1.292	1.290	1.290	1.290	1.293	1.294	1.300	1.291	1.290	1.292	1.289
	Nom. 1.250 Min. 0.282 Direc. T-B									Min. =	1.289	Ave. =	1.292
20	Shell at Level Gauge	1.275	1.278	1.275	1.274	1.274	1.274	1.274	1.273	1.274	1.274	1.272	1.273
	Nom. 1.250 Min. 0.282 Direc. T-B									Min. =	1.272	Ave. =	1.274
25	Bottom Shell	1.276	1.277	1.276	1.275	1.276	1.274	1.275	1.275	1.275	1.275	1.274	1.275
	Nom. 1.250 Min. 0.282 Direc. T-B									Min. =	1.274	Ave. =	1.275
30	Bottom Head	1.236	1.236	1.235	1.231	1.236	1.233	1.233	1.231	1.238	1.235	1.235	1.233
	Nom. 1.250 Min. 0.282 Direc. T-B									Min. =	1.231	Ave. =	1.234
35	2" Sch 160 Drain Elbow	0.339	0.347	0.342	0.339								
	Nom. 0.344 Min. 0.301 Direc. T-B									Min. =	0.339	Ave. =	0.342
40	4" XH 90° Elbow	0.326	0.324	0.322	0.324	0.324	0.335	0.335	0.329	0.328	0.329	0.329	
	Nom. 0.337 Min. 0.295 Direc. T-B									Min. =	0.322	Ave. =	0.328

Client Representative	Lee Wizniuk	SIGNATURE		Scan Direction: T=Top, B=Bottom, O=Outside, I=Inside, N=North, S=South, E=East, W=West, L=Left, R=Right, RHR=Right Hand Rule
1 ST Technician	Leah Colp	SIGNATURE		
2 ND Technician		SIGNATURE		
		CGSB#: 17600	CGSB Lvl: I	
		SNT#:	SNT Lvl:	
		CGSB#:	CGSB Lvl:	
		SNT#:	SNT Lvl:	