

Guidelines EN-G02: Water Environment

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1. General



- All the A.C drains to be discharged into a properly designed soak-pit.
- Septic tank details shall comply with PCFC standard guidelines (See relevant EG).
- Periodic sampling and analysis of final wastewater should be carried out for those companies discharging to the harbour. Any sampling/analysis of wastewater effluent should be carried out by EHS Central Laboratory or any accredited a third party environmental laboratory on a case by case basis as determined by the Authority.
- The drain from the compressor to be connected to a proper holding tank of suitable capacity for testing/further assessment and the same to be shown in the drainage layout drawing.
- Groundwater Monitoring Wells should be installed as per PCFC guideline (see relevant EG).
- Surface impoundments and storage tanks of trade waste (non-volatile) shall be designed to prevent the potential leakage. Use of impermeable (2mm HDPE) liner is mandatory.

2. Treated Wastewater Disposal in Harbour

PCFC discourages disposal of treated wastewater in to the marine environment as a matter of policy. However, if an industrial liquid waste can be treated so as to meet the criteria for marine disposal then on a case-by-case basis the effluent may be assessed /evaluated by EHS – Environment Section for disposal to the harbour. Otherwise, industrial liquid effluents, hazardous or non-hazardous, have to be sent to the Imdaad LLC's wastewater treatment facility or Dubai Municipality's disposal systems, with or without pre-treatment as decided by the Municipality. Samples, analyses and rates of production have to be submitted to the Municipality and forms have to be completed for decision as to where the effluents may be taken for disposal, either to the sewerage system or to the Jebel Ali waste site, if accepted. Relevant criteria which have to be met for disposal to the Municipality sewage treatment plant. The Municipality will issue certificates to companies and the Authority must issue gate passes to carriers to enable them to leave the Free Zone with their loads and be acceptable at the disposal sites. Industries should ensure that at least two days storage capacity of waste water is available on site, as contingency plan in the event that the wastewater cannot be removed as planned.

3. Elements to be Taken into Account in the Issue of the Authorization for Discharge of Treated Wastewater into Harbour

With a view to the issue of an authorization for the discharges of treated waste containing chemical substances, particular account will be taken, as the case may be, of the following factors:

- Characteristics and Composition of the Discharges
 - ⇒ Type and size of point or diffuse source (e.g., industrial process)
 - ⇒ Type of discharges (e.g., origin, average composition)
 - ⇒ State of wastes (e.g., solid, liquid, sludge, slurry)
 - ⇒ Total amount (volume discharged, e.g., per year)
 - ⇒ Discharge pattern (continuous, intermittent, seasonally variable, etc.)
 - ⇒ Concentrations with respect to relevant constituents of substances as appropriate
 - ⇒ Physical, chemical and biochemical properties of the waste discharges
- Characteristics of Discharge Constituents with Respect to their Harmfulness
 - ⇒ Persistence (physical, chemical, biological) in the marine environment
 - ⇒ Toxicity and other harmful effects
 - ⇒ Accumulation in biological materials or sediments
 - ⇒ Biochemical transformation producing harmful compounds
 - ⇒ Adverse effects on the oxygen content and balance



⇒ Susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other seawater constituents which may produce harmful biological or other effects on any of the users listed in succeeding sections below

- Characteristics of Discharge Site and Receiving Environment

⇒ Hydrographic meteorological, geological and topographical characteristics of the coastal area

⇒ Location and type of the discharge (outfall, canal, etc.) and its relation to other areas (such as amenity areas, spawning, nursery and fishing areas, shellfish grounds) and other discharges

⇒ Initial dilution achieved at the point of discharge into the receiving environment

⇒ Dispersion characteristics such as effects of currents, tides and wind on horizontal transport and vertical mixing

⇒ Receiving water characteristics with respect to physical, chemical, biological and ecological conditions in the discharge area

⇒ Capacity of the receiving marine environment to receive waste discharges without undesirable effects

- Availability of Waste Technologies

⇒ Alternative treatment process

⇒ Re-use or elimination methods

⇒ On-land disposal alternatives

⇒ Appropriate low-waste technologies



4. Wastewater Criteria at Point of Discharge to Marine Environment (Any Receiving Waters)

Parameter		Units	Allowable Limits
Physical and Chemical Properties			
Ammonium	NH ₄ N	mg / L	2
Biochemical Oxygen Demand	BOD ₅	mg / L	25
Chemical Oxygen Demand	COD	mg / L	100
Residual Chlorine	Cl ⁻	mg / L	1
Cyanide	CN ⁻	mg / L	0.05
Floating Particles			not present
Fluorides	F ⁻	mg / L	20
Oil and Grease		mg / L	5
Nitrate Nitrogen	NO ₃ N	mg / L	15
Petroleum Hydrocarbons		mg / L	less than 5
pH		-	6 – 9
Phenol		mg / L	0.1
Phosphate Phosphorus	PO ₄ P	mg / L	0.1
Sulfide	S ⁻²	mg / L	0.1
Total Suspended Solids	TSS	mg / L	15
Total Nitrogen	TN	mg / L	10
Total Organic Carbon	TOC	mg / L	40
Total Phosphorus	TP	mg / L	2
Turbidity		NTU	75
Total Dissolved Solids	TDS	mg / L	1,500



Metals			
Aluminum	Al	mg / L	20
Antimony	Sb	mg / L	0.1
Arsenic	As	mg / L	0.05
Barium	Ba	mg / L	2
Beryllium	Be	mg / L	0.05
Cadmium	Cd	mg / L	0.05
Chromium, VI	Cr ⁺⁶	mg / L	0.1
Cobalt	Co	mg / L	0.2
Copper	Cu	mg / L	0.5
Iron	Fe	mg / L	2
Lead	Pb	mg / L	0.1
Manganese	Mn	mg / L	0.2
Mercury	Hg	mg / L	0.001
Nickel	Ni	mg / L	0.1
Selenium	Se	mg / L	0.02
Silver	Ag	mg / L	0.005
Zinc	Zn	mg / L	0.1
Pesticide (Herbicides, Insecticides, Biocides)		µg / L	not present
PCBs (Chlorinated Organic Compounds)		µg / L	not present
Poly Aromatic Hydrocarbons	PAHs	µg / L	not present
Solvents		µg / L	not present
Tributyltin and its derivatives	TBT	µg / L	not present
Surfactants		µg / L	not present



Biological Pollutants		
Fecal Coliform	cells / 100 mL	1,000
Coliform Count / Total Coliform	mpn / 100 mL	1,000
Fecal Streptococci	mpn / 100 mL	100
Enteroviruses	PFU / 10 L	not present
Salmonella	mpn / 1 L	not present
Tapeworm Eggs	CFU / 100 mL	not present

Notes:

- 1) Any discharge to surface drainage must be authorized by DP World and shall only be permitted in exceptional circumstances.
- 2) For any parameters not identified, specific standards will be determined on a case-by-case basis.
- 3) The temperature increment standard for harbour discharge applies to treated wastewater/cooling water discharges.
- 4) Chlorine residual is after 30 minutes contact and is total residual chlorine
- 5) Dissolved oxygen requirement is a minimum concentration requirement
- 6) Inclusive range not to be exceeded.
- 7) With respect to Standards of Discharge to Any Receiving Waters, FZ Companies should concentrate on full compliance of Standards of Discharge to Any Receiving Waters.