INSPECTION REPORT

EM&I Jacques Ltd.

Pressure Vessel Survey			
Location:	Point Tupper	**EM&I J Report No.:**	PT-D2100D-090319-BR-R1
Client Name:		**Client Ref No.:**	PT-11573615-001-D2100D
Client Rep.:		**Inspector Name:**	Barry Ritchie
WO No.:		**Inspection Date:**	March 19, 2009
SPO No.:		**System:**	Propane
Workscope No.:	PT-2008-VESSEL-EXT-03	**EM&I J Job No:**	EMJ0132.33
Tag No.:	D-2100D	**Equipment Description:**	Propane Storage Vessel D-2100D
Date of Last Inspection:	NA	**Previous Records Seen:**	NA
Drawing No.:	LA-B23-F-22-8052-01-Z4, 980047-4-2, 980047-2-4, 98-CA-399735-4B-0		

Inspection Summary

Item	Condition				Comments
External Ladders, Access and Support Structure	Good	Fair	Poor	NA	
1. If applicable, check ladders, stairways, platforms and walkways that are connected to, or bearing on the vessel for signs of corrosion, missing components, or deterioration.	☒	☐	☐	☐	As per report 2100E
2. If applicable, check vessel supports for signs of deterioration, settlement, deflection, and/or corrosion.	☒	☐	☐	☐	See Photos #1-6
3. If applicable, check coatings for signs of deterioration, rusts spots, cracks, blistering, and/or coating disbondment.	☐	☐	☐	☒	
4. a) For horizontally mounted vessels, check for signs of trapped moisture, resulting in corrosion between cradle support and vessel shell.	☒	☐	☐	☐	
b) For vertically mounted vessels on skirt support or support legs, check for condensation, resulting in corrosion on the bottom cap/ inside skirt support surface or area of attachment of the support legs to the bottom cap.	☐	☐	☐	☒	
5. Check the grounding connection is correctly installed, with cable connections tight and ground wires in good condition.	☒	☐	☐	☐	See Photos #7,8,9,10
6. Check all bolted connections for any signs of corrosion or mechanical damage.	☒	☐	☐	☐	
7. If applicable, check the vessel sliding foot free to move and hold-down bolts are free.	☐	☐	☐	☒	
Vessel External Surfaces	Good	Fair	Poor	NA	
1. Check permanent identifying tags on vessel are legible and present the required information.	☒	☐	☐	☐	See Photo #11
2. If applicable, check that all bolts/studs extend fully through their nuts, having a protrusion beyond the nut of not less than one thread; flange bolts have bolt heads all on the side of the joint.	☒	☐	☐	☐	
3. If applicable, check bolted connections are in full contact with connected elements and connections for any signs of rust, corrosion or mechanical damage.	☒	☐	☐	☐	
4. If applicable, check insulation support bands and clips for signs of corrosion or breakage.	☐	☐	☐	☒	
5. Check all welded seams and connections for any signs of deterioration, corrosion, cracking, pitting or other sign of failure. Specify.	☒	☐	☐	☐	
6) If applicable, check insulation type, condition for any insulation damage and ingress of water. Record insulation type.	☐	☐	☐	☒	
7. Carry out visual inspection of the exterior surface of the vessel, including coatings for any signs of leaks, cracks, deformation, distortion, pitting, corrosion or other forms of deterioration. If so, specify type, location and extent.	☐	☒	☐	☐	See Photos #18-23, 26, 29, 30 , 31, 34, 35, 36
8. If applicable, check weep holes in reinforcement plates are not plugged.	☐	☐	☐	☒	
External Piping / Instrument Attachments	Good	Fair	Poor	NA	
1. If applicable, check vessel trim, such as gauges, sight glasses, valves and other appurtenances, show signs of deterioration, or missing components, etc.	☒	☐	☐	☐	See Photo #12
2. If applicable, check if the PSV on the vessel is in calibration. Record tag number of PSV and calibration date.	☒	☐	☐	☐	See Photo #28
3. Inspect fittings, nozzles and other connections, including the surrounding vessel shell / head for any signs of distortion or cracks, wall loss, leakage, deterioration of coatings, etc. Specify extent and location.	☐	☒	☐	☐	See Photo #12-17, 24, 25, 27

