MOST IGNORED GAINS MOMENTUM – SEWAGE SYSTEMS

Environmental regulations, in the recent times, had piled up especially pertaining to Marine community. In the wake of this new era of environmental awareness, Ship Owners and onboard staff should be aware and vigilant in upkeeping of the marine assets more specifically ones which discharges overboard or emits in the open atmosphere. The subject paper untaps the most often ignored system which is Sewage system expected to gain momentum soon in near future.

Recent cases many Ships sewage systems had shown a rise in the non-compliance or failed to meet the sewage threshold regulatory set limits.

The following are the regulatory limits that need to be followed to be in compliance;

As per Marpol Annex IV Convention Prevention of pollution by sewage from Ships, which entered into force on 2003, prohibits sewage discharge from ships unless via an approved Sewage treatment plant via an comminuting and disinfecting unit at a distance of more than three nautical miles from the nearest land or into open sea (>12 nautical miles)while enroute not less than 4 nautical miles.

Sewage treatment plants installed prior to 1 January 2010 on ships other than passenger ships operating in MARPOL Annex IV special areas and intending to discharge treated sewage effluent into the sea, should comply with resolution MEPC.2(VI).

Important Timelines:

Sewage treatment plants installed prior to 1 January 2016 and on or after 1 January 2010, on ships other than passenger ships operating in MARPOL Annex IV special areas and intending to discharge treated sewage effluent into the sea, should comply with resolution MEPC.159(55).

Sewage treatment plants installed on or after 1 January 2016 on ships, other than passenger ships, in all areas; and passenger ships outside MARPOL Annex IV special areas, should comply with resolution MEPC.227(64).

MEPC (Marine environment protection committee) had developed guidelines on sewage treatment plant effluent standards and performance test specifications. Below are the vital parameters to be tested:

1.BOD: Oxygen demand by the micro organisms to stabilize the organic matter. BOD of raw sewage is 300-600mg /litre. IMO recommends BOD of 25mg/litre (updated by MEPC 159)

COD: Chemical oxygen demand should not exceed 125mg/litre.

2.Coliform Count: Coliform is a type of organism in human intestine which is recognized as an indicator of the sewage pollution. Presence indicates disease causing pathogens. Coliform should be less than 100 thermotolerant coliforms / 100 ml (updated by MEPC 159) of affluent post treatment.

3.Suspended Solids: Raw sewage suspended solids ranges between 300-400 mg/litre. IMO recommends 25mg/litre.

4.Residual Disinfectant: Residual infectant should be as low as possible post treatment less than 0.5 mg/litre. IMO recommends using ultraviolet exposure for chlorination method.

Though the above regulations are in place but in the past, execution was not to the fullest and strict adherence to above were not emphasized widely. Currently in few ports' sewage treatment, discharge and monitoring is gaining momentum.

Tribocare (a leading lubricant, fuel Lab) emerging and leading the way in Water testing which includes Sewage, Ballast, grey water testing. Tribocare from the inception had been testing Black and Grey water. Ballast water had been tested from past two years. Few ships sample received from different Ship owners for sewage water compliance testing had been found to be above the threshold limits resulting in non-compliance.Repeated analysis of the samples at the same time and upon landing of new samples lead to non-compliance test results. Tribocare team probed the case with the aid of ship staff and found that three vital causes for inefficient functioning of the Biochemical sewage treatment plant

The reasons are as follows;

