TECHNICAL SPECIFICATION

CLIENT:
SPECIFICATION NO.: ENQB8017 Rev A "As Built" **WO 400013**
DESCRIPTION : 1 x 4 500 LITRE OFFSHORE CONTAINER
SERIAL NUMBER: ZIPU 039328

1.0 Technical Characteristics

1.1 Design & Testing

Tank	- In accordance with:	IMDG, RID/ADR,
	- type:	T7 UN Portable Tank with 6mm Ref MS thick (ASME VIII Div 1 as applicable for calculations)
Frame	- In accordance with:	DNV 2.7-1 (Approval by Bureau Veritas)
	- type:	Tank to frame with a welded connection
Corner Castings		Bottom: ISO 1161

1.2 Capacity

Nominal (± 1% tolerance) (includes ullage)	**4 500**	**L**

1.3 Frame Dimensions And Mass

MPGM	**9 000**	**kg**
Tare Mass (± 3% Tolerance)	**2 420**	**kg**
Length	2 300	mm
Width	2 300	mm
Height (Excluding Stacking Locators)	2 400	mm

1.4 Pressure & Temperature Rating

Metallurgical Design Temperature Range for Tank	**-40°C to + 100**	**°C**
Minimum Metallurgical Temperature for Frame	**-40**	**°C**
Maximum Allowable Working Pressure	3,0	bar
Hydrostatic Test Pressure	4,5	bar
Maximum External Pressure	0,4	bar

1.5 Tank Dimensions

Shell (Inside Diameter x Tan / Tan)	2 000 x 950	mm
Heads (Knuckle / Crown)	200 / 2 000	mm
Shell Construction Thickness	4,4	mm
Head Construction Thickness	4,6	mm
Frame Primary Members	6,0	mm

1.6 Material Of Construction

Framework	:	Hollow section	EN 10210 S355 J2H / Supraform TM 380
		Plates	EN 10025 S355 K2G3C / Supraform TM 380
		Rolled section	EN 10025 S355 K2G3
Connection to Tank			Stainless steel 304
Shell (Dual Certified)			DIN 17441 W1.4401 (C < 0,03%) Cold Rolled **2B finish** and ASTM A240 316
Heads (Dual Certified)			Columbus TCG 316L, Hot Rolled, Polished and ASTM A240 316

1.7 **NDT (Non Destructive Examination)**

- Radiography Shell = Spot
  Heads = Full (100%)
- Tank 100% Dye Penetrant Tested
- Frame Work 20% MPI
- Pad Eyes 100% MPI

2.0 Tank Fittings And Accessories

2.1 **Manhole**

- Supplier Fort Vale
- Quantity One
- Dimensions 500mm ID
- Specification Stainless steel 316; 4 bar pressure rating; 6 point fixing, model P564/064BS, neck length 4" (100mm)
- Gasket Nitrile rubber seal, model 5005-50N
- Remarks A manhole compensation pad / ring is fitted.

2.2 **Inspection Hatch**
Not fitted.

2.3 **Safety Relief Valve Assembly**

- Supplier Fort Vale
- Quantity One
- Dimensions 2½" BSP Super Maxi Highflow - model G1B / 15412
- Specification +3,75 / -0,21bar (+54,3 / -3,0 psi)
- A flame arrestor is fitted to the valve
- Remarks The valve is with a vacuum break push button

2.4 **Air Inlet Assembly**
Not required.

2.5 **Bottom Discharge**

- Supplier Fort Vale
- Quantity One
- Dimensions DN 80 (3") / DN 50 (2")
- Specification Internal valve – 3" 90° Parkfield emergency foot valve bolted to a tank pad
  External valve – 2½" ball valve with 2½" BSP threaded connector to accept an Avery Hardoll coupling, Fort Vale model S0346/50PN
- Gasket Klinger SIL C-4430 / PTFE
- Remarks A remote closure is connected to the internal valve. The outlet is approximately 8 – 10% of tank capacity above the lowest point of the tank. Drain pipe to have a positive flow. A Kinetrol actuator is fitted to the assembly.

2.6 **Sample Point/Drain**

- Supplier Fort Vale
- Quantity One
- Dimensions DN 40 (1½")
- Specification Stainless steel 316 assembly ref S0407/10 or similar
- Remarks The system consists of an 1½" internal valve, 1½" NB extension spool piece, 1½" BSP ball valve, and ends with a 1½" BSP cap and retaining chain.

2.7 **Dipstick**
A 75% stainless steel 316L calibrated dipstick is fitted to the manhole neck. The 0 mark is on top.