Inspection Summary

Item	Condition				Comments
Vessel Internal Surfaces	Good	Fair	Poor	NA	**External Only**
1. Check for signs of corrosion, erosion, cracks, blisters, pitting, distortion, or other forms of deterioration on the internal vessel surfaces. If any, specify type, location and extent.	☐	☐	☐	☒	
2. Check all welded joints for any signs of deterioration, corrosion, cracking, pitting or other sign of failure. Specify.	☐	☐	☐	☒	
3. Check all man-ways, nozzles and connections for distortion, cracks, corrosion, wall loss and other type of defects or failures. If any defects are noted, specify type, extent and location.	☐	☐	☐	☒	
4. If applicable, compare the results of performed wall thickness survey with previous reports for areas of wall thickness loss. Identify areas on inspection report.	☐	☐	☐	☒	
5. Where applicable, check vessel internal cladding for signs of bulging, buckling, cracks, holes, etc. If any, specify type, location and extent.	☐	☐	☐	☒	
6. Where applicable, check the vessel internal coating for signs of deterioration, such as: rust spots, blisters, coating disbandment, etc. If any, specify type, location and extent.	☐	☐	☐	☒	
7. If possible, check gasket seals on all flanges for signs of corrosion and/or mechanical damage.	☐	☐	☐	☒	
Internal Equipment/Piping /Supports	Good	Fair	Poor	NA	
1. Where applicable, check supports for vessel's internal equipment and components for signs of corrosion, distortion and deterioration.	☐	☐	☐	☒	
2. If applicable, check vessel's internals for signs of corrosion, distortion and deterioration, missing components etc.	☐	☐	☐	☒	
3. If applicable, check if bolted connections are in full contact with connected elements and connections are free from rust or other deleterious material that may prohibit full contact.	☐	☐	☐	☒	

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

UT thickness readings were taken on areas where coating breakdown was noted. No areas of concern

ID Tag:
Certified By: RNG Pro-Tech Inc
MAWP: 210/-11 PSI @ 149F
MDMT: -17F @ 250/-11 PSI
Serial No.: 98-9
Year Built: 1999
CRN: 8124.8

MAWP: 1724/-76 KPA @ 65C
MDMT: -27C @ 1724/-76 KPA
Year Built: 1999
CRN: 8124.8

PSV Tag:
L&S Job: 09-16828-19
Date: March 4, 2009
Set Pressure: 1723 KPA
Capacity: 18649 SCFM
Model: JPVM 15A

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

Photo 1 – North face of North vessel support, paint coating in good condtion, photo taken facing South

Photo 2 – South face of North vessel support , showing corrosion running along lower flange conection to concrete support, photo taken facing South

Photo 3 – South face of North vessel support , showing corrosion running along lower flange conection to concrete support, photo taken facing South

Photo 4 – South face of South vessel support showing coating breakdown on upper flange, photo taken facing North

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

	
Photo 5 – North face of South vessel support , coating breakdown on lower flange with damage to top South-East vessel concrete support, taken facing West	Photo 6– North face of South vessel support, coating breakdown on lower flange with damage to top South-East vessel concrete support, taken facing West
	
Photo 7 – Earth strap connections to be in good condition	Photo 8 – Earth strap connections to be in good condition

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

Photo 9 – Earth strap connections to be in good condition

Photo 10 – Earth strap connections to be in good condition

Photo 11 – Showing ID tags

Photo 12 – Nozzle N6, in good condition, studs and nuts CAT III

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

Photo 13 – Nozzles N3B & N4B, showing corrosion and coating breakdown, studs and nuts CAT III

