

INSPECTION REPORT

Pressure Vessel Survey			
Location:	Point Tupper	EM&I J Report No.:	PT-D2100E-090317-BR-R1
Client Name:		Client Ref No.:	PT-11573616-001-D2100E
Client Rep.:		Inspector Name:	Barry Ritchie
WO No.:		Inspection Date:	March 17, 2009
SPO No.:		System:	Propane
Workscope No.:	PT-2008-VESSEL-EXT-03	EM&I J Job No:	EMJ0132.33
Tag No.:	D-2100E	Equipment Description:	Propane Storage Vessel D-2100E
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.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. If applicable, check vessel supports for signs of deterioration, settlement, deflection, and/or corrosion.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Areas of concern see Photos #8, 9 & 10
3. If applicable, check coatings for signs of deterioration, rusts spots, cracks, blistering, and/or coating disbondment.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Photo #4
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Photos #7, 8 & 11
6. Check all bolted connections for any signs of corrosion or mechanical damage.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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"/>	<input type="checkbox"/>	See Photos #12 & 13
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	Coating breakdown only (see Photo #22)
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Photos #20-29
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. If applicable, check if the PSV on the vessel is in calibration. Record tag number of PSV and calibration date.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	See Photo #35
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Only two areas of concern on nozzles (see Photos #17 & 37)

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Inspection Summary

Item	Condition				Comments
	Good	Fair	Poor	NA	External Only
Vessel Internal Surfaces					
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Check all welded joints 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"/>	
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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"/>	
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"/>	
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"/>	
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. If applicable, check vessel's internals for signs of corrosion, distortion and deterioration, missing components etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Detail of Findings

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

ID Tag:

Certified By: RNG Pro-Tech Inc

MAWP: 210/-11 PSI @ 149F

MDMT: -17F @ 250/-11 PSI

Serial No.: 98-10

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: 09-16828-5

Date: February 24, 2009

Set Pressure: 1723 KPA

Capacity: 18656 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 on North vessel support coating breakdown on steel to concrete connection, also coating breakdown on weld connection to vessel



Photo 2 – South face on North vessel support coating breakdown on concrete connection, weld connections on vertical stiffeners starting to break down



Photo 3 – South vessel support south face slight coating breakdown on cradle and vessel



Photo 4 – South vessel support South-East corner water damage to concrete

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 slight coating breakdown on concrete connection and coating breakdown on cradle



Photo 6 – North face of South vessel support, taken facing East, paint coating peeling back



Photo 7 – Earthing strap on North vessel support



Photo 8 – Earthing strap Joint on North vessel support, also showing horizontal crack in concrete support

Detail of Findings

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



Photo 9 – Close-up of crack shown in Photo 8



Photo 10 – Horizontal crack running along the South face of concrete block of North vessel support

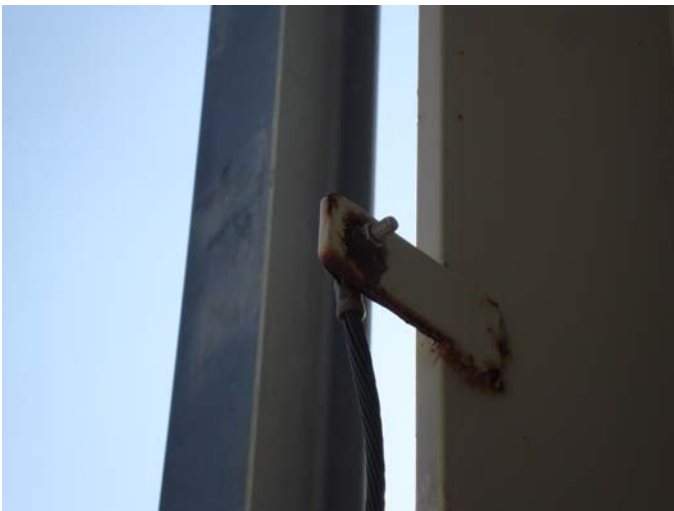


Photo 11 – Earthing strap connection on South vessel support



Photo 12 – Showing ID plate

Detail of Findings

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



Photo 13 – Showing ID plate



Photo 14 – General condition of nozzle N6 studs and nuts CAT III



Photo 15 – Nozzles N3B & N4B in good condition, studs and nuts CAT III



Photo 16 – Nozzle N2, slight coating coating breakdown on nozzle, 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 N5, 35% of nozzle area has coating loss, studs and nuts CAT III



Photo 18 – General condition of manhole, coating has started to breakdown only on the East side



Photo 19 – Nozzle N10, slight coating breakdown on weld connection and flange no insulation bag present



Photo 20 – Showing general condition of east side shell. Taken facing North

Detail of Findings

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



Photo 21 – Showing general condition of east side shell, taken facing North



Photo 22 – Showing general condition of east side shell. Taken facing North, showing one isolated patch located in the mid bottom section on weld seam approx 100mm x 100mm