2.8 **Walkways**
The complete top section is covered with aluminium walkways. A central hinged lid provides access to top fittings.

2.9 **Earthing Connection**
2-off stainless steel lugs 50 x 40 x 2,5mm located at the bottom of the frame adjacent to the bottom discharge and sample point/drain. The lug has a 20mm hole in it.

2.10 **Document Holder**
1-off clear PVC document holder is provided. The holder is water-resistant and is fixed in a position that affords adequate protection.

2.11 **Decals**
One set per tank as per code requirements. Owner logos supplied by client and applied.

2.12 **Data Plates**
One set of stainless steel data plates per tank as per code requirements

2.13 **Ladder**
The frame structure incorporates cross-members to provide an integral ladder access to the tank top.

2.14 **Fork Lift Pockets**
4 Way entry carbon steel forklift pockets are provided. Nominal dimensions of 250 x 150mm.

2.15 **Pad Eyes**
Pad eyes are provided at the top end of each corner post. A stainless steel 304 bush is fitted in the hole of each lifting lug. Lifting lugs to be designed to allow easy connection of lifting shackle and bolt.

2.16 **Stacking Locators**
A stacking locator is provided at each top corner.

2.17 **Spraying System**
Not fitted

3.0 Finish

3.1 **Shell**

Internal Shell Surface	2B Finish
Longitudinal Welds	As welded
Circular Welds	As welded

3.2 **Dished Ends**

Internal Surface	Polished to Ra = 1,3 um max
Internal Welds	Ground flush

3.3 **Cleaning**

On completion of fabrication, the vessel's internal surface is degreased, pickled, passivated and neutralised. A white cloth test will be performed on the internal surface to check for cleanliness. The opening points are sealed so that the tank is supplied clean and ready for use.

3.4 **Painting**

The carbon steel frame components are shot-blasted to SA 2½ and painted as follows:

First coat	Hempadur Zinc	(15360)	30 microns min DFT
Intermediate coat	Hempadur Primer	(15553)	30 microns min DFT
Final coat	Hempatex Hibuild	(46410)	70 microns min DFT
	TOTAL		130 microns min DFT

Colour = Blue RAL 5002 (Hempel 3017).

The stainless steel tank and exterior of spillbox necks are degreased and painted as follows:

First coat	Hempadur Primer	(15553)	40 micron min DFT
Final coat	Hempathane Enamel	(55210)	50 micron min DFT
	TOTAL		90 micron min DFT

Colour = White (RAL 9010)

4.0 **Test and Homologations**

- These tank containers are constructed according to an approved design.
- Tanks can be stacked full at 3 high (i.e. two on top).
- Each production unit is subject to testing and non-destructive examination as required by ASME VIII Division 1 and manufacturer's own quality requirements. Each unit is inspected by the independent Inspection Authority, Bureau Veritas.
- The UN portable tank fulfils the performance specification of the following International Organisation's regulations and recommendations and is supplied with their Approvals.

IMDG-IMO
RID/ADR

Additional approvals:

TIR / Customs
DNV 2.7 - 1
UIC

- Production lift testing is performed in accordance with DNV 2.7 – 1.

5.0 **Documentation**

The following documentation will be provided on CD:

- Certificate of cleaning (hard copy placed in the document holder).
- Initial Inspection Certificate (IIC) for each tank.
- A calibration chart measured in cm/litres for each tank.
- 3 Sets of photographs of one tank per works order.
- 1 Full set “as built” A3 drawings.
- "As Built" specification.
- Approvals.

6.0 **Products**

Approved for products in classes 3, 4.1, 5.1, 6.1, 8 and 9 as applicable

DESIGN:

Compiled by :_____

Reviewed by :_____

SALES/CONTRACTS :_____

CUSTOMER APPROVAL :_____

BY :_____

DATE :_____

REVISION HISTORY:

From Original Specification to Rev A

- As Built: No deviations

NOMINAL 4500L
CAPACITY 1189 US GAL

ZIPU 039328 0

UN PORTABLE TANK

3 BAR
MAWP
43 Psi

MAX 9000 kg
GROSS 19841 lb
TARE 2400 kg
5291 lb

OFFSHORE

DRAIN VALVE

POCKETS
FOR EMPTY LIFT ONLY

POCKETS
EMPTY LIFT ONLY

TANK CONTAINER — INITIAL INSPECTION CERTIFICATE

TANK CONTAINER : ZIPU 039328 - 0		**BVCT: 0970140/J**
MAXIMUM GROSS WEIGHT: 9000 kg	**Tare:** 2400 kg	**Payload :** 6600 kg
OWNER : Tanker Services, Inc.	**OPERATOR : Tanker Services, Inc.**	

