

WATER ENVIRONMENT REGULATIONS

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ENVIRONMENT DEPARTMENT

ENVIRONMENT, HEALTH AND SAFETY (EHS) DIVISION

TABLE OF CONTENTS

1.0	General	3
2.0	Marine Pollution Control	4
2.1	Harbor Receiving Water	4
2.2	Gulf (Open Sea) Receiving Water	7
2.3	Wastewater Disposal.....	8
2.4	Groundwater Protection	13
2.5	Natural Environment.....	17
2.6	Land Environment Protection	18
2.7	Dewatering	19
2.8	Performance Testing	19
2.9	Exceedance Reporting	19
3.0	References.....	20

1.0 General

Water is life! It is a necessity for human, animal and plant life as well as an indispensable resource for the economy. Water also plays a fundamental role in the climate regulation cycle.

The water quality standards have been developed to protect the long term resources of marine life and water supply in the Free Zone (FZ) area/ Dubai World (DW) Communities. These standards have been established to minimize the impact on harbor and Gulf water quality, the Gulf ecosystem and the local fishing industry.

General water environment requirements are as follows:

- a. Industrial and domestic wastewater shall be segregated. Efforts would be made to increase the potential for reuse of each stream. The clients are required to adopt waste minimization/Reduction, Reuse and Recycle (RRR) options in their operations.
- b. The facilities, on a case-by-case basis, are required to have on-site capacity for two (2) days storage of industrial wastewater to cater for emergencies. This shall be separate from the normal collection / storage / treatment systems provided. Such storage pond or tank shall be lined with a high density polyethylene (HDPE) liner (minimum: 2.0 mm thick) below the concrete base. Proper leak detection and ground water monitoring wells (see relevant guideline) are to be installed. Aboveground wastewater tanks shall be bunded to a minimum of 110% of the largest tank to contain spills.
- c. The in-plant or overall pretreatment facility may be required to meet a specific pre-treatment effluent criteria. If required, the pretreatment effluent criteria will be specified in term of mass and/or concentration, and the performance level will be based on the best available treatment technology.
- d. Direct discharge of industrial / sanitary / domestic effluent, whether treated or untreated, to the harbor is prohibited.
- e. In case, in-take of seawater for cooling or discharge to open sea is warranted, Dubai Municipality (DM) standards would apply. The client would be required to get necessary DM approval as a pre-requisite in this regard. The discharge to marine waters beyond the Authority limit is under DM administration.
- f. Soakaways for new facilities' industrial waste are prohibited. The existing industrial soakaways shall be phased-out / blocked and industrial wastewater generators are required to install suitable effluent / wastewater treatment facilities.
- g. For groundwater protection, appropriate leak detection and groundwater monitoring wells system would also be installed for storage facilities (e.g., wastewater ponds, chemical storage tanks, etc.). The chemical storage tanks are to be built only on concrete with at least a single or two HDPE liners (minimum: 2.0 mm thick).

- h. The minimum volume of the bund areas for the bulk storage of fuel / chemicals / toxic / hazardous shall be 110% of the volume of the largest tank within the bunded area.
- i. The flooring of the bunded areas for chemical/toxic/hazardous material tanks shall be of good concrete or other impervious materials and preferably there should be a proper underground HDPE lining of impervious materials to prevent contamination of underground water from any seepage.
- j. A proper spillage collection facility to be provided for all chemical storage areas.

A detailed set of guidelines regarding water environment are described below. For open sea, the area outside Trakhees jurisdiction, DM standards would apply.

2.0 Marine Pollution Control

2.1 Harbor Receiving Water

The general policy of Authority regarding marine discharges is not to allow the cooling water or industrial effluent discharge into the harbor. While in the past, treated effluent discharge to the harbor has been approved on a case-to-case basis, recent studies of the harbor water and sediment qualities indicate the possibility that additional pollution / temperature loads may not be sustainable. Treated effluent standards, applicable for permitted companies only, at the point of discharge to the harbor water, are in Table 2.1.

