| Pressure Vessel Survey | | | |
|---|---|---|---|
| **Location:** | Point Tupper | **EM&I J Report No.:** | PT-D2105B-090523-JL-R0 |
| **Client Name:** | | **Client Ref No.:** | PT-11573618-001-D2105B |
| **Client Rep.:** | | **Inspector Name:** | John Lee |
| **WO No.:** | | **Inspection Date:** | May 23, 2009 |
| **SPO No.:** | | **System:** | Butane |
| **Workscope No.:** | PT-2008-VESSEL-EXT-04 | **EM&I J Job No:** | EMJ0132.33 |
| **Tag No.:** | D-2105B | **Equipment Description:** | Butane Storage Vessel D-2105B |
| **Date of Last Inspection:** | NA | **Previous Records Seen:** | NA |
| **Drawing No.:** | LA-B23-F-22-8060-01-Z4, 98-CA-399735-1C-5, 98-CA-399735-4C-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. | ☐ | ☒ | ☐ | ☐ | General condition of ladders, stairways, platforms and walkways in good condition. North and South ladder and walkway structure sways violently at bolted connection to vessels (see Video "North Access Structure Walkway", see Photo #2,3). Pipe supports generally in good condition, however 2 isolated cases of missing nuts on one pipe support (see Photos #6,7) |
| 2. If applicable, check vessel supports for signs of deterioration, settlement, deflection, and/or corrosion. | ☐ | ☒ | ☐ | ☐ | 100% coating breakdown with no substrate loss of vessel support base to concrete (see Photos #4,5,11) |
| 3. If applicable, check coatings for signs of deterioration, rusts spots, cracks, blistering, and/or coating disbondment. | ☒ | ☐ | ☐ | ☐ | No notable coating breakdown or deterioration (see Photos #2,3) |
| 4. a) For horizontally mounted vessels, check for signs of trapped moisture, resulting in corrosion between cradle support and vessel shell. | ☐ | ☐ | ☐ | ☒ | No trapped moisture noted |
| 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. | ☒ | ☐ | ☐ | ☐ | Grounded connection intact and in good condition (see Photo #18) |
| 6. Check all bolted connections for any signs of corrosion or mechanical damage. | ☒ | ☐ | ☐ | ☐ | Bolting connections in good condition and have no signs of corrosion or mechanical damage (see Photos #2,4,8,9,10, 11 ,12) |
| 7. If applicable, check the vessel sliding foot free to move and hold-down bolts are free. | ☐ | ☐ | ☒ | ☐ | North end structural support bolts are correctly positioned with expansion-purpose gap |

| Inspection Summary | | | | | |
|---|---|---|---|---|---|
| **Item** | **Condition** | | | | **Comments** |
| | | | | | between bolt and vessel (see Photos #4,5). South end structural support bolts are lacking in thread protrusion up to 20mm (see Photos #8,9,10,12,13,14) |
| **Vessel External Surfaces** | Good | Fair | Poor | NA | |
| 1. Check permanent identifying tags on vessel are legible and present the required information. | ☒ | ☐ | ☐ | ☐ | Tags in good condition at time of inspection (see Photo #16) |
| 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. | ☐ | ☒ | ☐ | ☐ | General condition of studs and nuts good, however North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel (see Photos #4,5). South end structural support bolts are lacking in thread protrusion up to 20mm (see Photos #8,9,10,12, 13,14, 17, 19-25) |
| 3. If applicable, check bolted connections are in full contact with connected elements and connections for any signs of rust, corrosion or mechanical damage. | ☒ | ☐ | ☐ | ☐ | All bolted connections are in full contact and there is no sign of rust, corrosion or mechanical damage (see Photos #12,13,14,17,19-25) |
| 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. | ☒ | ☐ | ☐ | ☐ | All welded seams and connections in good condition |
| 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. | ☒ | ☐ | ☐ | ☐ | Vessel surface in generally good condition with minor coating breakdown and no notable substrate loss (see Photos #26,27,28, 29) |
| 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. | ☒ | ☐ | ☐ | ☐ | Thermometer in good condition - CS to SS flange to note (see Photo #17) |
| 2. If applicable, check if the PSV on the vessel is in calibration. Record tag number of PSV and calibration date. | ☐ | ☒ | ☐ | ☐ | PSV in fair condition, no tags present (see Photo #31) |
| 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. | ☐ | ☐ | ☒ | ☐ | All nozzles in fair condition with coating breakdown and delamination but no notable substrate loss (see Photos #19-25) |