MODEL: VOC1-4,5.4.9 **SERIAL No: P39328**
TYPE: UN Portable **DIMENSIONS** (mm): 2300 x 2300 x 2400 mm **CODE TYPE:** 1T5

CAPACITY: Nominal : 4 500 litres (l)
Measured : litres (l)

PRESSURE: Working: 3.0 bar Test: 4.0 bar

APPROVALS:
TIR : GB/C7976BV/2009
RID/ADR : F/5475/BV/09
USDOT : IA-9196
BV : IND-IT 178.2

SUBSTANCES SUITABLE FOR TRANSPORT: According to applicable regulations, and the above mentioned Approvals, taking into account the constitution of the tank and its equipment**. Class3, 4.1, 5.1, 6.1, 8 & 9.**

MANUFACTURER: GasCon. Elsies River. Cape Town

STATEMENT OF THE MANUFACTURER:
I, the undersigned, certify that the above mentioned tank container (Tank no.P39328) has been manufactured and inspected in the same way as the basic prototype container certified by BUREAU VERITAS under BVCT 0470278/J

GasCon

CHARACTERISTICS

GENERAL DRAW. No: 1187-04-01 Rev 0
DESIGN: ASME VIII Div. 1 : 2007 (As Applicable / Not U-Stamped)
Temperature: 100°C Max. – 40°C Min
Pressure: 3.0 bar

MATERIALS:
Frame: BS EN 10210-1 S 355 J2H; SUPRAFORM TM 380.
EN 10210-1 S 355 J0 .
Tank Head : Columbus TCG 316L Hot Rolled / ASTM A240 316
Shell : DIN 17441 W1.4401 C ≤0.03% Cold Rolled / ASTM A240 316

TANK:
Internal Diameter: 2000 mm Compart. No. ONE (1)
Mini Construction Thickn: Shell 4.40 mm Heads: 4.60 mm
Mini Design Thickn: Shell 4.31 mm Heads: 4.21 mm
Equivalent thickness: Shell 6.13 mm Heads: 6.55 mm
IMO : 6mm US-DOT: 6mm

EQUIPMENT:
Insulation: None Heater : NO Working Pressure: N/A
Heater surface : N/A sqm.
Test pressure : Shop: N/A bar. Field : N/A bar
Outlet: Top : NO Bottom : YES – Two (2) Outlets
Closures Top : N/A Bottom : 3 Closures
Remote Control: YES Baffles : N/A
Fusible Link : N/A
Sunshield : N/A

SAFETY DEVICES:
1 Relief valve (Setting): 3.75bar Serial no 0927081
0 Rupture Disc (Setting) (20°C) : N/A bar
Rupture Disc (Setting) (60°C): N/A
Rupture Disc Mounting: Series : NO Paral : NO
Total vent. Capacity: 12139 m³/h (0°C – 1 bar)

COATING: Internal: NO External: Painted
TESTS AT: R= 9 000 kg BS EN 12079, DNV 2.7-1 : 2006

MARKING DRAWING No. 1187-04-11 Rev 0

STAMPING:MANUFACTURERS DATA PLATE

BV DECAL AS PER DRAWING RSA/TC1

INSPECTIONS

This tank container has been manufactured under BUREAU VERITAS survey, in accordance with the following prescriptions:

- Rules of : BUREAU VERITAS
- Specification: BS EN 12079, DNV 2.7-1 : 2006
- Code: ASME VIII Div. 1 2007 (As Applicable / Not U – Stamped)

The inspections performed are subject to reports:
BVCT 0970140/J
CPT/43/05/191/063

Tension test at : N/A kg (corner post)
Hydraulic test at : 4.50 bar
Performed on : 26 Aug 2009
Tightness test at : 2.00 bar
Performed on : 18 November 2009
Inspection mark I I

REMARKS:
Corrosion allowance: 0 mm
Relief Valve: FORT VALE VALVE
Safety relief valve certified flow rate is 12139 m³/h
Released as T7 UN portable tank / Offshore Portable Tank

X-ray control:
Shell: Circumferential & Longitudinal Welds: 10%
Dished ends : 100%

Certificate of Conformity: BVCT 0970140/J

TIR: GB/C 7976 BV/2009
CERT NO: BVCT0970140/400013/1

TANK CONTAINER RELEASE:
18 November 2009

Issued at: SOUTH AFRICA
On: December 21, 2009

BUREAU VERITAS INDUSTRIAL BRANCH SOUTHERN AFRICA

Inspected by: GM STOMAN
IPE 456
CPT/43/05/191/063
Region-Office: CAPE TOWN