Photo 23 – Showing general condition of east side shell, taken facing North



Photo 24 – North dome end, generally in good condition

Detail of Findings

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



Photo 25 – General good condition of West side shell only one patch of coating breakdown shown, photo taken facing South



Photo 26 – General good condition of West side shell only one patch of coating breakdown shown, photo taken facing South



Photo 27 – General good condition of West side shell only one patch of coating breakdown shown, photo taken facing South



Photo 28 – General good condition of West side shell only one patch of coating breakdown shown, photo taken facing South

Detail of Findings

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



Photo 29 – General view of vessel top, all in good condition, photo taken facing North



Photo 30 – Nozzels located at South end top N3A, N4A, N8 & N1, showing general condition all studs and nuts at this location are in good condition, CAT III



Photo 31 – Close-up of nozzle N8 showing a good example of the condition of the nuts and bolts on this vessel



Photo 32 – General view of nozzle N9 studs and nuts CAT III

Detail of Findings

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



Photo 33 – Typical condition of deluge pipe supports located along vessel top



Photo 34 – Showing upper section of South-West side shell a few very small areas of coating breakdown



Photo 35 – PSV calibration tag



Photo 36 – Nozzle N7 PSV, coating breakdown around nozzle studs and nuts CAT III

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Detail of Findings

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



Photo 37 – N7 coating loss



Photo 38 – Showing patch next to N7 largest area of coating breakdown found so far approx 200mm x 150mm light to moderate corrosion. The corrosion will be removed and a UT scan will be carried out and noted in the UT report

List of Attachments

- Attachment 1: PT-D2100E-090514-JL-UT (Page 1 to 4)
- Attachment 2: UT Diagram

End of Report

INSPECTION REPORT



Ultrasonic Inspection Survey for Vessel Inspection

Location:	Point Tupper	EM&I J Report No.:	PT-D2100E-090514-JL-UT
Client Name:	Exxon Mobil Sable	Client Ref No.:	PT-11573616-001-D2100E
Client Rep.:	Dale Groves	Inspector Name:	John Lee
WO No.:	11573616	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:	D2100E	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:
Panametrics	dual element	D790SM - 625220	0

Inspection Summary

Restricted Access?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Comments: Rope Access Required
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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.

UT reading on Nozzle N2 exceeds 2.2mm corrosion allowance.

INSPECTION REPORT

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	32.8	
North Head	3 O'clock	End	28.2	32.4	
North Head	6 O'clock	End	28.2	32.5	
North Head	9 O'clock	End	28.2	32.6	
North Head	Centre	End	28.2	31.6	
South Head	12 O'clock	End	28.2	32.3	
South Head	3 O'clock	End	28.2	32.0	
South Head	6 O'clock	End	28.2	32.3	
South Head	9 O'clock	End	28.2	32.2	
South Head	Centre	End	28.2	32.1	
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	29.9	
Panel 2	Centre	144"	28.6	30.0	
Panel 2	East	144"	28.6	29.7	
Panel 3	West	144"	28.6	29.8	
Panel 3	Centre	144"	28.6	29.9	
Panel 3	East	144"	28.6	30.0	
Panel 4	West	144"	28.6	29.8	
Panel 4	Centre	144"	28.6	30.3	
Panel 4	East	144"	28.6	29.5	
Panel 5	West	144"	28.6	30.2	
Panel 5	Centre	144"	28.6	29.8	
Panel 5	East	144"	28.6	30.3	
Panel 6	West	144"	28.6	29.1	
Panel 6	Centre	144"	28.6	29.0	
Panel 6	East	144"	28.6	29.3	
Panel 7	West	144"	28.6	29.5	
Panel 7	Centre	144"	28.6	29.5	
Panel 7	East	144"	28.6	29.5	
Panel 8	West	144"	28.6	29.8	
Panel 8	Centre	144"	28.6	29.5	
Panel 8	East	144"	28.6	29.6	

INSPECTION REPORT

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	29.3	
Panel 9	Centre	144"	28.6	29.3	
Panel 9	East	144"	28.6	29.3	
Panel 10	West	144"	28.6	29.6	
Panel 10	Centre	144"	28.6	30.0	
Panel 10	East	144"	28.6	29.8	
Panel 11	West	144"	28.6	30.1	
Panel 11	Centre	144"	28.6	29.7	
Panel 11	East	144"	28.6	30.0	
Panel 12	West	144"	28.6	29.9	
Panel 12	Centre	144"	28.6	30.1	
Panel 12	East	144"	28.6	29.8	
Nozzle 1	North	4"	33.1	32.8	
Nozzle 1	South	4"	33.1	33.0	
Nozzle 1	East	4"	33.1	33.1	
Nozzle 1	West	4"	33.1	32.9	
Nozzle 2	North	10"	82.6	81.1	
Nozzle 2	South	10"	82.6	80.9	
Nozzle 2	East	10"	82.6	80.4	
Nozzle 2	West	10"	82.6	81.0	
Nozzle 3A	North	3"	31.5	31.3	
Nozzle 3A	South	3"	31.5	31.0	
Nozzle 3A	East	3"	31.5	31.7	
Nozzle 3A	West	3"	31.5	31.4	
Nozzle 3B	North	3"	31.5	31.5	
Nozzle 3B	South	3"	31.5	31.4	
Nozzle 3B	East	3"	31.5	31.4	
Nozzle 3B	West	3"	31.5	31.6	
Nozzle 4A	North	2"	16.6	16.9	
Nozzle 4A	South	2"	16.6	16.7	
Nozzle 4A	East	2"	16.6	16.6	
Nozzle 4A	West	2"	16.6	17.1	
Nozzle 4B	North	2"	16.6	16.9	
Nozzle 4B	South	2"	16.6	16.6	
Nozzle 4B	East	2"	16.6	17.1	
Nozzle 4B	West	2"	16.6	17.0	