- a. Standards for Discharge of Waste Water to Harbor

Table 2.1 – Standards for Discharge of Waste Water to Harbor

PARAMETERS ⁽²⁾	SYMBOL	UNIT	MAXIMUM ALLOWABLE STANDARD ⁽⁷⁾
Physical Properties			
Color	-	Color units	50
Total Suspended Solids	TSS	mg / l	50
Floating Particles	-	mg / m ³	None
pH	-	pH units	6-9 ⁽⁶⁾
Temperature ⁽³⁾	T	°C	35 – maximum
Total Dissolved Solids	TDS	mg / l	1,500
Turbidity	-	NTU	75
Inorganic Chemical Properties			
Ammonia Total as (N)	NH ₄ ⁺	mg / l	2
Biochemical Oxygen Demand	BOD ₅	mg / l	50
Chemical Oxygen Demand	COD	-	100
Chlorine Residual ⁽⁴⁾ Total	Cl ⁻	mg / l	1.0

Dissolved Oxygen ⁽⁵⁾	DO	mg / l	> 3
Nitrate	NO ₃ -N	mg / l	40
Sulfide	S ⁻²	mg / l	0.1
Total Kjeldahl Nitrogen as (N)	TKN	mg / l	10
Total Phosphorous as (P)	PO ₄ ⁻³	mg / l	2
Trace 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
Cyanide	CN	mg / l	0.05
Chromium, total	Cr	mg / l	0.2
Chromium, VI	Cr ⁺⁶	mg / l	0.15
Cobalt	Co	mg / l	0.2
Copper	Cu	mg / l	0.5
Iron	Fe	mg / l	2
Fluoride	F	mg / l	25
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	0.5
Organic Chemical Properties			
Halogenated Hydrocarbons and Pesticides		mg/l	Nil
Hydrocarbons	HC	mg/l	15
Oil & Grease	O & G	mg/l	10
Phenols	-	mg/l	0.1
Solvent	-	mg/l	none
Total Organic Carbon	TOC	mg/l	75
Biological Properties			
Colon Group	TC	No. / 100 cm ²	5,000
Egg Parasites	-	-	None

Fecal Coliform Bacteria	-	Cells / 100 mL	1,000
Total Coliform	-	MPN / 100 mL	1,000
Warm Parasites	-		None

Notes:

- 1) Any discharge to surface drainage must be authorized by Jebel Ali Free Zone Authority (JAFZA) 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 harbor 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 Harbor Discharge Standard, FZ Companies should concentrate on full compliance of Harbour Discharge Standard.

b. General Harbor Water Quality Criteria

These criteria are described as follows. All waters in the harbor shall be free from substances attributable to wastewater or other discharges that:

- Settle or form objectionable deposits;
- Float as debris, scum, oil or other matter to form nuisances;
- Produce objectionable color, odor or turbidity;
- Injure or are toxic to or produce adverse physiological responses in humans; and
- Result in impact on the adjacent open sea waters in violation of Dubai Municipality marine water quality criteria.

c. Harbor Water Quality Objectives

Table 2.2 – Harbor Water Quality Objectives

Indicator	Standard
BOD ₅	10 mg / l
Total Residual Chlorine	0.01 mg / l
Dissolved Oxygen	Not less than 5 mg / l or 90% saturation
Nitrogen – Ammonia	0.1 mg / l
Nitrogen – Nitrate	0.5 mg / l

Nitrogen – Total	2.0 mg / l
Petroleum Hydrocarbons	0.001 mg / l (aromatic fraction)
pH	1 pH unit from ambient level
Phosphate – Phosphorus	0.05 mg / l
Temperature	2°C from background level
Total Dissolved Solids	2% from background levels
Turbidity / Color	75 NTU or none that will reduce light penetration by more than 20% from background levels
Surfactants	0.02 mg / l
Suspended Solids	10 mg / l mean 15 mg / l max
<i>Trace Metals</i>	
Aluminum	0.2 mg / l
Arsenic	0.01 mg / l
Cadmium	0.003 mg / l
Chromium	0.01 mg / l
Copper	0.005 mg / l
Iron	0.2 mg / l
Mercury	0.001 mg / l
Zinc	0.02 mg / l
<i>Bacteriological</i>	
Bacteria (E. Coli)	0.02 mg / l

d. Cooling Water Intake / Discharge Criteria

The Dubai Ports Authority (DPA) harbor (Jebel Ali) may receive (on a case-by-case basis) the discharge of cooling water from Ports, Customs and Free Zone Corporation (PCFC) industries, and treated effluent from Free Zone Treatment Plants that is not required for reuse (provided that it meets the concentration limits, at the point of discharge to the harbor water, given in Table 2.1.