## 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

North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel (this was confirmed with Operators and Authorities). However South end structural support bolts are lacking in thread protrusion up to 20mm and Operators and Authorities informed for further investigation by themselves.

Please see "North Access Structure Walkway" - Video

**ID Tag:**
**Certified By:** Patterson Industries Limited
**MAWP:** 185 & -9PSIG @ 149F
**MDMT:** -16.6F @ 185 & -9PSIG
**Serial No.**: 98CA9735C2
**Year Built:** 1998
**CRN:** 9095.8

## Detail of Findings

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


Photo 1 – Standoff view of North head

Photo 2 – Structure access ladder, in good condition. However, sways violently with slightest encouragement

Photo 3 – Structure access ladder, in good condition. However, sways violently with slightest encouragement

Photo 4 –General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm

**Detail of Findings**

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

Photo 5 – General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm

Photo 6 – Pipe support missing nuts

Photo 7 – Pipe support missing nuts

Photo 8 –General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm

**Detail of Findings**

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

Photo 9 – General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm

Photo 10 – General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm

Photo 11 – Delamination/debonding of structural support flange to base

Photo 12 – General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm

**Detail of Findings**

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

Photo 13 – General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm


Photo 14 – General condition of studs and nuts, good condition. North end structural support bolts are correctly positioned with expansion-purpose gap between bolt and vessel. South end structural support bolts are lacking in thread protrusion up to 20mm

Photo 15 – Concrete support structure, signs of cracking


Photo 16 – ID tag in good condition

**Detail of Findings**

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


Photo 17 – Thermometer in good condition, CS to SS flange

Photo 18 – Grounding cable intact and in good condition

Photo 19 – Flange in fair condition with 100% coating breakdown, no notable substrate loss

Photo 20 – Flange in fair condition with delamination of coating, no notable substrate loss

**Detail of Findings**

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

Photo 21 – Flange in fair condition with 100% coating breakdown, no notable substrate loss

Photo 22 – Flange in fair condition with 80-90% coating breakdown, no notable substrate loss

Photo 23 – Flange in fair condition with partial coating breakdown & delamination, no notable substrate loss

Photo 24 – Flange in fair condition with coating breakdown & delamination, no notable substrate loss

**Detail of Findings**

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

Photo 25 – Flange in fair condition with 100% coating breakdown, no notable substrate loss

Photo 26 – Isolated areas of coating breakdown on shell, no notable substrate loss, ASTM grade 5-S

Photo 27 – Isolated areas of coating breakdown on shell, no notable substrate loss, grade 6S-7S

Photo 28 – Isolated areas of coating breakdown on shell, no notable substrate loss, grade 6S-7S

## Detail of Findings

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

Photo 29 – Isolated areas of coating breakdown on shell, no notable substrate loss, grade 6-S

Photo 30 – Flange in fair condition with 100% coating breakdown, no notable substrate loss

Photo 31 – PSV in fair condition with no tag ID present

## List of Attachments

Attachment 1: PT-D2105B-090314-VR-UT (Page 1 to 2)
Attachment 2: PT-D2105B-090523-MR-UT (Page 1 to 5)
Attachment 3: 98-CA-399735-1C-5

End of Report

# INSPECTION REPORT

EM&I Jacques Ltd.