INSPECTION REPORT

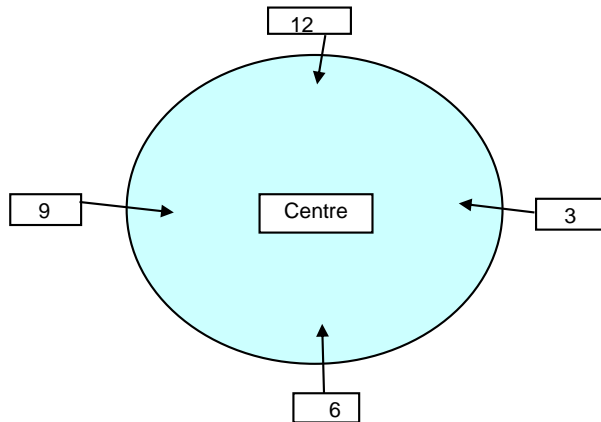
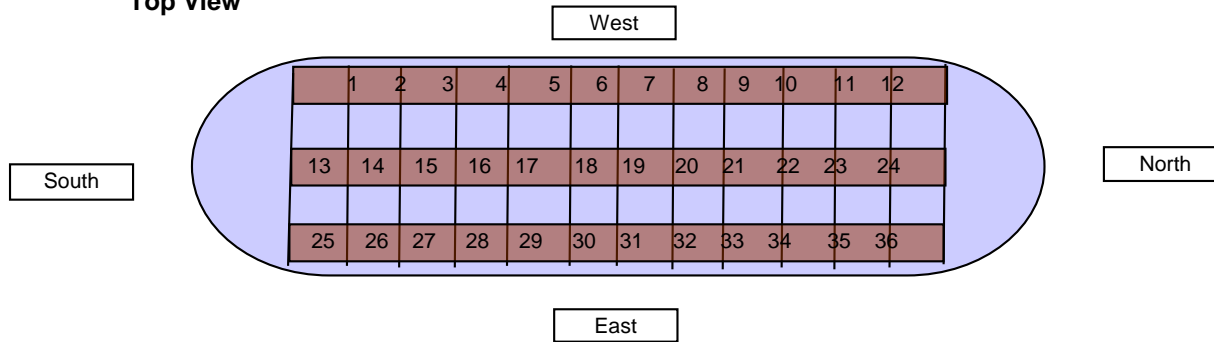
Inspection Summary

Item Identification	Test Point	Diameter (inches)	Nominal Wall Thickness (mm)	Minimum Wall Thickness (mm)	Average Wall Thickness (mm)
Nozzle 5	North	4"	33.1	32.9	
Nozzle 5	South	4"	33.1	32.9	
Nozzle 5	East	4"	33.1	32.9	
Nozzle 5	West	4"	33.1	32.9	
Nozzle 6	Top	2"	25.4	24.7	
Nozzle 6	Bottom	2"	25.4	24.8	
Nozzle 6	East	2"	25.4	24.1	
Nozzle 6	West	2"	25.4	25.0	
Nozzle 7	North	4"	33.1	35.1	
Nozzle 7	South	4"	33.1	34.9	
Nozzle 7	East	4"	33.1	34.7	
Nozzle 7	West	4"	33.1	35.0	
Nozzle 8	North	6"	63.5	66.2	
Nozzle 8	South	6"	63.5	66.2	
Nozzle 8	East	6"	63.5	66.2	
Nozzle 8	West	6"	63.5	66.0	
Nozzle 9	North	2"	16.6	17.1	
Nozzle 9	South	2"	16.6	16.9	
Nozzle 9	East	2"	16.6	16.8	
Nozzle 9	West	2"	16.6	17.1	
Nozzle 10	North	3"	31.5	31.0	
Nozzle 10	South	3"	31.5	30.8	
Nozzle 10	East	3"	31.5	30.8	
Nozzle 10	West	3"	31.5	31.0	
Nozzle 11	North	2"	16.6	16.9	
Nozzle 11	South	2"	16.6	17.1	
Nozzle 11	East	2"	16.6	17.1	
Nozzle 11	West	2"	16.6	16.9	
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