Pressure Vessel Survey			
Location:	Point Tupper	**EM&I J Report No.:**	PT-D2100B-090506-CR-R0
Client Name:		**Client Ref No.:**	PT-11564781-002-D2100B
Client Rep.:		**Inspector Name:**	Colin Robinson
WO No.:		**Inspection Date:**	May 06, 2009
SPO No.:		**System:**	Propane
Workscope No.:	PT-2009-D-2100B-INT-01	**EM&I J Job No:**	EMJ0132.43
Tag No.:	D-2100B	**Equipment Description:**	Propane Storage Vessel D-2100B
Date of Last Inspection:	NA	**Previous Records Seen:**	NA
Drawing No.:	LA-B23-F-22-8050-01-Z5, 98-CA-399735-1B-5		

Inspection Summary

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

Inspection Summary

Item	Condition	Comments
Vessel Internal Surfaces		See Note 2
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.	**Good**	See Note 3
2. Check all welded joints for any signs of deterioration, corrosion, cracking, pitting or other sign of failure. Specify.	**Good**	MPI carried out on selected T-junctions and weld seams (see Note 6)
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.	**Good**	All nozzles in good condition (see Photo 4-10). MPI carried out on N3B, N4B, N5, N6, N10 and Manway M
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.	**NA**	Refer to external inspection report PT-11573613-001-D2100B for details
5. Where applicable, check vessel internal cladding for signs of bulging, buckling, cracks, holes, etc. If any, specify type, location and extent.	**NA**	No internal cladding
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.	**NA**	Not coated
7. If possible, check gasket seals on all flanges for signs of corrosion and/or mechanical damage.	**NA**	All flanges isolated; spade in place
Internal Equipment/Piping /Supports		
1. Where applicable, check supports for vessel's internal equipment and components for signs of corrosion, distortion and deterioration.	**NA**	
2. If applicable, check vessel's internals for signs of corrosion, distortion and deterioration, missing components etc.	**Good**	Vortex Breaker (see Note 6)
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.	**NA**	Welded internal Vortex Breaker (see Photo #10 & 11)

Detail of Findings

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

Technical Characteristic of D-2100B:

- Commissioned in 1999
- Material: SA 516 70 (Carbon Steel)
- Operating Pressure and Temperature: 1380 KPag and 42°C.
- Design Pressure and Temperature: 1724 KPag and 65°C
- Corrosion Circuit: Propane Plus Liquids (LCC-02)
- Net Failure Consequence Rating: 14.8
- Internal Coating: None
- Corrosion Allowance: 1.6 mm

Note 1: A thorough external inspection of Propane Storage Vessel D-2100B was carried out under WO# 11573613 in accordance with API 510 and API 572; please refer to EM&I Jacques Report PT-11573613-001-D2100B for details.

Note 2: A thorough internal inspection of D-2100B was carried out in accordance with API 510 and API 572 by entering the vessel. The Vessel was found generally to be in good conditon. Light surface scaling and roughness on the vessel shell and head was noted. Residue was removed from the vessel during vessel cleaning process and sent for analysis, see Photo #16 & 17.

Note 3: Isolated areas of pitting were noted; approx. 1% - 2% by density located between 5 and 7 O'clock position; maximum depth 1mm with an aveage depth 0.5mm; please see Photo #3 and the attached drawing for locations.

Detail of Findings

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

Note 4: Name Plate Details:

- Certified By: Patterson Industries (Canada) Ltd
- The maximum allowable working pressure (MAWP): 250 & -9 PSI @ 149°F (1724 & -62Kpa @65 °C)
- The minimum design metal temperature (MDMT): -16.6°F @ 250 & -9 PSI (-27°C @1724 & -62Kpa)
- Serial No.: 063
- Year Built: 1998
- C.R.N.: 9094.8

Note 5: PSVD2100B details:

- Certified By: Land & Sea Instrumentation Ltd. Job No. 09-16828-17
- Date: March 4th, 2009
- Set Pressure: 1723Kpa
- Capacity: 18649 SCFM
- Model: JPVM – 15A

Note 6: MPI was carried out on the Vortex Breaker on N2 to vessel shell weld; no indication was noted. Slight undercut was noted on the vortex breaker to vessel shell weld; MPI was carried out to confirm the integrity of the weld – No cracking noted.

