

INSPECTION REPORT



Pressure Vessel Survey			
Location:	Point Tupper	EM&I J Report No.:	PT-D2008-090521-DM-R0
Client Name:		Client Ref No.:	PT-11564778-002-D2008
Client Rep.:		Inspector Name:	Doug MacDonald
WO No.:		Inspection Date:	May 21, 2009
SPO No.:		System:	Propane + Liquids
Workscope No.:	PT-2009-D2008-INT-01	EM&I J Job No:	EMJ0132.33
Tag No.:	D-2008	Equipment Description:	Off-Spec Storage Vessel D-2008
Date of Last Inspection:	NA	Previous Records Seen:	NA
Drawing No.:	LA-B22-F-22-8006-01-Z4, 98-CA-399735-4B		

Inspection Summary					
Item	Condition				Comments
External Ladders, Access and Support Structure	Good	Fair	Poor	NA	Internal Inspection Only
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. If applicable, check vessel supports for signs of deterioration, settlement, deflection, and/or corrosion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. If applicable, check coatings for signs of deterioration, rusts spots, cracks, blistering, and/or coating disbondment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. a) For horizontally mounted vessels, check for signs of trapped moisture, resulting in corrosion between cradle support and vessel shell.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Check the grounding connection is correctly installed, with cable connections tight and ground wires in good condition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Check all bolted connections for any signs of corrosion or mechanical damage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. If applicable, check the vessel sliding foot free to move and hold-down bolts are free.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Vessel External Surfaces	Good	Fair	Poor	NA	
1. Check permanent identifying tags on vessel are legible and present the required information.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		See Photo #1 and Note 1
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. If applicable, check bolted connections are in full contact with connected elements and connections for any signs of rust, corrosion or mechanical damage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. If applicable, check insulation support bands and clips for signs of corrosion or breakage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Check all welded seams and connections for any signs of deterioration, corrosion, cracking, pitting or other sign of failure. Specify.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6) If applicable, check insulation type, condition for any insulation damage and ingress of water. Record insulation type.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. If applicable, check weep holes in reinforcement plates are not plugged.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. If applicable, check if the PSV on the vessel is in calibration. Record tag number of PSV and calibration date.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Vessel Internal Surfaces	Good	Fair	Poor	NA	

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Inspection Summary					
Item	Condition				Comments
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Overall vessel interior in good condition, exhibiting only minor surface corrosion (see Photo #2 and Note 2)
2. Check all welded joints for any signs of deterioration, corrosion, cracking, pitting or other sign of failure. Specify.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All vessel weld seams deemed to be in good condition based on close visual inspection. MPI used to spot check every second circ weld and all accessible Tee joints (see attached MPI report and Photo #3&4)
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	All nozzles deemed to be in good condition based on close visual inspection (see Photo #5-16). Nozzle N6, N3B, N4B, N5, N1 also checked with MPI (see attached MPI report and Photo #12)
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	UT not conducted for internal inspection
5. Where applicable, check vessel internal cladding for signs of bulging, buckling, cracks, holes, etc. If any, specify type, location and extent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No internal cladding in this vessel
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	No internal coating in this vessel
7. If possible, check gasket seals on all flanges for signs of corrosion and/or mechanical damage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vortex breaker over N2 supported by four legs. The steel angle legs are intact and in good condition
2. If applicable, check vessel's internals for signs of corrosion, distortion and deterioration, missing components etc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Top deck of vortex breaker dislodged and out of position at time of inspection (see Note 3)
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	No bolted connections (see Note 3)

INSPECTION REPORT



Detail of Findings

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

Note 1:

Certified By: RNG Pro-Tech Inc

MAWP: 250/-11 PSI @149F // 1724/-76 KPa @ 65C

MDMT: -17F @ 250/-11 PSI // -27C @ 1724/-76 KPa

Serial No. : 98-11

Year Built: 1999

CRN: 8123.8

Diameter: 144" ID // 3.66 m

Capacity: 104904 USWG // 397105 L

Item No: D2008

Department of Labour Identification No.: 007984

Note 2:

Tank was thoroughly cleaned prior to internal inspection. Internal surfaces carefully checked with close visual inspection. Overall very good condition with internal surfaces exhibiting light surface corrosion and mill scale. Some residual debris remaining in tank bottom, however it did not hinder inspection. Particular attention given to tank bottom from the 5 through 7 o'clock positions. Only features noted were slight depressions attributed to discontinuities in the mill scale. No pitting or other discontinuities noted.