| Ultrasonic Inspection Survey for Vessel Inspection | | | |
|---|---|---|---|
| **Location:** | Point Tupper | **EM&I J Report No.:** | PT-D2105B-090314-VR-UT |
| **Client Name:** | Exxon Mobil Sable | **Client Ref No.:** | PT-11573618-001-D2105B |
| **Client Rep.:** | Dale Groves | **Inspector Name:** | Victor Ritchie |
| **WO No.:** | 11573618 | **Inspection Date:** | March 14, 2009 |
| **SPO No.:** | 4501869140 | **Inspection Time:** | Various |
| **Workscope No.:** | PT-2008-VESSEL-EXT-04 | **System:** | Butane |
| **Previous Report No.** | NA | **EM&I J Job No:** | EMJ0132.33 |
| **Ref. Drawing No.:** | LA-B23-F-22-8060-01-Z4, 98-CA-399735-1C-5, 98-CA-399735-4C-0 | | |
| **Technician Certifications:** | PCN UT 2 | **Certification Expiry Date:** | January 29, 2014 |
| **Inspection Code:** | NA | **Inspection Procedure:** | EM&I |
| **Item Inspected:** | D2105B | **Material (Incl. Vol.):** | CS |
| **Surface Condition:** | As coated | **Surface Temp:** | Ambient |

| | | | |
|---|---|---|---|
| **Instrument** | **Type:** Epoch LTC | **Equipment S/N:** 090100701 | **Cal Due Date:** January 24, 2010 |
| **Instrument Settings** | **Reference Level:** 80fsh | **Gain:** 50db | **Reject Settings:** NA |
| **Search Unit Cables** | **Type:** | **Length: 5'** | **Transfer Value:** |

| | | | |
|---|---|---|---|
| **Calibration Block:** | Step wedge 2.5-12.5mm | **Calibration Block S/N:** | CB2 |
| **Simulation Block:** | NA | **Couplant:** | Ultragel |
| **Computerized Program:** | NA | | |

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

## Inspection Summary

| Restricted Access? | ☐ Yes | ☒ No | Comments: |
|---|---|---|---|

**Comments:**

UT measurements were taken using side wall echo technique and readings were recorded. This does not constitute a UT survey. See below for locations and readings. All readings are in millimeters.

## Inspection Summary

| Item Identification | Test Point | Diameter (inches) | Nominal Wall Thickness (mm) | Minimum Wall Thickness (mm) | Average Wall Thickness (mm) |
|---|---|---|---|---|---|
| Shell Bottom | TP1 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP2 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP3 | 132" | 20.6 | 21.9 | N/A |
| Shell Bottom | TP4 | 132" | 20.6 | 21.5 | N/A |
| Shell Bottom | TP5 | 132" | 20.6 | 21.7 | N/A |
| Shell Bottom | TP6 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP7 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP8 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP9 | 132" | 20.6 | 21.7 | N/A |
| Shell Bottom | TP10 | 132" | 20.6 | 21.9 | N/A |
| Shell Bottom | TP11 | 132" | 20.6 | 21.5 | N/A |
| Shell Bottom | TP12 | 132" | 20.6 | 21.8 | N/A |
| Shell Bottom | TP13 | 132" | 20.6 | 21.8 | N/A |
| Shell Bottom | TP14 | 132" | 20.6 | 21.9 | N/A |
| Shell Bottom | TP15 | 132" | 20.6 | 22.3 | N/A |
| Shell Bottom | TP16 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP17 | 132" | 20.6 | 21.9 | N/A |
| Shell Bottom | TP18 | 132" | 20.6 | 21.8 | N/A |
| Shell Bottom | TP19 | 132" | 20.6 | 21.6 | N/A |
| Shell Bottom | TP20 | 132" | 20.6 | 21.6 | N/A |
| Shell Bottom | TP21 | 132" | 20.6 | 21.4 | N/A |
| Shell Bottom | TP22 | 132" | 20.6 | 21.8 | N/A |
| Shell Bottom | TP23 | 132" | 20.6 | 21.6 | N/A |
| Shell Bottom | TP24 | 132" | 20.6 | 22.1 | N/A |
| Shell Bottom | TP25 | 132" | 20.6 | 21.7 | N/A |
| Shell Bottom | TP26 | 132" | 20.6 | 21.6 | N/A |
| Shell Bottom | TP27 | 132" | 20.6 | 21.7 | N/A |
| Shell Bottom | TP28 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP28 | 132" | 20.6 | 21.8 | N/A |
| Shell Bottom | TP29 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP30 | 132" | 20.6 | 21.3 | N/A |
| Shell Bottom | TP32 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP33 | 132" | 20.6 | 21.7 | N/A |
| Shell Bottom | TP34 | 132" | 20.6 | 21.7 | N/A |
| Shell Bottom | TP35 | 132" | 20.6 | 22.0 | N/A |
| Shell Bottom | TP36 | 132" | 20.6 | 21.3 | N/A |