Detail of Findings

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

Photo 1 – Name Plate Details

Photo 2 – Name Plate Details

Photo 3 – Close view of internal pitting

Photo 4 – General View of Nozzle N5 in good condition

Detail of Findings

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

Photo 5 – General View of Nozzle N10 in good condition

Photo 6 – General View of Nozzle N4B in good condition

Photo 7 – General View of Nozzle N3B in good condition

Photo 8 – General View of Nozzle N6 in good conditon

Detail of Findings

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

Photo 9 – Thermowell on Nozzle N6

Photo 10 – General View of Nozzle N2 with Vortex Breaker in good condition

Photo 11 – Close view of the weld for Vortex breaker to shell

Photo 12 - Grinding Marks on shell

Detail of Findings

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

Photo 13 – Typical 'T' Weld

Photo 14 – General View of North Head

Photo 15 – General View of Nozzle N4A & N3A in good condition

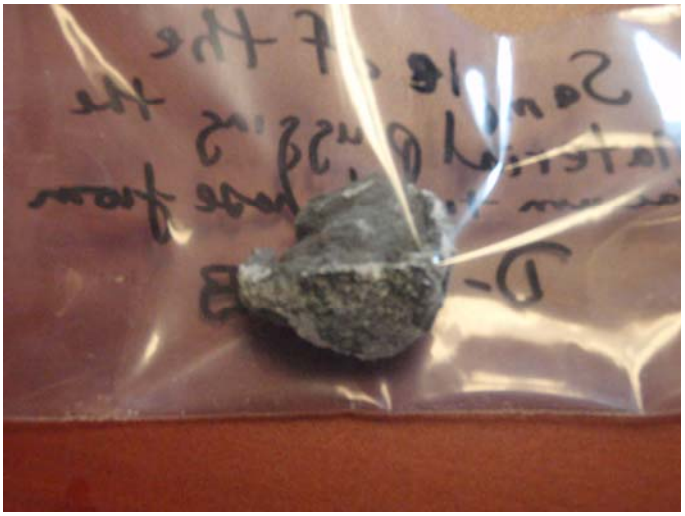


Photo 16 – Residue removed from D-2100B

Detail of Findings

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

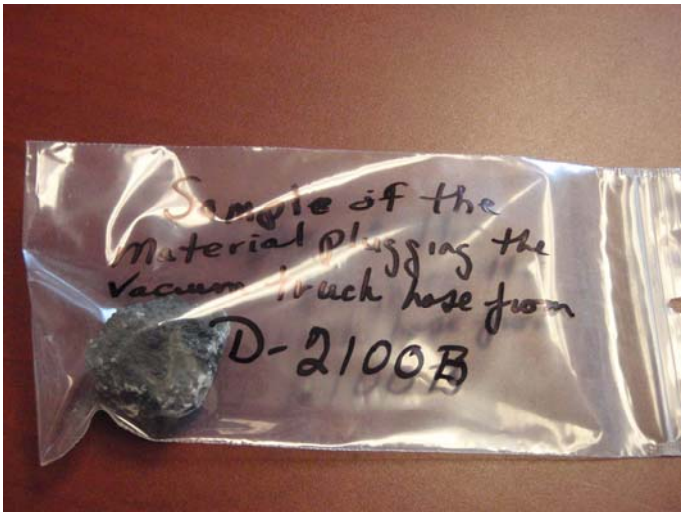


Photo 17 – Residue removed from D-2100B

Photo 18 – PSV Details

List of Attachments

Attachment 1: PT-D2100B-090503-DL-MPI
Attachment 2: PT-D2100B-090505-NE-MPI
Attachment 3: 98-CA-399735-1B-5

End of Report

INSPECTION REPORT

EM&I Jacques Ltd.