Photo 14 – Nozzle N2 with coating breakdown. Studs and nuts CAT III

Photo 15 – Nozzle N5 with coating breakdown and light corrosion, studs and nuts CAT III

Photo 16 – Manhole with coating breakdown and light corrosion , studs and nuts CAT III

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

	
Photo 17 – Nozzle N10 with insulation	Photo 18 – General photo taken of the South end dome of vessel, showing one isolated patch of coating breakdown, photo taken facing North
	
Photo 19 – General photo taken of the East side shell of vessel, shown to be in good condition, photo taken facing North	Photo 20 – General photos taken of North end dome of vessel, showing two isolated patches of coating breakdown on bottom centre of the dome end, photos taken facing South

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

Photo 21 – General photos taken of North end dome of vessel, showing two isolated patches of coating breakdown on bottom centre of the dome end, photos taken facing South

Photo 22 – West side shell of vessel, in good condition, photo taken facing South

Photo 23 – West side shell of vessel, in good condition, photo taken facing South

Photo 24 – Nozzles N3A,N4A,N8& N1 showing coating breakdown, studs and nuts CAT III

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

Photo 25 – Nozzle N9 showing coating breakdown, studs and nuts CAT III

Photo 26 – General photo of top of vessel running North

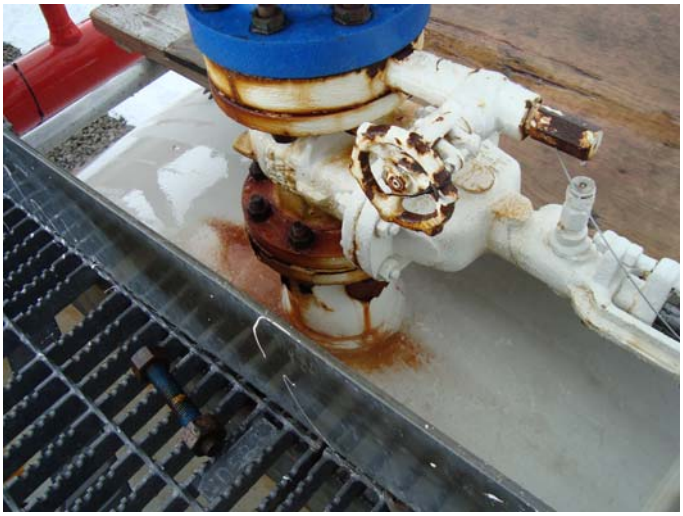


Photo 27 – Nozzle N7 with corrosion and coating breakdown

Photo 28 – PSV calibration tag

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

Photo 29 – General photo showing top of North dome end taken facing West

Photo 30 – General photo taken of top of vessel runnnig South

Photo 31 – Coating breakdown on top of vessel under South side walkway

Photo 32 – Showing coating breakdown on top of South end dome next to nozzles N3A,N4A,N8 & N1

Detail of Findings

Instructions: With the aid of Drawing(s), Sketch(es) and Photo(s) describe findings

Photo 33 – Showing coating breakdown on top of South end dome next to nozzles N3A,N4A,N8 & N1

Photo 34 – Coating breakdown on top of dome North end of vessel next to nozzle N7