End of Report

# INSPECTION REPORT

EM&I Jacques Ltd.

| Ultrasonic Inspection Survey for Vessel Inspection | | | |
|---|---|---|---|
| **Location:** | Point Tupper | **EM&I J Report No.:** | PT-D2105B-090523-MR-UT |
| **Client Name:** | Exxon Mobil Sable | **Client Ref No.:** | PT-11573618-001-D2105B |
| **Client Rep.:** | Dale Groves | **Inspector Name:** | Michael Rotondella |
| **WO No.:** | 11573618 | **Inspection Date:** | May 23, 2009 |
| **SPO No.:** | 4501869140 | **Inspection Time:** | Various |
| **Workscope No.:** | PT-2008-VESSEL-EXT-04 | **System:** | Butane |
| **Previous Report No.** | NA | **EM&I J Job No:** | EMJ0132.33 |
| **Ref. Drawing No.:** | LA-B23-F-22-8060-01-Z4, 98-CA-399735-1C-5, 98-CA-399735-4C-0 | | |
| **Technician Certifications:** | PCN UT 2 | **Certification Expiry Date:** | October 24, 2010 |
| **Inspection Code:** | NA | **Inspection Procedure:** | EM&I |
| **Item Inspected:** | D2105B | **Material (Incl. Vol.):** | C/S |
| **Surface Condition:** | As coated | **Surface Temp:** | Ambient |

| | | | |
|---|---|---|---|
| **Instrument** | **Type:** Epoch LTC | **Equipment S/N:** 090108403 | **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 | 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 the North head were taken facing South, and the readings for the South head were taken facing North.

