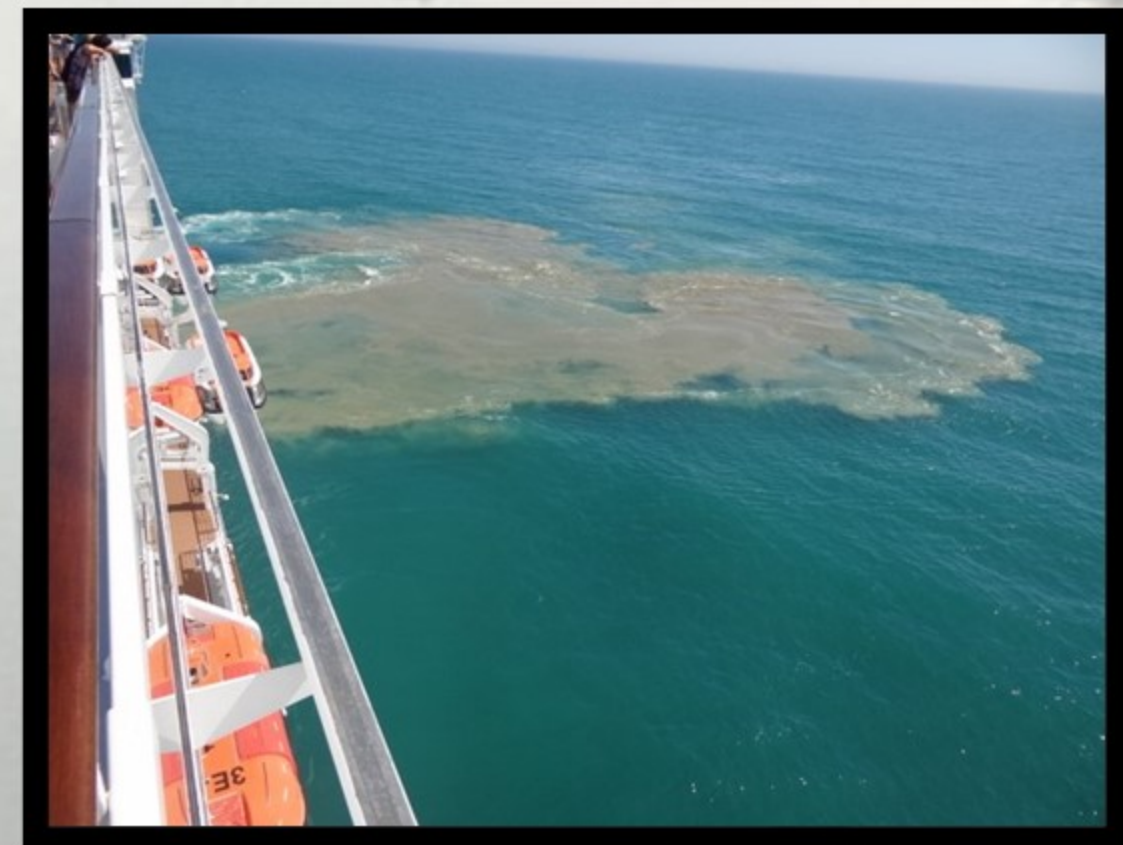


# **SEWAGE TREATMENT SYSTEM ONBOARD M.V.SEAFDEC**

The impact of sewage on the marine environment is a concern. Seawater can be polluted by pathogens, nutrients, detergents, pesticides, and heavy metals. These seawaters are shared by the community for recreation, swimming, and food production, and the environmental and health risks are high. Improperly treated sewage onboard can harm the ecosystem. Most of the vessels have a sewage treatment system, which is designed to remove pollutants from sewage water before releasing it from the vessel to the sea.

Marine environment pollution is one of the major ecological problems nowadays. Pollution of the marine environment causes or is liable to cause lethal consequences on the living conditions of the marine and underwater living conditions. Many national and international regulations have been set. Besides the international regulations for the prevention of marine pollution from vessels, many maritime nations have set forth their own regulations not complying with the international regulations. The industry which manufactures Sewage Treatment Plants for marine use has been improved in the last 10 years and continues to upgrade existing and produce more complex Sewage Treatment Plants with better quality effluent.