MPI Survey				
Location:	Point Tupper		**EM&I J Report No.:**	PT-D2100B-090503-DL-MPI
Client Name:	Exxon Mobil Sable		**Client Ref No.:**	PT-11564781-001-D2100B
Client Rep.:	Dale Groves		**Inspector Name:**	Daniel Lewis
WO No.:	11564781		**Inspection Date:**	May 03, 2009
SPO No.:	4501905471		**Inspection Time:**	Various
Workscope No.:	PT-2009-D2100B-INT-01		**System:**	Propane
Previous Report No.	NA		**EM&I J Job No:**	EMJ0132.43
Ref. Drawing No.:	LA-B23-F-22-8050-01-Z5, 98-CA-399735-1B-5			
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**	**Batch:** 07H14K/2755
Equipment:	**Type:** Y5	**S/N:** 1450	**Calibration Due: 40 Lb Cal lift**	**Current Type:** NA

Inspection Summary

Comments:

MPI was conducted on the man-way hinges of vessel D-2100B.

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

EM&I Jacques Ltd.

MPI Survey				
Location:	Point Tupper		**EM&I J Report No.:**	PT-D2100B-090505-NE-MPI
Client Name:	Exxon Mobil Sable		**Client Ref No.:**	PT-11564781-002-D2100B
Client Rep.:	Dale Groves		**Inspector Name:**	Neil English
WO No.:	11564781		**Inspection Date:**	May 05, 2009
SPO No.:	4501905471		**Inspection Time:**	Various
Workscope No.:	PT-2009-D2100B-INT-01		**System:**	Propane
Previous Report No.	NA		**EM&I J Job No:**	EMJ0132.43
Ref. Drawing No.:	LA-B23-F-22-8050-01-Z5, 98-CA-399735-1B-5			
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:** WCP-2	**Manufacturer:** Magnaflux	**Batch:** 07h14k
Equipment:	**Type:** Y6	**S/N:** 12764	**Calibration Due:** 10 Lb Cal lift	**Current Type:** AC

Inspection Summary

Comments:

Black on white Magnetic Particle Inspection was conducted on the Propane Storage Vessel D-2100B.
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.