## Inspection Summary

| Item Identification | Test Point | Diameter (inches) | Nominal Wall Thickness (mm) | Minimum Wall Thickness (mm) | Average Wall Thickness (mm) |
|---|---|---|---|---|---|
| D2105B Bottom Shell | Plate 1 | 132" | 20.6 | 20.60 | N/A |
| D2105B Bottom Shell | Plate 2 | 132" | 20.6 | 20.80 | N/A |
| D2105B Bottom Shell | Plate 3 | 132" | 20.6 | 20.60 | N/A |
| D2105B Bottom Shell | Plate 4 | 132" | 20.6 | 20.90 | N/A |
| D2105B Bottom Shell | Plate 5 | 132" | 20.6 | 20.60 | N/A |
| D2105B Bottom Shell | Plate 6 | 132" | 20.6 | 20.60 | N/A |
| D2105B Bottom Shell | Plate 7 | 132" | 20.6 | 20.60 | N/A |
| D2105B Bottom Shell | Plate 8 | 132" | 20.6 | 20.70 | N/A |
| D2105B Bottom Shell | Plate 9 | 132" | 20.6 | 20.80 | N/A |
| D2105B Bottom Shell | Plate 10 | 132" | 20.6 | 20.60 | N/A |
| D2105B Bottom Shell | Plate 11 | 132" | 20.6 | 20.60 | N/A |
| D2105B Bottom Shell | Plate 12 | 132" | 20.6 | 20.80 | N/A |
| | | | | | |
| D2105B Top Shell | Plate 1 | 132" | 20.6 | 20.80 | N/A |
| D2105B Top Shell | Plate 2 | 132" | 20.6 | 21.00 | N/A |
| D2105B Top Shell | Plate 3 | 132" | 20.6 | 20.90 | N/A |
| D2105B Top Shell | Plate 4 | 132" | 20.6 | 20.80 | N/A |
| D2105B Top Shell | Plate 5 | 132" | 20.6 | 20.90 | N/A |
| D2105B Top Shell | Plate 6 | 132" | 20.6 | 20.80 | N/A |
| D2105B Top Shell | Plate 7 | 132" | 20.6 | 20.70 | N/A |
| D2105B Top Shell | Plate 8 | 132" | 20.6 | 20.70 | N/A |
| D2105B Top Shell | Plate 9 | 132" | 20.6 | 20.80 | N/A |
| D2105B Top Shell | Plate 10 | 132" | 20.6 | 20.80 | N/A |
| D2105B Top Shell | Plate 11 | 132" | 20.6 | 20.80 | N/A |
| D2105B Top Shell | Plate 12 | 132" | 20.6 | 20.90 | N/A |
| | | | | | |
| D2105B North Head | 12 o'clock | 132" | 19.8 | 21.80 | N/A |
| D2105B North Head | 3 o'clock | 132" | 19.8 | 21.30 | N/A |
| D2105B North Head | 6 o'clock | 132" | 19.8 | 21.60 | N/A |
| D2105B North Head | 9 o'clock | 132" | 19.8 | 21.40 | N/A |
| D2105B North Head | Centre | 132" | 19.8 | 21.60 | N/A |
| | | | | | |
| D2105B South Head | 12 o'clock | 132" | 19.8 | 22.00 | N/A |
| D2105B South Head | 3 o'clock | 132" | 19.8 | 21.60 | N/A |
| D2105B South Head | 6 o'clock | 132" | 19.8 | 21.80 | N/A |
| D2105B South Head | 9 o'clock | 132" | 19.8 | 21.50 | N/A |
| D2105B South Head | Centre | 132" | 19.8 | 22.00 | N/A |