Note 3:

The Vortex breaker is located over top of 10 inch liquid outlet Nozzle N2. The structural frame of the vortex breaker comprises four vertically oriented support legs made from steel angle bracket. The structural box frame is completed with the addition of steel strapping around the perimeter of the frame. There are two levels of strapping. The lower level supports a lower grate whereas the upper grating supports the upper grate. The top grate was noted to be dislodged from its intended position when the vessel was initially entered. It was displaced from its position in the structural frame over top of the bottom grate and nozzle N2. It is difficult to ascertain when the grate was displaced. It could have been a result of the cleaning and washing process.

It was noted that the grates were fixed in position via a short tack weld to each of the support legs. The tack welds for the upper grating had failed allowing the grate to move out of its intended position. The tack weld did not appear to have structural load capacity. They may have used to keep the grates in position during shipping from fabrication site to Point Tupper. It is also noted that the manufacturer's drawing for this vessel (RNG Pro-Tech Dwg. No. 980047-1 sheet 2 of 2) states that the grating shall not be welded to the legs. For this reason, the displaced upper grating was simply placed back into its original position over the lower grating prior to the vessel being placed back in service. The pertinent features of the vortex breaker are shown and described in Photos #17-21.

INSPECTION REPORT

Detail of Findings

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



Photo 1 – Nameplate



Photo 2 – Overall view of South head including N6, N3B, N4B



Photo 3 – MPI completed on nozzle weld N6, N3B, N4B



Photo 4 – Typical T-junction weld seam in vessel shell

Detail of Findings

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



Photo 5 – Close view of Nozzle N6 (Thermo-well) in South head



Photo 6 – Close view of nozzle N3B (3" Level Control) in bottom of vessel – Good condition



Photo 7 – Close view of nozzle N4B (2" Level Indicator) in bottom head – Good condition



Photo 8 – Overhead view of nozzle N1 (4"Product Inlet), N10 (6"C3+ pipeline inlet), N8 (6"Vent), (right to left) – Good condition

Detail of Findings

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



Photo 9 – Overhead view of nozzles, N10, N8, N4A, N3A (right to left) Good conditions

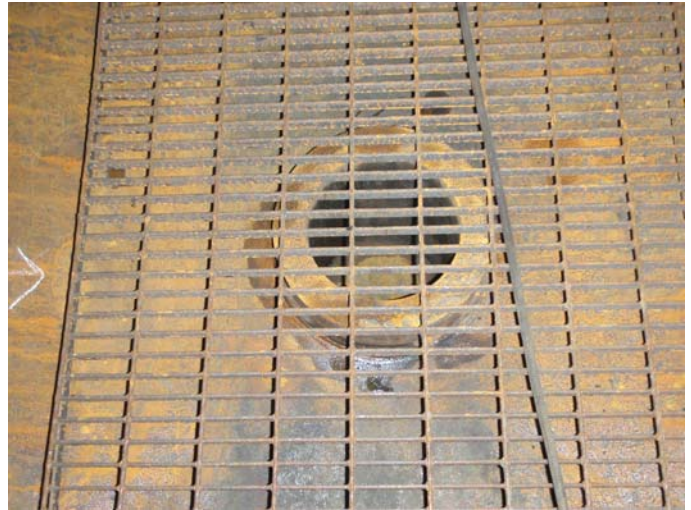


Photo 10 – Close view of nozzle N2 (10" Liquid Outlet) as observed through vortex breaker



Photo 11 – Macro view of Nozzle N2



Photo 12 – MPI completed on Nozzle weld N6, N3B, N4B

Detail of Findings

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



Photo 13 – Close view of nozzle N5 (4" transfer nozzle)



Photo 14 – Close view of nozzle N11 (3" punge)



Photo 15 – 24" Manway (M1)

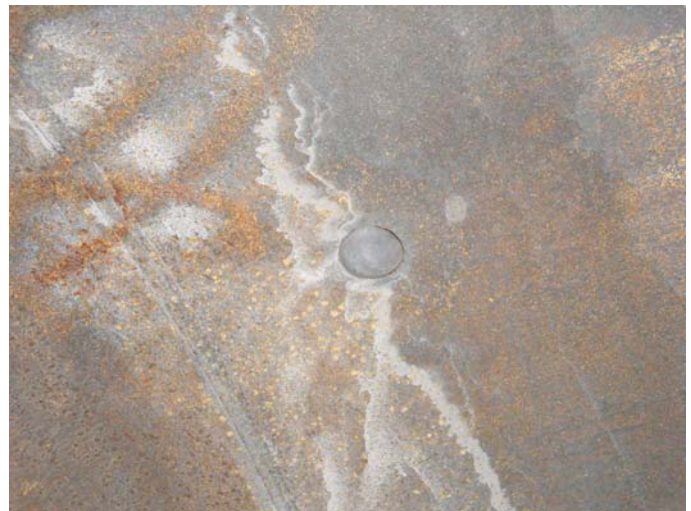


Photo 16 – Overhead view of nozzle N7 (4" relief)