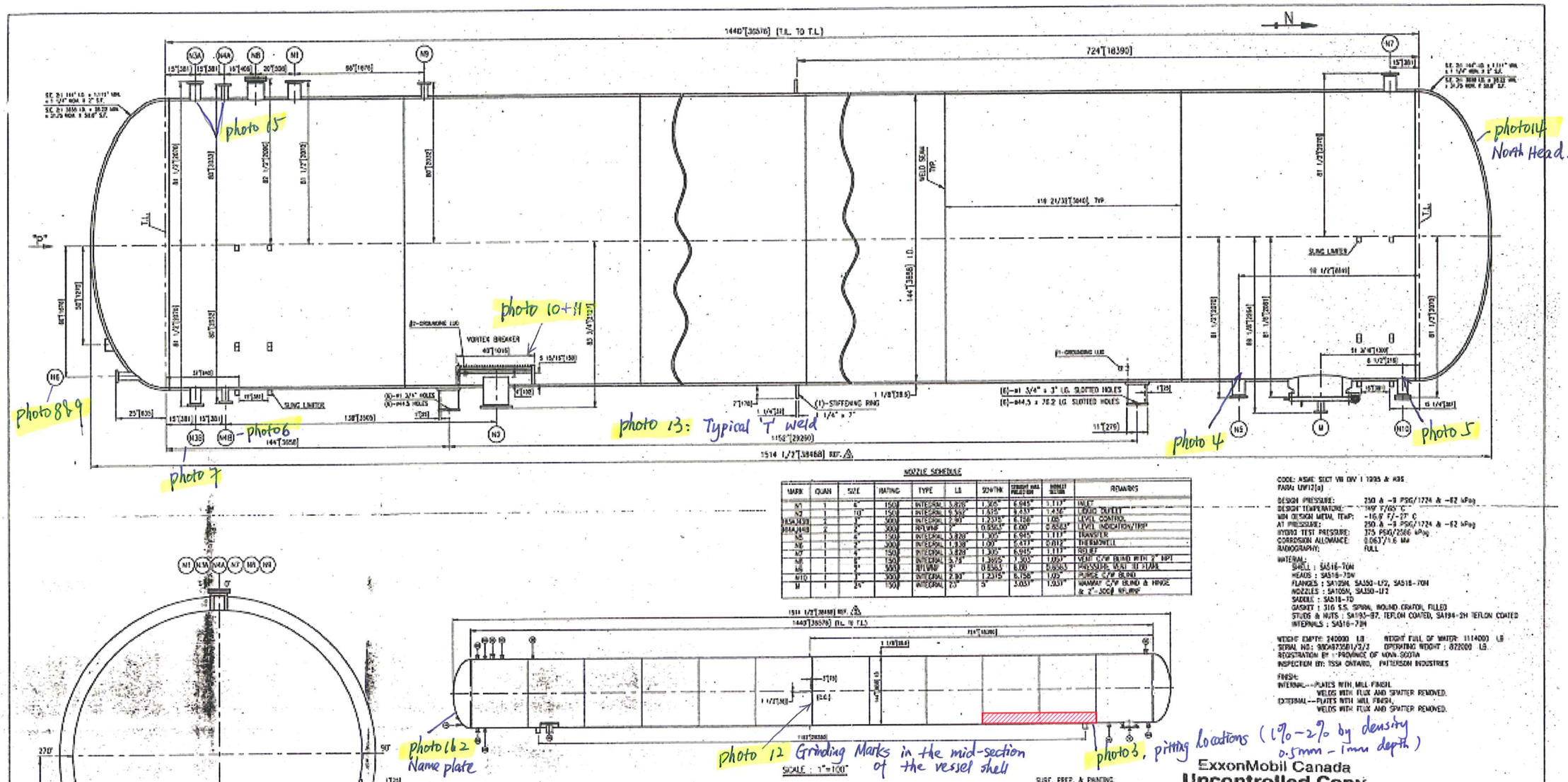
At time of inspection no relevant indications were observed.

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

Neil English
CGSB: #11752

Ink
Manufacturer: Magnaflux
Type: 7HF Black Ink
Solution: Prepared bath, Aerosol
Batch:07G07K

End of Report



NOZZLE SCHEDULE

MARK	QUAN	SIZE	RATING	TYPE	LG	SCH/THK	REMARKS
N1	1	6"	150#	INTEGRAL	5.875"	1.305"	INLET
N2	1	10"	150#	INTEGRAL	6.250"	1.625"	LIQUID OUTLET
N3A,N3B	2	2"	3000#	INTEGRAL	7.38"	1.2375"	LEVEL CONTROL
N4A,N4B	2	2"	3000#	REFLUME	7"	0.436"*	LEVEL INDICATION/TEST
N5	1	6"	150#	INTEGRAL	5.875"	1.305"	TRANSFER
N6	1	2"	3000#	INTEGRAL	5.38"	1.09"	THERMOWELL
N7	1	4"	150#	INTEGRAL	5.625"	1.337"	SPARE
N8	1	4"	150#	INTEGRAL	5.625"	1.337"	VENT C/W BLIND WITH 2" NPT
N9	1	8"	300#	REFLUME	9"	0.436"*	PRESSURE, MEAS. TEMP.
N10	1	3"	3000#	INTEGRAL	2.88"	1.2375"	PURGE C/W BLIND
M	1	24"	150#	INTEGRAL	10"	3.063"	MANWAY C/W BLIND & HINGE & 2"-300# REFLUME

