

## Desalination Barge 231A F.A.Q.

### 1. History of the Barge – operational and stacked

The barge was built for the US army and was kept as a standby RO system in case US Army requested her operation. The barge was never used and all equipment was preserved and labelled with date. The Membranes that came with the unit are all still in plastic and stored.

This barge has the capability of producing 300,000 gallons of drinking water at 24hr. period and due to its 4 point mooring system sea conditions does not exceeding Sea state 3. Barge cannot operate where water depth is less than 15 feet at low tide. This level of water production is based on optimum environmental and optional conditions. The ROWPU system has two identical units, ROWPU 1 and ROWPU 2, that can be run independently and can produce 150,000 gallons per 24 Hr.

These Units were designed to run process feed water (sea salt water or brackish water from river or lake) into two products; brine water or dirty water that is dumped overboard and highly filtered non salt water which can also be stored on board barge in 4 tanks that hand hold a total capacity 15,000 gals. The Barge complies with WHO guidelines according to field quality of water and salinity and was built to reject 98% salinity.

### 2. Running of the plant – fresh water production:

#### i. When was it last fully operational

Barge was as stand by RO system and no records that it was run.

#### ii. When was it last test run

Generator and main pumps engines are run monthly without using High pressure pumps and membranes.

#### iii. What specialist knowledge is required to run it on a continuous basis

1 engineer with and 1 electrical knowledge to maintain engines and generators and 1 analyses person to analyse quality of water from RO systems

### 3. Barge certification

i. What certification does the barge have (Registration / Build / Safety certificates?)

Temporary Registration and can be Registered under any Flag

ii. Are there a full set of Construction Drawings and Operating / Maintenance Manuals for the Barge, as well as the RO Plant

Yes there are full set of Construction Drawings and Stability Manual and R/O plant

iii. When was the barge last dry docked – is there a certificate or record

Last Docked 29/03/2016 where scraping and high pressure water blasting was done, ultrasonic readings taken and 1 coat of primer and 2 coats of antifouling applied, all anodes changed and all underwater valves serviced.

iv. Are there log books recording previous operation and maintenance

barge is stacked

v. Is there a Stability Booklet for the barge

Yes available

#### 4. Barge maintenance

i. Has the barge had a recent underwater inspection

Yes during Dry docking and UD measurement taken.

ii. Any comments on the state of the hull underwater (growth), paint protection of the sides, decks and upper structures, as well as internal spaces

Good and same level of protection on hull, side paint protection, deck, upper structure and internal space.

iii. Other machinery ( mooring winches, gensets, domestic services, etc) – maintenance / operating records

#### **Anchoring Equipment**

Qty 2	port side
Qty 2	Stb Side
Rated	8000 LBs
Wire Rope	600 ft

#### **Anchors 4**

Type: 1000Lbs Standard Danforth

### **Bow Crane**

Manufacturer	GRU Idrauliche (Morgan Crane Comp)
Type:	Single Arm Hydraulic Articulating
41895 Lbs	6ft. 7inch
2,425 Lbs	30 ft.

### **Raw Water Pumps**

Qty	2
Type	Centrifugal Direct coupling

### **Cartridge Filter Assy**

Qty	2
Capacity	12 filters

### **Multimedia Filters**

Qty	6
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### **Reverse Osmoses Block X 2**

Qty	Block of 16 Tubes
Each Tube	5 reverses osmosis Membrane element

### **Chlorination Unit**

Qty	1 Unit
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### **Discharge pumps**

Qty 2

Type	421-8B
RPM	1750
GPM	260

### **Shore Discharge Hydraulic Hose Reel**

Material	Coflexip
Length	2500 feet

### **Overhead work electric crane**

Make	Spanmaster	5tons
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### **Ventilation**

Qty 6	Extractors
Qty 2	Blowers

### **Air Compressor**

Bedford Indiana            NATLBD 31823

### **Welding Set**

Lincoln

### **Workshop**

Qty 1	Press FAMCO
Qty 1	Pillar Drill Rockwell
Qty 1	Grinding wheel Baldor
Qty1	Vice
Qty1	Work bench

### **Accommodation**

Bunk beds	Qty 3 sleeps 9
Fridge freezer	Qty 1
Washing Machines	Qty 2

iv.            Genset engine hours since new / last overhaul

No overhaul still in excellent condition with low working Hrs.

5.    Can the barge deliver water at a variable volume/pressure?

Yes

6.    What is the maximum permissible back pressure on the delivery end?

High pressure pump

Type            Roto-jet V belt driven

Rating            350 gpm(1325(L/min) at 805psi (5550 Kpa)

HP/RPM:        260 BHP/4380 rpm

7.    How long, typically, to start the whole reverse osmosis process?

Once it is running and all membrane installed 24 Hrs to initialize system.

8. Would it be possible to install electric motors to drive the pumps, rather than diesel driven pumps?

Yes, as they are belt driven

9. What is the output (kW, Volts, cycles) of the two large diesel gensets, as well as the smaller Harbour genset?

**For Main RO Pumps 1**

Type	Diesel :
Power Rated	325hp @2100rpm/ 250hp/1800rpm
Engine Model	3406 DI
Serial NO:	6TB02014
Arrangement NO.	4W 841
Total Hrs	841

**Main RO Pump 2:**

Type	Diesel :
Power Rated	325hp @2100rpm/ 250hp/1800rpm
Engine Model	3406DI
Serial No.	6TB02037
Arrangement No.	
Total Hrs:	709

**Total 4 engines 2 assembled with pumps and 2 new spare**

**Generator 1**

Type	Diesel
Power rated:	155 KW
Model	3306TA
Serial No.	85Z02041
AR	1W3818
Total Hrs	807

**Generator 2**

Type	Diesel
Power rated:	155 KW
Model:	3306DI
Serial No.	85Z02034
AR:	1W3818
Total Hrs:	814