INSPECTION REPORT

Detail of Findings

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



Photo 17 – Overall view of vortex breaker. Lower grate affixed to frame with upper grate displaced to right hand side of photo



Photo 18 – Close view of vortex breaker support leg. Lower grate in position and tack welded to leg. Upper strapping and remnants of upper grate tack weld



Photo 19 – Overhead view of southwest support leg. Top grate tack weld with small section, top grate remaining attached to leg



Photo 20 – Clear view of top grating showing location of metal fractured weld and tack weld. (Fractured section seen in Photo 19)

INSPECTION REPORT

Detail of Findings

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



Photo 21 – Clear view of Northwest support leg. All components visible including upper and lower strapping, lower grating and lower grating tack weld

List of Attachments

Attachment 1: PT-D2008-090503-DL-MPI
Attachment 2: PT-D2008-090521-NE-MPI

End of Report

INSPECTION REPORT



MPI Survey

Location:	Point Tupper	EM&I J Report No.:	PT-D2008-090503-DL-MPI
Client Name:	Exxon Mobil Sable	Client Ref No.:	PT-11564778-001-D2008
Client Rep.:	Dale Groves	Inspector Name:	Daniel Lewis
WO No.:	11564778	Inspection Date:	May 03, 2009
SPO No.:	4501905471	Inspection Time:	Various
Workscope No.:	PT-2009-D2008-INT-01	System:	Propane + Liquids
Previous Report No.	NA	EM&I J Job No:	EMJ0132.43
Ref. Drawing No.:	LA-B22-F-22-8006-01-Z4, 980047, 98-CA-399735-4B		
Technician Certifications:	PCN MPI LVL 2	Certification Expiry Date:	May 05, 2012
Inspection Code:	ASME VIII	Inspection Procedure:	MT401ASME
Material:	C/S	Surface Condition:	Needle gun
Consumables:	Contrast: White	Type: WCP-2	Manufacturer: Magnaflux
Equipment:	Type: Y5	S/N: 1450	Batch: 07H14K/2755
		Calibration Due: 40 Lb Cal lift	Current Type: N/A

Inspection Summary

Comments:

MPI was conducted on the man-way hinges of vessel D-2008.

Restricted access to hinge welds. 50% of weld not able to be inspected due to geometry of hinge.

Foil strip Type 1 indicator (Brass finish) used to test sensitivity. Sensitivity achieved on areas of inspection.

No abnormalities were found in area of inspection.

Daniel Lewis
PCN #302198

Ink

Manufacturer: Magnaflux
Type: 7HF
Solution: Prepared bath
Batch: 07G07K/3679

End of Report

INSPECTION REPORT



MPI Survey

Location:	Point Tupper	EM&I J Report No.:	PT-D2008-090521-NE-MPI
Client Name:	Exxon Mobil Sable	Client Ref No.:	PT-11564778-002-D2008
Client Rep.:	Dale Groves	Inspector Name:	Neil English
WO No.:	11564778	Inspection Date:	May 21, 2009
SPO No.:	4501905471	Inspection Time:	Various
Workscope No.:	PT-2009-D2008-INT-01	System:	Propane + Liquids
Previous Report No.	NA	EM&I J Job No:	EMJ0132.43
Ref. Drawing No.:	LA-B22-F-22-8006-01-Z4, 98-CA-399735-4B-0		
Technician Certifications:	CGSB MPI LVL 2	Certification Expiry Date:	December 31, 2011
Inspection Code:	ASME VIII	Inspection Procedure:	MT401ASME
Material:	C/S	Surface Condition:	Wire Brush cleaned
Consumables:	Contrast: White	Type: 8901w	Manufacturer: Ardrex
Equipment:	Type: Y6	S/N: 12764	Batch: 65082407
		Calibration Due: 10 Lb Cal lift	Current Type: AC

Inspection Summary

Comments:

Black on white Magnetic Particle Inspection was conducted on the Off-Spec Storage Vessel D-2008. Nozzles N6, N3B, N4B, N5 & N1 were inspected. Also, two foot spot checks on every second circular seam were inspected in the 3, 6, and 9 O'clock positions, as well as any accessible Tee joint.

At time of inspection no relevant indications were observed.

Foil strip Type 1 indicator (Brass finish) used to test sensitivity.

Neil English
CGSB: #11752

Ink

Manufacturer: Ardrex
Type: 8031, Black Ink
Solution: Prepared bath, Aerosol
Batch: 32111507

End of Report