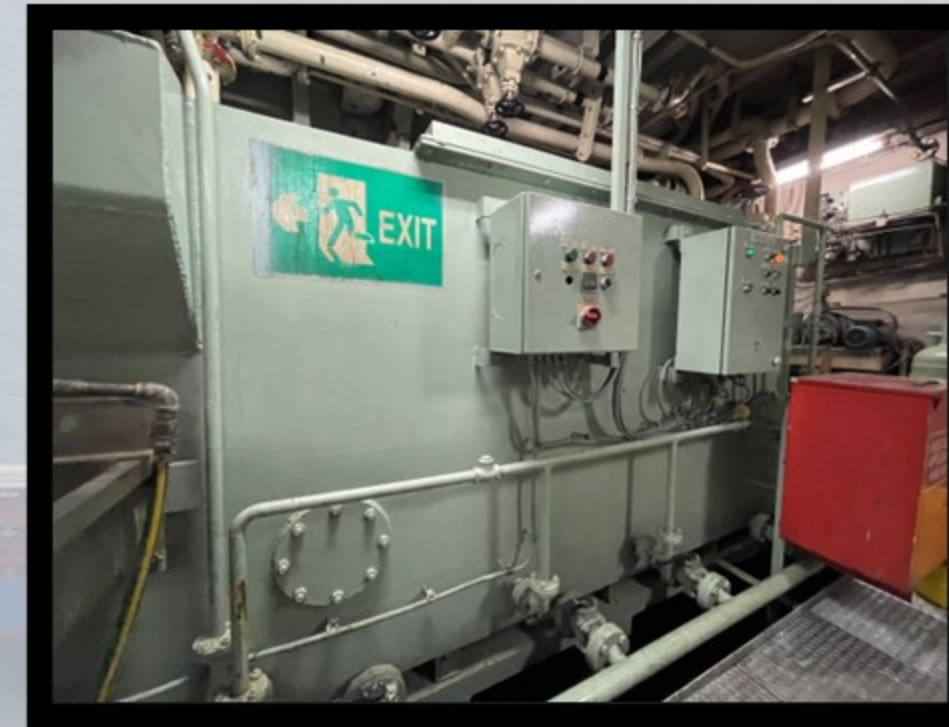
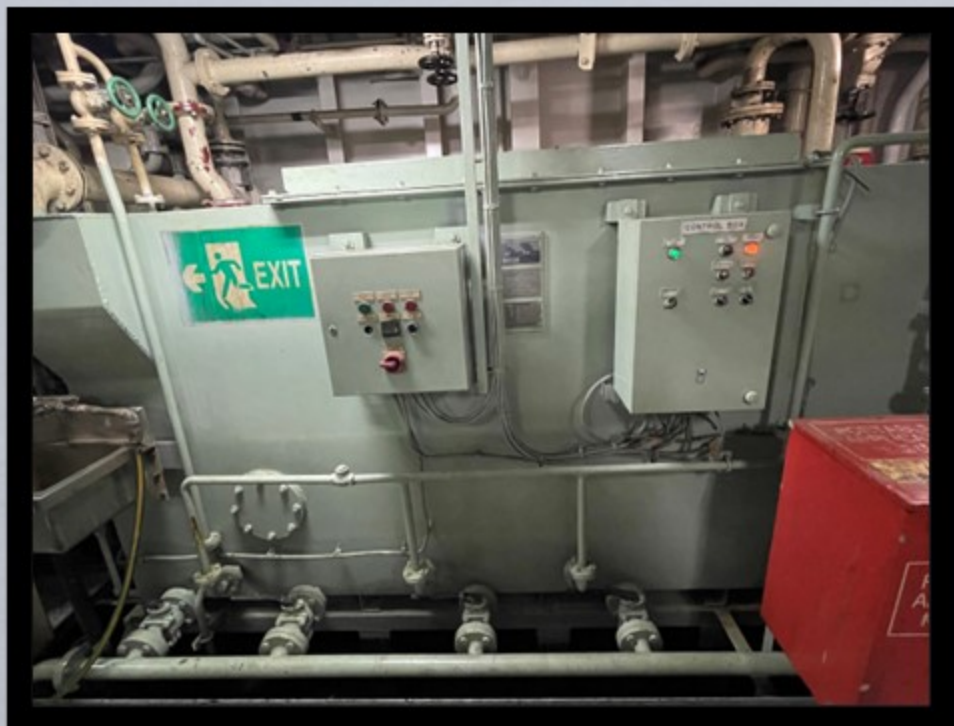


# **Biological Vacuum Sewage Treatment Plant on M.V.SEAFFDEC**

The biological vacuum sewage treatment plant consists of an integrated vacuum generator and a biological sewage treatment plant. The sewage treatment is an aerobic process in the bio-population that converts organic substances existing in wastewater to carbon dioxide and water without danger of methane gas production.

The primary sewage treatment is a relatively physical process that mainly removes solids. Secondary sewage treatment uses bacteria to decompose organic matters, and final chlorination is used for sterilization of effluent before it is released into the environment. The potential pollutants remaining after secondary sewage treatment include heavy metals, nutrients, and non-biodegradable organic chemicals. “Advanced sewage treatment” is a general term covering treatment designed to remove any of these substances. A variety of types of Advanced Wastewater Treatment Systems are available. Some are better proven than others and some are more complex and expensive, depending on their size and design.

All wastewater, both blackwater (toilets, urinals, hospital) and greywater (galley, showers, and sinks) can be treated in the biological vacuum sewage treatment plant. The treatment plant can operate in all vessels which are sailing in salt, brackish, or freshwater areas.