2.2 Gulf (Open Sea) Receiving Water

To protect the beneficial uses of the marine water environment, the sea water quality objectives given in Dubai Municipality's Environmental Standards and Allowable Limits of Pollutants on Land, Water and Air Environment (May 2003) shall be attained and maintained in all areas except in approved marine mixing zones.

Water shall be free of substances which individually or in combination produce toxic effects or damage plants, animals or aquatic life or which bioaccumulate in the environment or food chain so as to affect any beneficial use or make any species unfit for human consumption.

Water shall be free from substances in concentrations which cause nuisance plant growth or change in species composition to the detriment of the beneficial uses of any segment of the marine environment.

2.3 Wastewater Disposal

a. Harbor Water Disposal

Any facility with a point of discharge of treated wastewater to the harbor must hold a permit from the Authority.

The permit issued may specify:

- the type of waste permitted;
- the daily volume of waste permitted;
- the concentrations of components to protect the beneficial uses of the water environment;
- a monitoring program to verify compliance with the above standards; and
- any other conditions (see relevant guideline) considered necessary by the Authority.

Substances detailed below are prohibited substances for the purpose of this regulation and must not be discharged to the water environment:

- Pesticides and herbicides;
- Oils or solvent wastes;
- Radioactive wastes; and
- Residues from the removal of tributyltin (TBT) antifouling paints.

The Authority may prescribe any other materials to be a prohibited substance.

The discharge point to the water environment must be located below water level and all discharges must be equipped with a sampling point to enable a representative sample of the waste discharged to the environment to be taken.

The facility discharging wastewater to the environment shall ensure that the waste does not exceed the standards nor result in:

- Visible floating particles / matter, grease or oil;
- Aesthetically undesirable discoloration;
- Visible residual effects in water or on branches, rocks or structures;

- Alteration of organic matter in adjacent sediments which may led to the degradation of benthic marine life;
- Objectionable aquatic growth which degrades indigenous biota;
- Objectionable odors emanating from receiving water at point of disposal; and
- Alteration of the natural taste, odor, color and overall quality of fish, shellfish or other marine resources used for human consumption.

The entity responsible for a vessel operating in PCFC Ports/DW Communities shall ensure that no waste of effluents (including sewage) are discharged from that vessel to the water environment.

The entity responsible for fueling a vessel in PCFC Ports/DW Communities shall ensure that such activities only take place at the approved fueling stations and not by tanker across any wharf area.

b. Gulf (Open Sea) Disposal

The Rules/Requirements governing such disposal/discharge are completely governed by the DM – Environment Department and any standards/requirements mentioned below should be ascertained from time to time with the Authority/DM.

For any such proposal for disposal, a comprehensive Environmental Impact Assessment Study and compliance of DM ETGs No. 4 & No. 53 is mandatory prior to approval.

Table 2.3 – Standards of Discharge of Wastewater to Open Sea

PARAMETER	UNIT	MAXIMUM DISCHARGE LIMIT
Ammoniacal Nitrogen	mg / l	5.0
Arsenic (As)	mg / l	0.05
BOD ₅	mg / l	30
Cadmium (Cd)	mg / l	0.05
Chlorine (total not less than)	mg / l	1.0
Chromium (Cr)	mg / l	0.50
Copper (Cu)	mg / l	0.50
Cyanide (CN)	mg / l	0.10
Fecal Coliform	MPN / 100 ml (80% of samples)	100
Fecal Streptococci	MPN / 100 ml	100
Salmonella	MPN / 1 L	Non-detectable
Enteroviruses	PFU / 10 L	Non-detectable

