

ENERGY  
ENVIRONMENT  
ECONOMY

## WASTE WATER MANAGEMENT FOR OIL & GAS APPLICATIONS



With over 40 years of experience in marine sanitation, Wartsila Water Systems (formerly Hamworthy) offer innovative water management solutions that meet all existing and anticipated standards.

We have developed an enviable reputation for reliable machinery, backed up by an efficient spares and service capability.

Wartsila Water Systems is an innovative, market leading company providing technically advanced waste treatment systems in response to environmental needs and marine legislation. Wärtsilä are committed to supporting owners and operators, of vessels and offshore installations, providing design, products, turnkey installation and a global support network.

The Oil & Gas industry is increasingly focusing on environmental topics. In this technology arena Wartsila Water Systems continue to set the global standards in waste management by being the world's leading manufacturer of marine sewage treatment plants and oily water separators.





## THE EFFICIENT, HYGIENIC END TO WASTE FOR OIL & GAS APPLICATION



Wärtsilä Hamworthy sewage treatment plant incorporating a vacuum collection system and transfer pumps will be delivered to the Quad 204 FPSO project for BP.



### SEWAGE TREATMENT PLANTS

Wärtsilä is the world's leading manufacturer of marine sewage treatment plants. For over three decades Wärtsilä Hamworthy sewage treatment plants have been widely regarded as standard specification on all vessels.

An ST-C series unit is fully compatible with gravity and vacuum collection systems, and uses the activated sludge system, which accelerates natural biological

processes. Chemical disinfection and dechlorination are employed to produce a clean, safe, effluent suitable for discharging at sea.

To enable platforms to continue discharging black and grey water in especially sensitive waters, where regulations demand tighter controls, Wärtsilä Hamworthy have developed a range of MBR (Membrane Bioreactor) plants.

The semi-submersible drilling rig 'Safe Astoria' (below) has been retrofitted with MBR technology



### CORE COMPETENCES

#### LEADERS IN MARINE SEWAGE TREATMENT

Wärtsilä Water Systems have many years' experience in the design and manufacture of marine sanitation devices.

#### HIGH EFFICIENCY

Utilises the extended aeration process – highly developed for marine application.

#### AUTOMATIC CONTROL

Unattended operation, minimum maintenance.

#### COMPACT DESIGN

Compact modular construction, suitable for between deck installation.

#### SAFE OPERATION

Unaffected by ships motion.

#### FLEXIBLE OPERATION

Suitable for use with conventional gravity and vacuum sewage collection systems.



## OILY WATER SEPARATORS

With the aid of Wärtsilä Oily Water Separator (OWS), the environmental aspects regarding bilge water issues are easily handled with minimum impact for the operation staff and with results that easily surpass legislative requirements.

The Wärtsilä OWS units are IMO and US Coast Guard approved and give the operator effective control over all bilge media as well as over any discharges made into the sea. The system guarantees a maximum oil content in the effluent of 5 ppm (parts per million) during continuous operation. The units

are designed to conform to the highest safety standards, an essential factor for their competitiveness but also a substantial value in itself.

A complete Wärtsilä OWS consists of:

- Wärtsilä Oily Water Separator
- Solidpac solids dewatering unit (optional)
- Onsys feed pump system (standard on OWS 500 and OWS 2500)
- Bilge discharge monitoring system (optional)



Wärtsilä Hamworthy sewage treatment plant is installed onboard the 135,000m³ LPG FPSO 'Sanha'



## VACUUM TOILET SYSTEMS

The Wärtsilä vacuum flush toilet has been designed to be mechanically simple, operationally reliable, and stylish in appearance.

Wärtsilä vacuum toilets use air to drive waste from the toilet to the treatment tank or intermediate collection tank. This contemporary styled toilet has a built-in vacuum breaker and flush memory, is simple

to install, and is supplied ready to connect. The control mechanism can be accessed without removing the bowl. By using only approximately 1 litre of water, the amount of wastewater is dramatically reduced.

We offer the following designs for offshore applications;

- AVT 13B – Bulkhead Mount
- AVT 13D – Deck Mount



## PROVEN CAPABILITIES

At Wärtsilä we have strong offshore references for waste water management:

### QUAD 204 PROJECT

An ST8-C sewage treatment plant incorporating a vacuum collection system and transfer pumps will be delivered to the Quad 204 FPSO project for BP.

The new FPSO is to be deployed to the west of the Shetland Isles in the North Atlantic as a replacement for the Schiehallion FPSO. The new vessel, scheduled to be delivered in 2015, will be 270 metres long by 52 metres wide and able to process and export up to 130,000 barrels of oil a day, and store in excess of 1 million barrels.

### OFON II PROJECT

An ST50-C sewage treatment plant will be delivered to Eiffage Consortium for an accommodation platform for the second phase of Total's OFON field off Nigeria. The platform will accommodate up to 140 personnel, generating around 45 m<sup>3</sup>/day tonnes of waste water per day.

The ST50C plant, incorporating pumps, blowers and instrumentation, has been designed to operate within harsh offshore conditions in both a hot and humid salty environment, where it will also be subject to sand-laden winds.

## AFTERSALES

Wärtsilä supports its customers throughout the lifecycle of their installations by optimizing efficiency and performance. We offer expertise, proximity and responsiveness for all our customers in the most environmentally sound way.

Our Services & Support solutions range from basic support, installation

and commissioning, performance optimization, upgrades and conversions to service projects and agreements focusing on overall equipment performance and asset management.

We deliver aftersales support through our network of service centres in over 70 countries worldwide.



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