## Inspection Summary

| Item Identification | Test Point | Diameter (inches) | Nominal Wall Thickness (mm) | Minimum Wall Thickness (mm) | Average Wall Thickness (mm) |
|---|---|---|---|---|---|
| D2105B East Shell | Plate 1 | 132" | 20.6 | 20.90 | N/A |
| D2105B East Shell | Plate 2 | 132" | 20.6 | 20.90 | N/A |
| D2105B East Shell | Plate 3 | 132" | 20.6 | 20.70 | N/A |
| D2105B East Shell | Plate 4 | 132" | 20.6 | 20.70 | N/A |
| D2105B East Shell | Plate 5 | 132" | 20.6 | 20.90 | N/A |
| D2105B East Shell | Plate 6 | 132" | 20.6 | 20.90 | N/A |
| D2105B East Shell | Plate 7 | 132" | 20.6 | 20.80 | N/A |
| D2105B East Shell | Plate 8 | 132" | 20.6 | 20.80 | N/A |
| D2105B East Shell | Plate 9 | 132" | 20.6 | 20.90 | N/A |
| D2105B East Shell | Plate 10 | 132" | 20.6 | 20.80 | N/A |
| D2105B East Shell | Plate 11 | 132" | 20.6 | 20.70 | N/A |
| D2105B East Shell | Plate 12 | 132" | 20.6 | 20.70 | N/A |
| | | | | | |
| D2105B West Shell | Plate 1 | 132" | 20.6 | 20.70 | N/A |
| D2105B West Shell | Plate 2 | 132" | 20.6 | 20.90 | N/A |
| D2105B West Shell | Plate 3 | 132" | 20.6 | 21.00 | N/A |
| D2105B West Shell | Plate 4 | 132" | 20.6 | 20.90 | N/A |
| D2105B West Shell | Plate 5 | 132" | 20.6 | 20.80 | N/A |
| D2105B West Shell | Plate 6 | 132" | 20.6 | 20.70 | N/A |
| D2105B West Shell | Plate 7 | 132" | 20.6 | 20.90 | N/A |
| D2105B West Shell | Plate 8 | 132" | 20.6 | 20.90 | N/A |
| D2105B West Shell | Plate 9 | 132" | 20.6 | 21.00 | N/A |
| D2105B West Shell | Plate 10 | 132" | 20.6 | 21.00 | N/A |
| D2105B West Shell | Plate 11 | 132" | 20.6 | 20.80 | N/A |
| D2105B West Shell | Plate 12 | 132" | 20.6 | 21.00 | N/A |
| | | | | | |
| D2105B N1 | N | 4" | 33.15 | 34.70 | N/A |
| D2105B N1 | E | 4" | 33.15 | 34.10 | N/A |
| D2105B N1 | S | 4" | 33.15 | 34.00 | N/A |
| D2105B N1 | W | 4' | 33.15 | 34.10 | N/A |
| D2105B N2 | N | 8" | 22.22 | 24.00 | N/A |
| D2105B N2 | E | 8" | 22.22 | 24.00 | N/A |
| D2105B N2 | S | 8" | 22.22 | 24.00 | N/A |
| D2105B N2 | W | 8" | 22.22 | 24.00 | N/A |
| D2105A N3A | N | 3" | 31.43 | 32.00 | N/A |
| D2105B N3A | E | 3" | 31.43 | 32.10 | N/A |
| D2105B N3A | S | 3" | 31.43 | 32.00 | N/A |
| D2105B N3A | W | 3" | 31.43 | 32.10 | N/A |

## Inspection Summary

| Item Identification | Test Point | Diameter (inches) | Nominal Wall Thickness (mm) | Minimum Wall Thickness (mm) | Average Wall Thickness (mm) |
|---|---|---|---|---|---|
| D2105B N3B | N | 3" | 31.43 | 32.80 | N/A |
| D2105B N3B | E | 3" | 31.43 | 32.70 | N/A |
| D2105B N3B | S | 3" | 31.43 | 32.80 | N/A |
| D2105B N3B | W | 3" | 31.43 | 32.90 | N/A |
| D2105B N4A | N | 2" | 16.67 | 17.40 | N/A |
| D2105B N4A | E | 2" | 16.67 | 17.30 | N/A |
| D2105B N4A | S | 2" | 16.67 | 17.50 | N/A |
| D2105B N4A | W | 2" | 16.67 | 17.40 | N/A |
| D2105B N4B | N | 2" | 16.67 | 17.30 | N/A |
| D2105B N4B | E | 2" | 16.67 | 17.30 | N/A |
| D2105B N4B | S | 2" | 16.67 | 17.20 | N/A |
| D2105B N4B | W | 2" | 16.67 | 17.20 | N/A |
| D2105B N5 | N | 3" | 31.43 | 32.30 | N/A |
| D2105B N5 | E | 3" | 31.43 | 32.20 | N/A |
| D2105B N5 | S | 3" | 31.43 | 32.30 | N/A |
| D2105B N5 | W | 3" | 31.43 | 32.30 | N/A |
| D2105B N6 | N | 2" | 25.40 | 24.80 | N/A |
| D2105B N6 | E | 2" | 25.40 | 24.70 | N/A |
| D2105B N6 | S | 2" | 25.40 | 24.60 | N/A |
| D2105B N6 | W | 2" | 25.40 | 24.70 | N/A |
| D2105B N7 | N | 4" | 33.15 | 32.90 | N/A |
| D2105B N7 | E | 4" | 33.15 | 32.80 | N/A |
| D2105B N7 | S | 4" | 33.15 | 33.10 | N/A |
| D2105B N7 | W | 4" | 33.15 | 33.00 | N/A |
| D2105B N8 | N | 6" | 31.61 | 32.10 | N/A |
| D2105B N8 | E | 6" | 31.61 | 32.20 | N/A |
| D2105B N8 | S | 6" | 31.61 | 32.30 | N/A |
| D2105B N8 | W | 6" | 31.61 | 32.30 | N/A |
| D2105B N9 | N | 2" | 16.67 | 17.40 | N/A |
| D2105B N9 | E | 2" | 16.67 | 17.50 | N/A |
| D2105B N9 | S | 2" | 16.67 | 17.40 | N/A |
| D2105B N9 | W | 2" | 16.67 | 17.40 | N/A |
| D2105B N10 | N | 3" | 31.43 | 32.10 | N/A |
| D2105B N10 | E | 3" | 31.43 | 32.10 | N/A |
| D2105B N10 | S | 3" | 31.43 | 32.20 | N/A |
| D2105B N10 | W | 3" | 31.43 | 32.10 | N/A |