Oil and Grease	mg / l	5.0
Iron (Fe)	mg / l	2.0
Lead (Pb)	mg / l	0.10
Mercury (Hg)	mg / l	0.001
Nickel (Ni)	mg / l	0.10
pH	between	6 – 9
Phenols	mg / l	0.10
Selenium (Se)	mg / l	0.02
Silver (Ag)	mg / l	0.005
Sulphide	mg / l	0.10
Suspended Solids	mg / l	30
Turbidity	NTU	75
Zinc (Zn)	mg / l	0.10
Phosphate	mg / l	0.10

c. Sanitary (Domestic) Waste

• Sewers

- ⇒ In the Free Zone, sewage treatment plants are designed only to accept domestic waste effluents. Industrial waste liquids must not be discharged into the systems.
- ⇒ Apply proper disinfection practices.
- ⇒ In all cases, the color of the final effluent for disposal within the Authority must meet Table 2.1 standards.
- ⇒ Direct disposal of untreated wastewater on land or to the harbor is prohibited.
- ⇒ Liquid effluents for disposal outside the PCFC have to meet the standards and regulations of Authority and the Dubai Municipality.
- ⇒ Potentially contaminated storm water (e.g., Bermuda storage tanks, process area, etc.) shall be contained and analyzed prior to disposal depending on Authority's decision.
- ⇒ The discharge of untreated ship wastes in to harbor is not permitted.

• Septic Tanks

As no sewerage system is available in all the Free Zone area, the client/s on land/plot premises are required to install/construct suitable sized septic tanks to enable regular disposal of domestic sewage to the Authority/DM Sewage Treatment Plants. While certain areas of the FZ had been earlier permitted for the installation of the soakaways, this practice is now prohibited. Existing soakaways shall be required to be phased out/blocked

within a maximum period of 2 years to prevent further bacteriological contamination of the soil and ground waters.

- Gardens STP / Other GEHS Sewerage Systems

In areas outside the Free Zone, especially projects as constructed and developed by Dubai World, sewerage networks and STPs shall be constructed to cater to domestic/sanitary effluents and use of septic tanks shall be permitted only after Authority approvals. Furthermore, soakaways for such discharges are prohibited.

d. Industrial Liquid Waste

- Soakaways

There is no industrial sewerage system in the Authority jurisdiction. The Authority does not permit soakaways for disposal of industrial liquid waste.

A proper waste treatment plant should be installed by all clients to enable full recycling-reuse of waste water generation and enable zero off-site discharge disposals.

- Disposal in DM / Authority Treatment Plants

Where all reuse-recovery-recycling options have been fully exhausted (if necessary as confirmed by a comprehensive EHS waste management plan) clients may be permitted to discharge treated waste water to DM Sewage Treatment Plants (only where approved in the initial stage of the project application). The facilities discharging industrial wastewater to the sewerage system by any means must hold a permit from the DM.

Industrial wastewater permitted for discharge to the DM sewerage system shall be within the following DM effluent quality standards (Table 2.4).

Table 2.4 – Maximum Allowable Limits for Discharge to DM’s Sewerage System

Parameters	Maximum Limit (mg / L or as noted)
<i>Physico – Chemical</i>	
Biochemical Oxygen Demand	1,000
Chemical Oxygen Demand	3,000
Chlorine – Residual	10
Cyanides as CN	1
Detergents	30
Ammoniacal Nitrogen	40
Oil and Grease – Emulsified	150
Oil and Grease – Free Oil	50

pH (range)	6.0 – 10.0
Pesticides – Non-chlorinated	5
Phenols	50
Phosphorus (P)	30
Sulfates – Total	500
Sulfides as S	10
Suspended Solids (SS)	500
Temperature	45°C or > 5°C of ambient
Total Dissolved Solids (TDS)	3,000
<i>Metals</i>	
Total Metals	10
Arsenic (As)	0.50
Boron (B)	2.0
Cadmium (Cd)	0.3
Chromium (Cr)	1.0
Copper (Cu)	1.0
Lead (Pb)	1.0
Manganese (Mn)	1.0
Mercury (Hg)	0.01
Nickel (Ni)	1.0
Silver (Ag)	1.0
Zinc (Zn)	2.0
<i>Bacteriological</i>	
Fecal Coliforms	500 MPN / 100 ml

The discharge of any substance to the sewerage system by any means, which alone, or in combination with other substances, is hazardous to the normal functioning of the sewerage system, is prohibited.