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# Principle and Working

The basic principle of a biological sewage treatment plant is the decomposition of raw sewage with the help of aerobic bacteria. This is done by aerating the chamber with fresh air. The extended aeration process provides a climate in which oxygen-loving bacteria multiply and digest the sewage, converting it into a sludge. These oxygen-loving bacteria are known as aerobic bacteria.

## Primary Chamber

The raw sewage enters the primary chamber via a coarse mesh filter, where large solids are broken down. The advantage of breaking sewage into small particles is that it increases the area and a high number of bacteria can attack simultaneously to decompose the sewage.

## Aeration Chamber

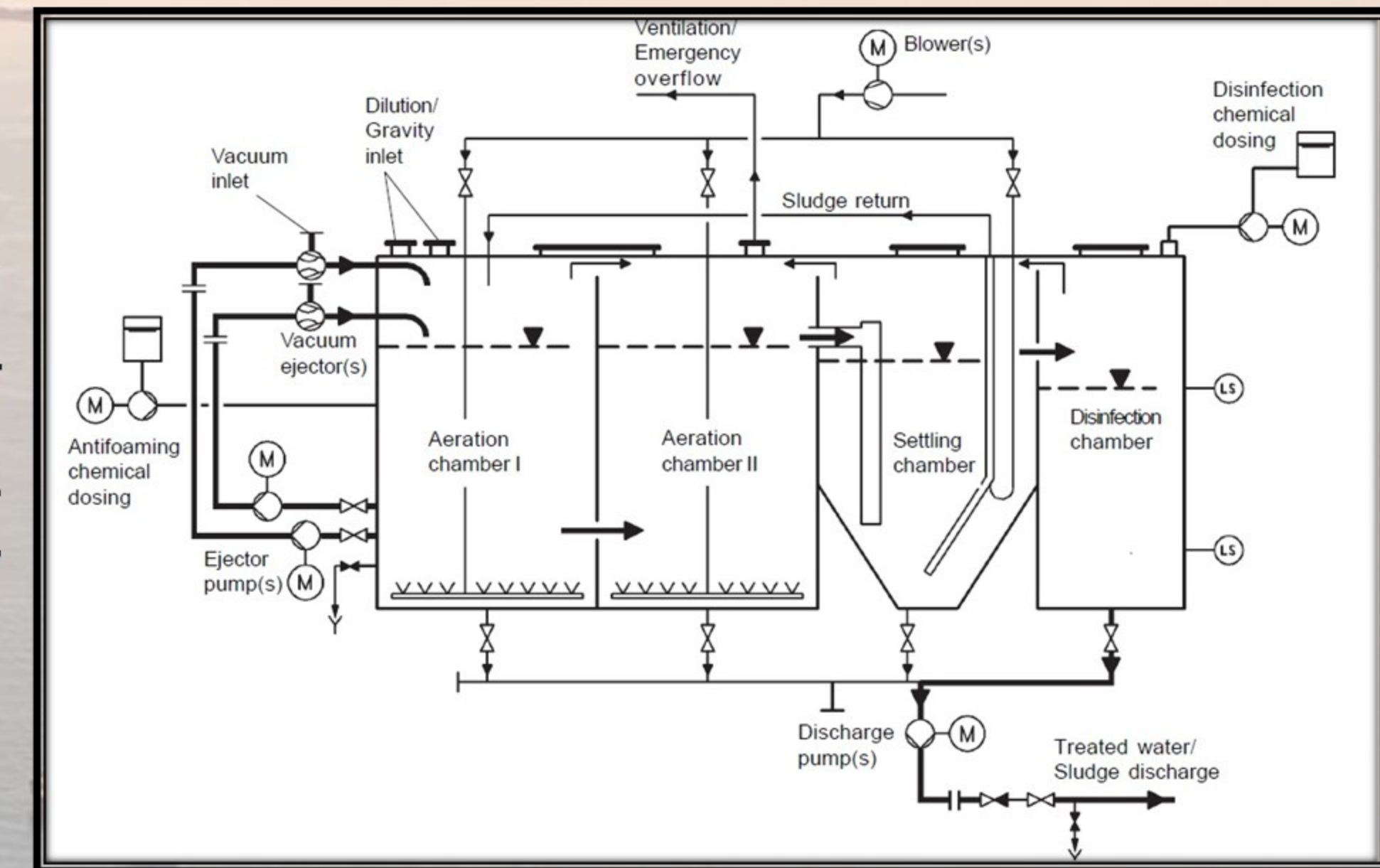
The aeration chamber is where the main biological action takes place. Here air blowers mounted on the outside of the unit oxygenate and stir the affluent and bacteria mix via a series of pipes and nozzles. The sewage remains in this aeration tank for some time.

## Settling Chamber

The sewage then flows into the settling compartment, where the activated sludge is settled out. Any solids that settle out are returned via airlift to the aeration chamber, which ensures that they are fully broken down. This returned sludge contains the bacteria to digest the incoming sewage.

## Chlorination Chamber

The clear liquid then overflows from the settling tank to the chlorination chamber, and the chlorinator disinfects the liquid. The chamber has float switches, which control the discharge pump, and a high-level alarm.



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