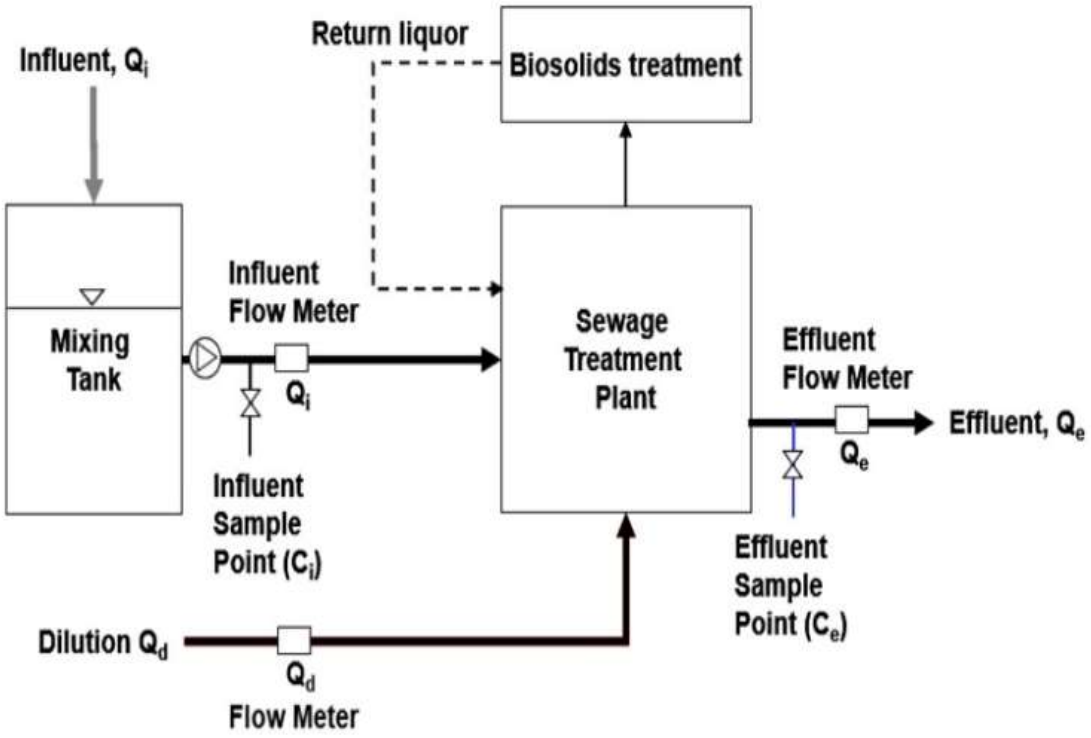
1.The flow from one chamber i.e., Aeration tank 1 to Aeration tank 2 was blocked by thick sludge due to inadequate periodical cleaning of tanks.

2.Blower has to cut in every 15 mins by a timer controlled which was not doing so. Thus, aerobic bacteria were deprived of oxygen to survive.

3.Each chamber that is Aeration, Clarification and chlorination chamber need to be filled, if required, with fresh sea water or fresh water for the aerobic

bacteria to live and thrive. The subject replenishment needs to be done when necessary which had been not practised.

The above had been rectified. In due course samples landed were found to be compliant as per the regulation. As the saying goes, " A stitch in time saves nine". Appropriate and prompt upkeeping, and periodical maintenance will assure smooth operations of the plant without vessel getting detained by authorities were by millions can be saved from heavy fines and off hire in the near future where monitoring is expected to rise.



Source: MEPC 227 (64)

Below are the vital checks that need to be done to ensure the efficient functioning of the sewage treatment plant (Biochemical Treatment plant - Widely engaged plant);

1. Efficient functioning of Blower needs to be ensured by prompt cut in and cut off of the motor. If blower completely fails the ship staff can feel a strong unpleasant odour that alarms the dead aerobic bacteria's and growth of anaerobic bacteria's.

2.Ensure periodic maintenance of the blower filters

3.All chambers need to be cleaned periodically to get rid of the sludge which is the waste matter from the aerobic bacteria's. Cleaning enables the system for

free flow of the sewage to be processed from one stage to another.
4. Check float level indicator of each level. Periodic maintenance of the float maintenance to be carried out to avoid flooding from the chambers as floats control the pump operation.
5.Frequent discharge of the sludge to be ensured.
6.Onboard staff should keep a close vigil and follow the touch /feel factor. Prompt action and investigation is required if any strong odour is felt. As anaerobic bacteria emit methane, Hydrogen sulphide and ammonia which is noxious and toxic in nature.
7. Land sewage treated samples periodically to ascertain that the system operates in an efficient way and adhering to the regulatory compliance.

Tribocare is a one stop solution for all your testing needs equipped with the state-of-the-art equipment's complimented with highly skilled professionals. Please contact info@tribocare.com for further information regarding testing sewage, ballast, grey, Lubes and Fuels.