The following substances are prohibited from entering the sewerage system:

- ⇒ Volatile substances with a flashpoint below 61°C
- ⇒ Polychlorinated Biphenyls (PCBs), chlorinated pesticides and other persistent chlorinated organic compounds.

The Authority may specify any other limit on any other parameter on a case by case basis.

The industries seeking a permit for trade waste disposal must submit an application to the DM/Authority in accordance with the adopted format and containing any information requested by DM.

The facility which generates industrial wastewater shall ensure that trade wastes are not mixed with sewage or in any way diluted for the purpose of complying with the quality standards.

The facility holding a permit to discharge industrial wastewater to the sewerage system must comply at all times with any requirements specified on the permit for quality and quantity of the waste, the taking of measurements, the monitoring of wastes and the reporting of results.

- Disposal in Harbor / Gulf (Open Sea)

Refer to Section 2.3(a and b) or relevant guideline for guidance.

- Disposal of Liquid Hazardous Wastes

As no industrial hazardous liquid waste disposal facility is available in the Free Zone, such wastes (hazardous liquids) need to be disposed off in Dubai Municipality as per their assessment. The relevant regulations need to be met in this regard. The clients should get timely DM approval and EHS initial approval for such waste disposal.

2.4 Groundwater Protection

a. General

Groundwater is a valuable natural resource which should be protected from chemical pollution.

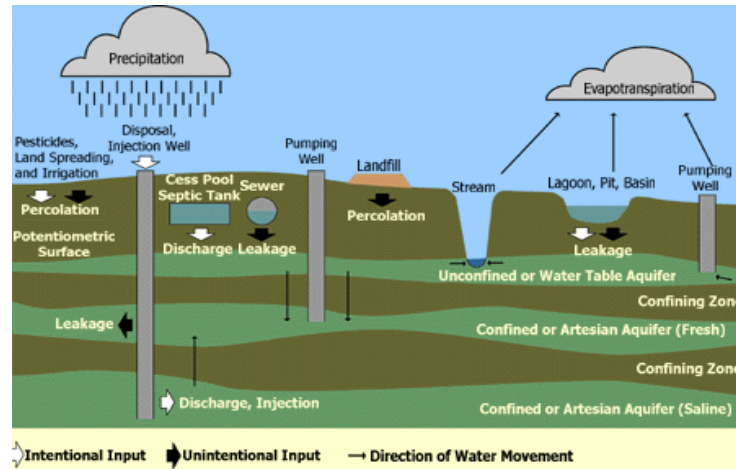
The Authority may declare any area to be a groundwater protection area. Such an order may:

- Control or stop any discharges to groundwater;
- Stop further bore wells being installed within the area;
- Limit / prohibit the amount of water any person may extract from a bore; or
- Control any activity which may adversely impact on ground water quality.

Reference should be made to Section 2.4(c) table for groundwater monitoring parameters.

The facilities shall not discharge wastes to any groundwater by means of a recharge bore unless that facility holds a permit from the Authority.

b. Typical Routes of Groundwater Contamination



c. Monitoring Wells

The quality of groundwater quality in any aquifer shall be maintained at a standard which will not preclude any reasonable beneficial use of those waters. Appropriate number of groundwater monitoring wells will be installed (see relevant guideline) and the frequency of monitoring the groundwater quality shall be as required by the Authority. Refer to Table 2.5 for groundwater quality monitoring parameters.

