

FACT SHEET - MAINTENANCE

1. ELECTRICAL POWER PLANT:

Veligandu produces its own electricity using 4 Stamford AC Generators driven by Cummins diesel engines, producing a theoretical maximum of 2240 KW. All generators are equipped with primary and secondary silencers.

The operation of the generators is automatically synchronized to work together from the Control Room.

Power is distributed as 400 volts, three phase high voltage equipment's and 230 Volts, single phase, by a "tree system", meaning all electricity flows through distribution panels and is then routed to meet the demand of the guest Rooms, Public Areas and Team members accommodation.

The maximum daily demand of about 650 KW occurs at about 1200.

The minimum daily demand of about 350 KW occurs at about 0300.

The average diesel fuel consumption is about 3100 liters/day at 95% occupancy. Based on 91 guest rooms and accommodation for about 215 Team members at one time.

The Resort diesel storage tank holds 320,000 liters, a 100 day supply, and is refilled thru an underground pipeline from the supply jetty where the fuel tanker anchors.

The generator specifications are:

Cummins I & II (KTA 19-G4)		Cummins III & IV (KTA 38-G3)
500 KVA		900 KVA
400 KW		720 KW
50 Hz		50 Hz
RPM 1500		RPM 1500
415V, 3Ø, 721A		415V, 3Ø, 1299A

Basic generator and engine maintenance service is performed after 250, 1,500 and 6,000 hours operation. A "top" overhaul and a "major" overhaul is performed at 10,000 and 20,000 hours.

2. REVERSE OSMOSIS FRESH WATER PLANT:

Veligandu produces fresh water by using high pressure pumps to force seawater from the ocean of 2 meter deep through membrane filters. The end products are fresh water and concentrated seawater which is returned to the sea.

24 hour monitoring procedure is carried out by duty staff that is always on duty. The water samples send to National Health Laboratory/ Male', and/or SGS Sri Lanka once a month.

Fresh water is stored in 2 tanks, a total of 520,000 liters (520 tons), and a 3 ½ day supply.

Veligandu has 3 separate reverse osmosis plants, including 2-1st stage plants and 1-2nd stage plants. 1st stage plants produce 450,000 liters/day (450 tons) which is stored in a collection tank, then further purified by the 2nd stage plant, resulting in 300,000 litres/day (300 tons) of "super" purified water.

Veligandu consumes 190,000 liters/day (190 tons), about 480 liters per person/day, which includes about 180 guests (95% Occupancy) and about 215 Team members at one time. (Excluding team members out of the Island)

The reverse osmosis plant specifications are:

Description	Plant 1 & 2 (1st stage)	Plant 3 (2 nd stage)
Product flow	18.75 m ³ /hr	12.5 m ³ / hr
Working pressure	50 bar	12 bar
Power	60 KW	20 KW
Production capacity	450 m ³ /day	300 m ³ / day
Number of Membrane Housing	8	3 [Low Pressure]
Number of membrane Elements	32	12

Seawater undergoes a filtration process before being “fed” to the membrane filters:

- Intake water from 4 bore holes of 8” diameter x 30 meter deep at beach side.
- Pumped to a holding tank with 3 compartments to allow natural filtration
- Pumped through a sand filter.
- Pumped through 5 micron nominal bag filters as primary filtration and 10 micron absolute bag filters as secondary filtration and then thru 2 ultraviolet lamp system which destroys any contaminants such as bacteria, virus, etc.
- Pumped through the high pressure pump at 50 bar pressure into the pressure vessels, each of which contains 5 membranes.
- Sodium Hypochlorite 12%-13% is added into second stage water collection tank before transferring into the main storage tank.
- The resultant fresh water then flows through a third ultraviolet lamp system and afterwards, collected into the main storage tank.

3. WATER BOTTLING PLANT:

Veligandu further treats water produced by its reverse osmosis plant for use as drinking water for guests and Team Members. For guests, water is bottled and for staff, dispensed at water taps in Team Village.