# INSPECTION REPORT

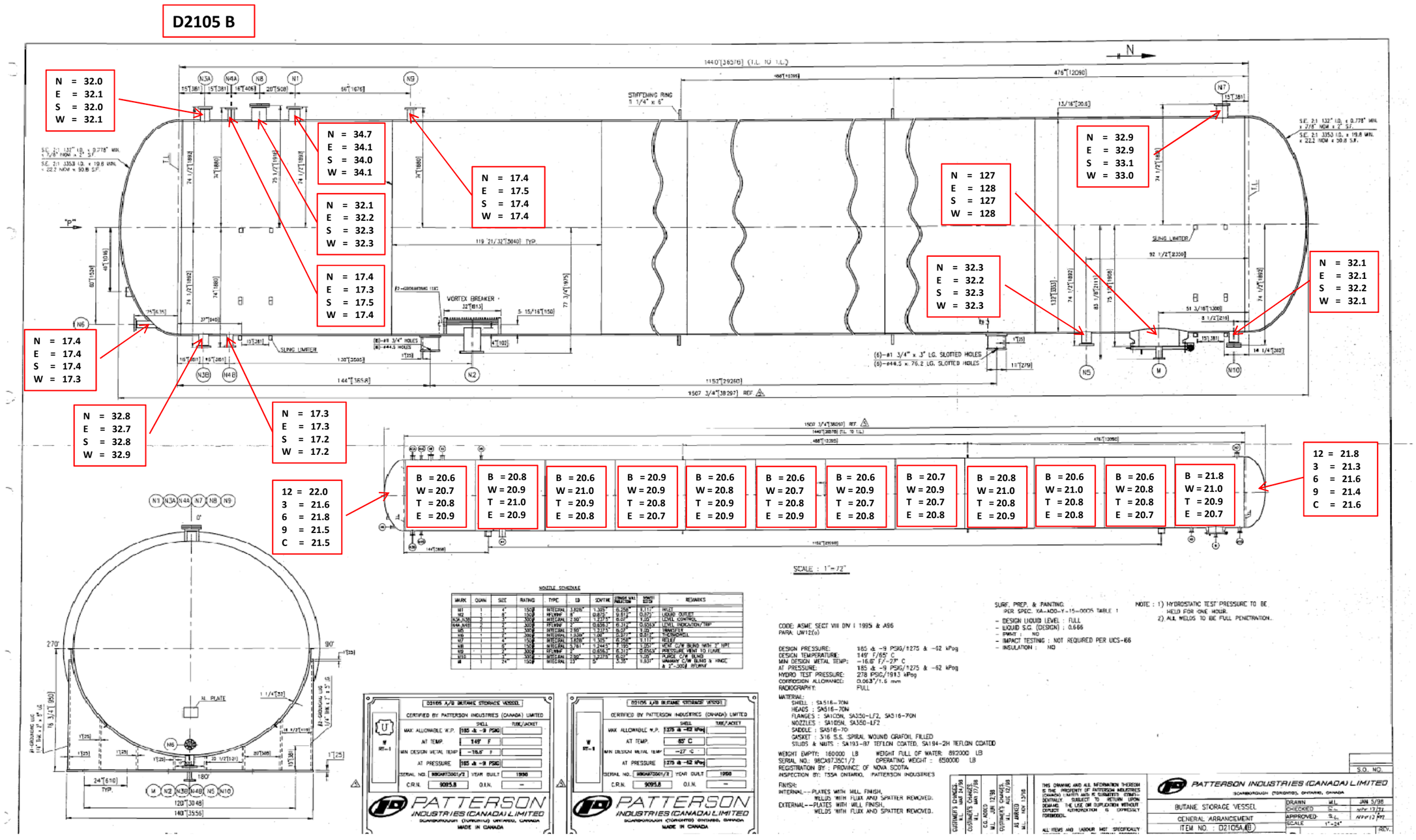
EM&I Jacques Ltd.