Table 2.5 – Groundwater Quality Monitoring Parameters

PARAMETER	PARAMETER
Temperature	Arsenic
* pH	Barium
Oil and Grease	Cadmium
* Specific Conductance	Chromium (hexavalent)
Total Suspended Solids	Cyanide
Ammonia – Nitrogen	Lead
* Nitrate – Nitrogen	* Mercury
Chemical Oxygen Demand (COD)	Selenium
Biochemical Oxygen Demand (BOD) – 5 days	Silver
Total Phosphorous	Copper
Chlorine Residual	Sodium
Phosphates	Nickel
* Total Organic Carbon	Zinc
Coliform	Boron
Phenols Index	Manganese
EOX	Iron
VAH	VOX
	Mineral Oil

* - Indicator Parameters

Notes: The following detection limits should be established by the laboratory to assess the environmental quality of the groundwater.

Table 2.6 – Detection Limits

Parameter	Detection Limits (µg/L)
Arsenic	< 3.0
Cadmium	< 0.8
Chromium	< 1.0
Copper	< 5.0
Lead	< 1.0
Mercury	< 0.05
Nickel	< 10.0
Zinc	< 20.0
Extractable Organic Halogenides (EOX)	< 1.0
Volatile Aromatic Hydrocarbons (VAH)	
Benzene	< 0.20
Toluene	< 0.20
Ethyl Benzene	< 0.20
Xylene	< 0.50
Naphthalene	< 0.20
Volatile Organic Halogenized Hydrocarbons	< 1.0
Phenol Index	< 5.0
Mineral Oil (C ₁₀ – C ₄₀)	< 50.0

Active Substances in Pesticides – means plant protection products and biocidal products (including their relevant metabolites, degradation and reaction products): 0.1 µg/L; 0.5 µg/L (total – means the sum of all individual pesticides detected and quantified in the monitoring procedure).

d. Irrigation Criteria

All facilities shall recycle wastewater back to its process of production or dispose it off beneficially such as land irrigation provided that it meets Authority's standards.

If the quality of wastewater discharged to land does not exceed the level specified in Table 2.7, this wastewater may be discharged in accordance with this section.

The facilities discharging wastewater to land and not requiring a permit shall ensure that:

- The site is clearly marked with signs specifying RECYCLED WATER – DO NOT DRINK in English and Arabic as well as the international symbol of a tap and red cross.
- The wastewater does not leave the site either by spray draft or runoff.
- The workers are not adversely affected by the irrigation using the wastewater.
- The irrigation water has to meet Authority's standards of Table 2.7.

A permit issues to control the disposal of wastewater to land shall be issued in accordance with the following criteria.

- The permit must specify the disposal area.
- The permit must set both quality and quantity limitations to ensure that there is no long term deterioration of the land.
- The permit must specify a monitoring program for both the wastewater and the land.

The application of pesticides, herbicides and fertilizers as well as the use of water for irrigation shall be controlled to ensure that there is no runoff or infiltration of contaminated water to any surface water or groundwater. Refer to Table 2.7 for relevant criteria.

Table 2.7 – Maximum Allowable Limits for Discharge to Land as for Irrigation

Parameters	Maximum Limit (mg / L or as noted)	
	Drip Irrigation	Spray Irrigation
<i>Physico – Chemical</i>		
Biochemical Oxygen Demand	20	10
Chemical Oxygen Demand	100	50
Chlorides	500	350
Chlorine – Residual	Not less than 0.5 mg/L after 30 minutes contact time	
Cyanides as CN	0.05	0.05
Fluorides	1	1
Ammoniacal Nitrogen	5	1
Organic (Kjeldahl) Nitrogen	10	5
Total Nitrogen	50	30
Oil and Grease	5	5
pH (range)	6.0 – 8.0	6.0 – 8.0
Phenols	0.1	0.1

Phosphorus (P)	20	20
Sulfates (Total)	200	200
Sulfides s S	0.05	0.05
Suspended Solids	50	10
Total Dissolved Solids (TDS)	1,500	1,000
Metals		
Aluminum (Al)	2	2
Arsenic (As)	0.05	0.05
Barium (Ba)	1	1
Beryllium	0.1	0.1
Boron (B)	2.0	2.0
Cadmium (Cd)	0.01	0.01
Chromium (Cr)	0.1	0.1
Cobalt	0.1	0.1
Copper (Cu)	0.2	0.2
Iron (Fe)	2.0	2.0
Lead (Pb)	0.5	0.5
Magnesium (Mg)	100	100
Manganese (Mn)	0.2	0.2
Mercury (Hg)	0.001	0.001
Molybdenum (Mo)	0.01	0.01
Nickel (Ni)	0.2	0.2
Selenium (Se)	0.02	0.02
Sodium (Na)	500	200
Zinc	0.5	0.2
Bacteriological		
Fecal Coliform (MPN / 100 mL)	20	-

e. Storm Water Control

Rainwater or storm water from uncontaminated areas may be discharged to the marine environment. However, such water from the potentially contaminated / process areas should be stored on-site and analyzed / treated before final disposal.