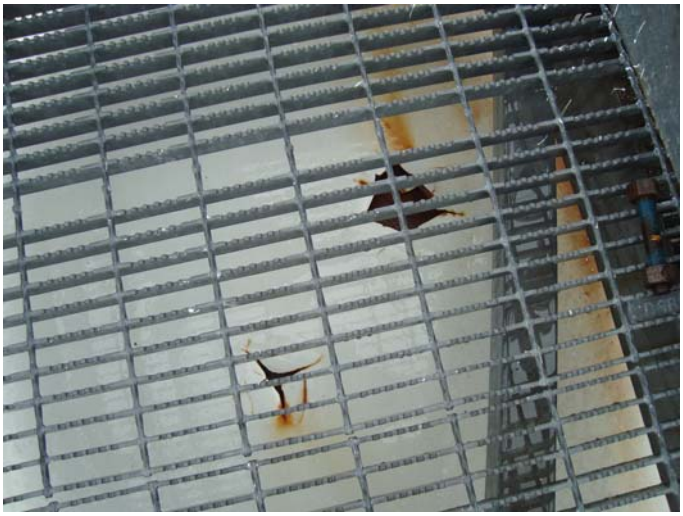


Photo 35 – Coating breakdown on top of dome North end of vessel under walkway

Photo 36 – Patches of coating breakdown, the largest measuring aprox 160mm x 160mm under North end dome next to nozzle N10

List of Attachments

Attachment 1: PT-D2100D-090514-JL-UT (Page 1 to 4)
Attachment 2: UT Diagram

End of Report

INSPECTION REPORT

EM&I Jacques Ltd.

Ultrasonic Inspection Survey for Vessel Inspection			
Location:	Point Tupper	**EM&I J Report No.:**	PT-D2100D-090514-JL-UT
Client Name:	Exxon Mobil Sable	**Client Ref No.:**	PT-11573615-001-D2100D
Client Rep.:	Dale Groves	**Inspector Name:**	John Lee
WO No.:	11573615	**Inspection Date:**	March 14, 2009
SPO No.:	4501869140	**Inspection Time:**	Various
Workscope No.:	PT-2008-VESSEL-EXT-03	**System:**	Propane
Previous Report No.	NA	**EM&I J Job No:**	EMJ0132.33
Ref. Drawing No.:	LA-B23-F-22-8052-01-Z4, 980047-4-2, 980047-2-4, 98-CA-399735-4B-0		
Technician Certifications:	PCN UT 2	**Certification Expiry Date:**	May 21, 2012
Inspection Code:	NA	**Inspection Procedure:**	EM&I
Item Inspected:	D2100D	**Material (Incl. Vol.):**	C/S
Surface Condition:	As coated	**Surface Temp:**	Ambient

Instrument	**Type:** Epoch LTC	**Equipment S/N:** 090108103	**Cal Due Date:** March 11, 2010
Instrument Settings	**Reference Level:** 80fsh	**Gain:** 60db	**Reject Settings:** NA
Search Unit Cables	**Type:**	**Length: 5'**	**Transfer Value:**

Calibration Block:	Step wedge 2.5-12.5mm	**Calibration Block S/N:**	09-1652
Simulation Block:	NA	**Couplant:**	Ultragel II
Computerized Program:	NA		

Transducer Mfg:	Type:	Model No.:	Angle:	Frequency:	Size:
Panametrics	dual element	D790SM - 625220	0	5MHz	10mm

Inspection Summary

Restricted Access?	☐ Yes	☒ No	**Comments:** Rope Access Required

Comments:

UT spot readings were taken and the readings were recorded.
See below and Attachment 3 for locations and readings. All readings are in millimeters.

Readings on North cap were taken facing South and South cap readings were taken facing North.

