B.03.03.01 EMMISIONS TO SEWER

Drawing reference:

- ENEM-URS-E0-00-DR-ME-00106 IPPC External Tie In Points

The following sewage disposal methods shall be utilised by each element of the facility;

1. CCGT: The CCGT will have a pumped connection to the Water Services public rising main at the northwest corner of the CCGT site. The applicable Sewer Discharge Permit is currently being applied for.

2. The Regasification Plant: A cesspit will be utilised for this section of the facilities due to its remoteness from a usable public sewer. The sewage will be removed by a licenced contractor. The cesspit will be design as a water retaining structure; it will be suitably ventilated to avoid the build-up of any gasses; the surrounding area will be impermeable and concrete paved to falls.

   The Cesspit parameters are as below
   - Personnel: 5 persons
   - Forecast quantity of sewage waste: 50lt / person / day
   - Cesspit Volume: 15,00m3
   - Cesspit operational volume: 11 m3 / 11.000 lit
   - The cesspit will need to empty every 44 days (one and a half month).

3. FSU: The FSU incorporates a domestic waste water treatment plant (WTP) to treat sewage water in the FSU. The WTP is a package plant consisting of an activated sludge process followed by a chlorination stage. A schematic drawing process drawing of the WTP is included in figure (1).

   The WTP process description is as follows: screened domestic wastewater is mixed with varying amounts of recycled liquid containing a high proportion of organisms (bacteria) taken from the clarifying tank. This mixture is injected with large quantities of air, to provide oxygen which enhances biological decomposition of organic matter and keep solids in suspension. After a period of time, the mixture flows to a clarifier where it is allowed to settle. A portion of the bacteria is removed as it settles, and the partially cleaned water flows on for further. The resulting settled solids, the activated sludge, are returned to the first tank to begin the process again.

The treated effluent water is finally disinfected in the Chlorination chamber. Chlorination is accomplished by the use of chlorine tablets in direct contact with the effluent. The excess chlorine content in the clean effluent will be kept to 2ppm. The disinfected effluent is finally sent to a holding tank before being routinely discharged into an authorized barge. The treated effluent shall be non-potable good quality (grey water) and to a standard that could be released safely into the environment following MARPOL regulations. The effluent will be stored on site, and periodically pumped to a barge for disposal.

The quality of the treated effluent will be:

BOD5 < 40ppm
SS < 50ppm
Residual Chlorine < 2ppm

Figure 1 Schematic of the WTP process