2.5 Natural Environment

The Authority may declare any segment of the environment to be protected for the purpose of preserving an important feature of the natural environment and may declare any prohibitions or management arrangements to be in effect in those protected areas.

The facility conducting any activity in which it is in breach of the prohibitions specified for a protected area or the management plan adopted for that protected area shall be guilty of an offence.

2.6 Land Environment Protection

No facility shall cause any land within the Authority's area of jurisdiction to become polluted by any materials which causes or is likely to cause any detrimental impact on any protected beneficial use of the land environment or the ground waters, or any activity dependent on the land environment.

In addition to the general provisions above, the following indicator levels are adopted as the objectives for contaminants not to be exceeded for the land environment due to the impacts of human activities.

Table 2.8 – Objectives for Land Contaminants

INDICATOR	ACCEPTABLE LEVEL (mg/kg)
Arsenic	50
Barium	400
Cadmium	5
Chromium	250
Copper	100
Lead	200
Manganese	700
Mercury	2
Selenium	2
Zinc	500
Cyanide	10
Fluoride	500
Phenols	1
Benzene	1
Chlorinated Hydrocarbons	1
Pesticides (total)	2
Polychlorinated Biphenyls (PCBs)	0.5
Total Petroleum Hydrocarbons	
<C ₉	1,000
>C ₉	10,000
BTEX (Total)	100

The facility applying sewage solid to land shall ensure that the application rates and heavy metal contents of the sludge do not exceed the limits below:

Table 2.9 – Limits of Trace Metals in Sludge Intended for Disposal on Land*

Parameter	Limits (not greater than) (mg / kg)	10 year Cumulative Loading on Land (kg / hectare)
Cadmium	30	20
Chromium	1000	200
Cobalt	100	30
Copper	1000	50
Lead	1000	125
Mercury	10	5
Molybdenum	20	5
Nickel	200	100
Zinc	1000	250

* Where disposal is for the purpose of soil conditioning as in the use of compost or fertilizer for agricultural activity. In any case, disposal to land must have prior written approval from Trakhees – Environment, Health and Safety (EHS).

2.7 Dewatering

Dewatering is the removal of water from solid material or soil by wet classification, centrifugation, filtration or similar solid-liquid separation processes. Removing or draining water from an on-shore/off-shore construction site by pumping or evaporation. This is often done during the site development phase of a major construction project due to a high water table. It usually involves the use of dewatering pumps. Methods of dewatering include: Well Point, Deep Well and Eductor systems.

Dubai World/ PCFC clients planning to conduct dewatering activities should secure Groundwater Discharge Permit from EHS – Environment Department. For further guidance on this aspect refer to relevant guideline.

2.8 Performance Testing

The wastewater point sources of industrial facilities, on a case-by-case basis, would be liable for a performance testing prior to a commercial operation. This would be to ensure compliance with the relevant Authority regulations.

2.9 Exceedance Reporting

Any parameter that exceeds the threshold values of the standards must be recorded.

A 20% exceedance must be immediately reported to EHS with the following details:

- Date and level of exceedance;
- Reason/s of having the exceedance;
- Action/s taken to prevent, control or mitigate the exceedance; and

d. Any action/s that has been taken or will be taken to prevent the re-occurrence of the exceedance.

3.0 References

- Dubai Municipality Environmental Standards and Allowable Limits of Pollutants on Land, Water and Air Environment 2003
- Dubai Municipality Local Order 61 of 1991 Concerning Environment Protection Regulation in the Emirate of Dubai
- Dubai Municipality Technical Guidelines