Inspection Summary

Item Identification	Test Point	Diameter (inches)	Nominal Wall Thickness (mm)	Minimum Wall Thickness (mm)	Average Wall Thickness (mm)
North Head	12 O'clock	End	28.2	31.7	
North Head	3 O'clock	End	28.2	31.6	
North Head	6 O'clock	End	28.2	32.1	
North Head	9 O'clock	End	28.2	31.6	
North Head	Centre	End	28.2	30.8	
South Head	12 O'clock	End	28.2	31.8	
South Head	3 O'clock	End	28.2	32.2	
South Head	6 O'clock	End	28.2	31.5	
South Head	9 O'clock	End	28.2	32.0	
South Head	Centre	End	28.2	31.4	
Panel 1	West	144"	28.6	29.9	
Panel 1	Centre	144"	28.6	29.9	
Panel 1	East	144"	28.6	29.5	
Panel 2	West	144"	28.6	29.5	
Panel 2	Centre	144"	28.6	29.2	
Panel 2	East	144"	28.6	29.4	
Panel 3	West	144"	28.6	30.3	
Panel 3	Centre	144"	28.6	30.1	
Panel 3	East	144"	28.6	30.1	
Panel 4	West	144"	28.6	30.3	
Panel 4	Centre	144"	28.6	30.2	
Panel 4	East	144"	28.6	30.4	
Panel 5	West	144"	28.6	30.0	
Panel 5	Centre	144"	28.6	29.7	
Panel 5	East	144"	28.6	29.6	
Panel 6	West	144"	28.6	29.7	
Panel 6	Centre	144"	28.6	29.4	
Panel 6	East	144"	28.6	29.8	
Panel 7	West	144"	28.6	29.9	
Panel 7	Centre	144"	28.6	30.4	
Panel 7	East	144"	28.6	29.6	
Panel 8	West	144"	28.6	29.8	
Panel 8	Centre	144"	28.6	30.1	
Panel 8	East	144"	28.6	29.6	

Inspection Summary

Item Identification	Test Point	Diameter (inches)	Nominal Wall Thickness (mm)	Minimum Wall Thickness (mm)	Average Wall Thickness (mm)
Panel 9	West	144"	28.6	29.6	
Panel 9	Centre	144"	28.6	29.8	
Panel 9	East	144"	28.6	29.3	
Panel 10	West	144"	28.6	29.8	
Panel 10	Centre	144"	28.6	29.7	
Panel 10	East	144"	28.6	29.7	
Panel 11	West	144"	28.6	30.2	
Panel 11	Centre	144"	28.6	29.8	
Panel 11	East	144"	28.6	29.6	
Panel 12	West	144"	28.6	30.0	
Panel 12	Centre	144"	28.6	30.3	
Panel 12	East	144"	28.6	29.8	
Nozzle 1	North	4"	33.1	33.4	
Nozzle 1	South	4"	33.1	33.0	
Nozzle 1	East	4"	33.1	32.9	
Nozzle 1	West	4"	33.1	33.1	
Nozzle 2	North	10"	82.6	82.2	
Nozzle 2	South	10"	82.6	81.0	
Nozzle 2	East	10"	82.6	82.0	
Nozzle 2	West	10"	82.6	82.0	
Nozzle 3A	North	3"	31.5	31.4	
Nozzle 3A	South	3"	31.5	31.2	
Nozzle 3A	East	3"	31.5	31.5	
Nozzle 3A	West	3"	31.5	31.5	
Nozzle 3B	North	3"	31.5	31.1	
Nozzle 3B	South	3"	31.5	31.0	
Nozzle 3B	East	3"	31.5	31.3	
Nozzle 3B	West	3"	31.5	31.0	
Nozzle 4A	North	2"	16.6	16.7	
Nozzle 4A	South	2"	16.6	16.8	
Nozzle 4A	East	2"	16.6	16.9	
Nozzle 4A	West	2"	16.6	16.8	
Nozzle 4B	North	2"	16.6	16.5	
Nozzle 4B	South	2"	16.6	16.7	
Nozzle 4B	East	2"	16.6	17.0	
Nozzle 4B	West	2"	16.6	16.7	

INSPECTION REPORT

EM&I Jacques Ltd.