## Inspection Summary

| Item Identification | Test Point | Diameter (inches) | Nominal Wall Thickness (mm) | Minimum Wall Thickness (mm) | Average Wall Thickness (mm) |
|---|---|---|---|---|---|
| D2105B M | N | 24" | 127.00 | 127.00 | N/A |
| D2105B M | E | 24" | 127.00 | 128.00 | N/A |
| D2105B M | S | 24" | 127.00 | 127.00 | N/A |
| D2105B M | W | 24" | 127.00 | 127.00 | N/A |

End of Report

**D2105 B**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S = 32.0
W = 32.1
N = 34.7
E = 34.1
S = 34.0
W = 34.1
N = 32.1
E = 32.2
S = 32.3
W = 32.3
N = 17.4
E = 17.3
S = 17.5
W = 17.4
N = 17.4
E = 17.5
S = 17.4
W = 17.4
N = 127
E = 128
S = 127
W = 128
N = 32.9
E = 32.9
S = 33.1
W = 33.0
N = 32.3
E = 32.2
S = 32.3
W = 32.3
N = 32.1
E = 32.1
S = 32.2
W = 32.1
N = 17.4
E = 17.4
S = 17.4
W = 17.3
N = 32.8
E = 32.7
S = 32.8
W = 32.9
N = 17.3
E = 17.3
S = 17.2
W = 17.2
12 = 22.0
3 = 21.6
6 = 21.8
9 = 21.5
C = 21.5
B = 20.6 W = 20.7 T = 20.8 E = 20.9
B = 20.8 W = 20.9 T = 21.0 E = 20.9
B = 20.6 W = 21.0 T = 20.9 E = 20.8
B = 20.9 W = 20.9 T = 20.8 E = 20.7
B = 20.6 W = 20.8 T = 20.9 E = 20.9
B = 20.6 W = 20.7 T = 20.8 E = 20.9
B = 20.6 W = 20.9 T = 20.7 E = 20.8
B = 20.7 W = 20.9 T = 20.7 E = 20.8
B = 20.8 W = 21.0 T = 20.8 E = 20.9
B = 20.6 W = 21.0 T = 20.8 E = 20.8
B = 20.6 W = 20.8 T = 20.8 E = 20.7
B = 21.8 W = 21.0 T = 20.9 E = 20.7
12 = 21.8
3 = 21.3
6 = 21.6
9 = 21.4
C = 21.6
SCALE : 1"=72"
NOZZLE SCHEDULE
PATTERSON INDUSTRIES (CANADA) LIMITED
BUTANE STORAGE VESSEL
GENERAL ARRANGEMENT
ITEM NO. : D2105A/B