A custom designed water bottling plant, installed by ECOPURE WATERS UK

The water bottling plant process requires specialized equipment including a doser which improves the taste of the water by adding minerals, a flow meter, ultra violet and 3 stage filters, a carbonator and an ice bank cooler; all custom designed to produce and dispense pure, chilled still and sparkling water through two stainless steel water taps.

Daily tests are conducted to ensure that international water quality standards are maintained. This process includes checking pH and free chlorine levels and conducting tests to ensure the plant facility meets the required international hygiene standards.

The reusable glass water bottles are washed and sanitized after each use in a custom-built machine manufactured in Canada. Capacity is 300 - 1 litre or 540 - 500 ml bottles per hour.

The bottles are then cooled in the temperature-controlled water plant room, after which filled and sealed with a safety top.

Average daily bottled water consumption for 180 guests is:
340 - 1 litre bottles of still water

The benefit of this facility is to reduce the purchase of drinking plastic Water bottles. Reusing glass bottles saves the purchase, transport and incineration of more than 120,000 plastic bottles per year. This practice is one of many ways that Veligandu is committed to maintaining a more energy efficient and cleaner natural environment.

4. WASTEWATER TREATMENT PLANT:

Veligandu operates a fully automated sewage treatment plant “STP”, custom designed and constructed in Austria and which conforms to European Union standards. The STP removes contaminants through a biological and chemical process and produces an end product (effluent) which is safe to reuse in the environment (“grey” water for the gardens).

Wastewater (both sewage and water from the kitchen, showers, etc.) is collected around the island in a network of 6 underground tanks and 1 kitchen grease trap tank. Then it is pumped to a holding tank at the STP, then pumped to a grid and lifting tank, then pumped across a spiral screen to the first of the 4 reactor tanks (16m³ each), each equipped with a blowing system giving oxygen to the bacteria. The bacteria break down the contaminants into biological degradable components.

The wastewater then flows to a filtration tank, then through a centrifugal filter. The remaining solids are dehydrated in sludge bags and are used as a biological fertilizer in the Resort’s gardens. The STP capacity is 90,000 liters/day (90 tons) of wastewater and consumes about 16 KW.

5. INCINERATOR:

Norwegian made Teamtec Golar incinerator type GS500C (designed for large passenger ships) has a capacity of 135 kg/Hr solid waste. Electrical power rated consumption is 27 KW, 380V, 50/60 HZ, 63A.

6. WASTE COMPACTOR:

Veligandu operates a Orwak model 6040 HDC machine producing 10 tons of pressure, which in 20 seconds compresses and straps the following waste into mini bales measuring 400 cm long x 600 cm wide deep x 845 cm high, and weighing:

Plastic bottles:	45 kg
Steel/tin/paint cans:	80 kg
Cardboard:	55 kg
Plastic/steel straps:	60 kg
PET-bottles:	30 kg
Aluminum cans:	20 kg
Plastic bags/shrink film:	65 kg
Shredded paper:	50 kg

This compacted waste is transported by Veligandu Dhoni to Garbage Island Thilafushi, where the bales are sold for export.

7. FOOD MACERATOR:

Veligandu operates a fully automated food grinding (macerator) system, which conforms to European Union standards. The Macerator breaks up solid food in to smaller particles without turning it into a paste.

- SBM2 Organic Waste Disposal System
Type 220 2.2KW
Warner 84211970

8. GLASS CRUSHER:

Veligandu operates a Disperator model GKG 350 machine which can crush 600 - 1200 bottles/hour depending on bottle size. The ground glass is mixed with sand and used in the gardens. Excess ground glass is transported Garbage Island Thilafushi, where it is sold for export.

9. FLAKE ICE MACHINE:

Veligandu has 1 machine which produces 2000 kg/day from fresh water. Ice flakes are mainly used for Fishing Dhonis to keep fish fresh after the catch and some Special Beach Events.

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