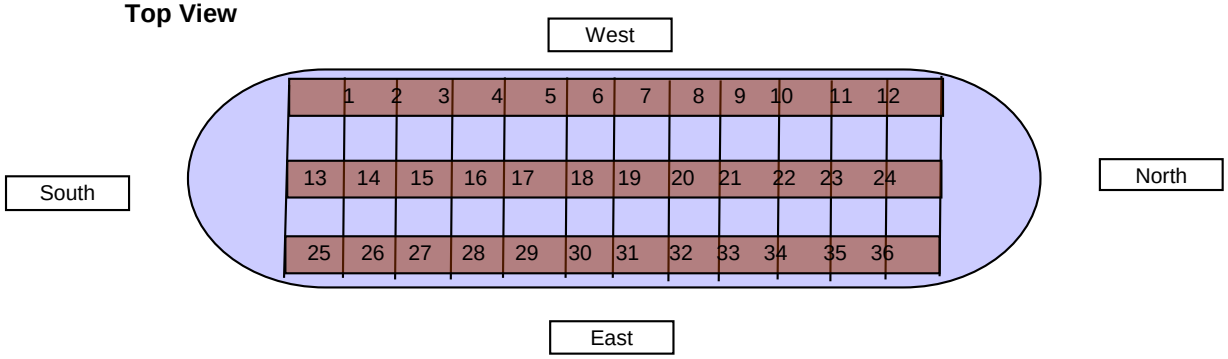
Inspection Summary

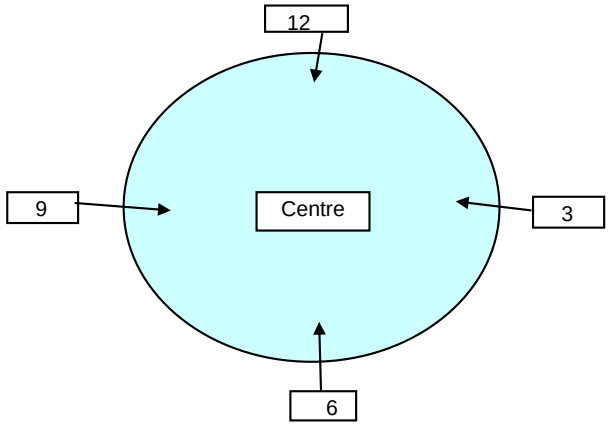
Item Identification	Test Point	Diameter (inches)	Nominal Wall Thickness (mm)	Minimum Wall Thickness (mm)	Average Wall Thickness (mm)
Nozzle 5	North	4"	33.1	32.8	
Nozzle 5	South	4"	33.1	33.0	
Nozzle 5	East	4"	33.1	32.8	
Nozzle 5	West	4"	33.1	32.4	
Nozzle 6	Top	2"	25.4	25.0	
Nozzle 6	Bottom	2"	25.4	24.8	
Nozzle 6	East	2"	25.4	24.9	
Nozzle 6	West	2"	25.4	25.1	
Nozzle 7	North	4"	33.1	34.1	
Nozzle 7	South	4"	33.1	34.4	
Nozzle 7	East	4"	33.1	34.4	
Nozzle 7	West	4"	33.1	33.9	
Nozzle 8	North	6"	63.5	66.3	
Nozzle 8	South	6"	63.5	66.4	
Nozzle 8	East	6"	63.5	66.3	
Nozzle 8	West	6"	63.5	66.4	
Nozzle 9	North	2"	16.6	17.0	
Nozzle 9	South	2"	16.6	17.0	
Nozzle 9	East	2"	16.6	16.8	
Nozzle 9	West	2"	16.6	17.2	
Nozzle 10	North	3"	31.5	30.9	
Nozzle 10	South	3"	31.5	31.1	
Nozzle 10	East	3"	31.5	30.9	
Nozzle 10	West	3"	31.5	30.7	
Nozzle 11	North	2"	16.6	17.4	
Nozzle 11	South	2"	16.6	18.0	
Nozzle 11	East	2"	16.6	18.3	
Nozzle 11	West	2"	16.6	17.9	
M1	North	24"	101.6	110	
M1	South	24"	101.6	110	
M1	East	24"	101.6	110	
M1	West	24"	101.6	110	

End of Report

Three UT readings were taken on each plate. One on the East, one top Center, and one on the West side. The areas are numbered and readings were recorded on the UT report. Only the lowest readings were reported.

Top View





UT readings were taken on vessel end caps at the Centre and at 12,3,6 & 9 O'clock positions. Lowest readings were recorded.