CODE: ASME SECT VIII DIV 1 1995 & ADD
PARA: UW12(a)

DESIGN PRESSURE: 250 & -9 PSIG/1724 & -62 kPag
DESIGN TEMPERATURE: 149° F/65° C
MIN DESIGN METAL TEMP: -16.6° F/-27° C
AT PRESSURE: 250 & -9 PSIG/1724 & -62 kPag
HYDRO TEST PRESSURE: 375 PSIG/2586 kPag
CORROSION ALLOWANCE: 0.063"/1.6 MM
RADIOGRAPHY: FULL

MATERIAL:
SHELL : SA516-70N
HEADS : SA516-70N
FLANGES : SA105N, SA350-LF2, SA516-70N
NOZZLES : SA106N, SA350-LF2
SADDLE : SA516-70
GASKET : 316 S.S. SPIRAL WOUND CRAFOIL FILLED
STUDS & NUTS : SA193-B7, TEFLON COATED, SA194-2H TEFLON COATED
INTERNALS : SA516-70N

WEIGHT EMPTY: 240000 LB WEIGHT FULL OF WATER: 1114000 LB
SERIAL NO.: 980473581/2/3 OPERATING WEIGHT : 872000 LB
REGISTRATION BY : PROVINCE OF NOVA SCOTIA
INSPECTION BY: TSSA ONTARIO, PATTERSON INDUSTRIES

FINISH:
INTERNAL--PLATES WITH MILL FINISH.
WELDS WITH FLUX AND SPATTER REMOVED.
EXTERNAL--PLATES WITH MILL FINISH.
WELDS WITH FLUX AND SPATTER REMOVED.

SURF. PREP. & PAINTING
PER SPEC. XA-N00-T-15-0005 TABLE 1

- DESIGN LIQUID LEVEL : FULL
- LIQUID S.G. (DESIGN) : 0.666
- PWHT : NO
- IMPACT TESTING : NOT REQUIRED PER UCS-66
- INSULATION : NO

NOTE : 1) HYDROSTATIC TEST PRESSURE TO BE HELD FOR ONE HOUR
2) ALL WELDS TO BE FULL PENETRATION.

D2100 A/B/C PROPANE STORAGE VESSEL
CERTIFIED BY PATTERSON INDUSTRIES (CANADA) LIMITED

	SHELL	TUBE/JACKET
MAX ALLOWABLE W.P.	250 & -9 PSIG	
AT TEMP.	149° F	
MIN DESIGN METAL TEMP	-16.6° F	
AT PRESSURE	250 & -9 PSIG	
SERIAL NO.	980473581/2/3	YEAR BUILT 1998
C.R.N.	9064.8	D.U.N. --

PATTERSON INDUSTRIES (CANADA) LIMITED
SCARBOROUGH (TORONTO) ONTARIO, CANADA
MADE IN CANADA

D2100 A/B/C PROPANE STORAGE VESSEL
CERTIFIED BY PATTERSON INDUSTRIES (CANADA) LIMITED

	SHELL	TUBE/JACKET
MAX ALLOWABLE W.P.	1724 & -62 kPag	
AT TEMP.	65° C	
MIN DESIGN METAL TEMP	-27° C	
AT PRESSURE	1724 & -62 kPag	
SERIAL NO.	980473581/2/3	YEAR BUILT 1998
C.R.N.	9064.8	D.U.N. --

PATTERSON INDUSTRIES (CANADA) LIMITED
SCARBOROUGH (TORONTO) ONTARIO, CANADA
MADE IN CANADA

PATTERSON INDUSTRIES (CANADA) LIMITED
SCARBOROUGH (TORONTO) ONTARIO, CANADA

PROPANE STORAGE VESSELS	DRAWN	B.L. JAN 8/98
GENERAL ARRANGEMENT	CHECKED	JS Feb 13/98
ITEM NO.: D2100A/B/C	APPROVED	MJ Feb 13/98
	SCALE	1"=24"

S.O. NO.