هيئة مياه وكهرباء أبوظبي
Abu Dhabi Water & Electricity Authority

ADWEA HSE PROCEDURE MANUAL

STANDARDS FOR EFLUENT AND EMISSIONS DISCHARGES

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AMENDMENTS SHEET

VERSION	PAGE NUMBER	DESCRIPTION OF CHANGE	APPROVED BY	EFFECTVE DATE
		All changes and modification done as per the requirements of ISO 14001:2004 and OHSAS18001: 2007		
1	3	"Objectives" - modified		

Objectives

The purpose of this document is to set out the standards to which apply to ADWEA and its Group Companies effluent and air emissions discharges. This is to ensure that all discharges are:

- Compared against similar relevant legislative limits and the Federal Environmental Law requirements *and new ABU DHABI EHSMS requirement*.
- Able to be evaluated with respect to environmental progress and performance.

These standards provide a basis that will assist in the planning, design, construction and operation of ADWEA and its Group Companies facilities in a manner not adversely affecting the health, safety and welfare of employees and the population at large, and will facilitate the protection of the atmospheric, marine and terrestrial environments.

All facilities must endeavor to achieve effluent and air emission discharges, which conform to the permissible limits, detailed in this standard.

Scope

This standard applies to all effluent and air emission discharges generated at ADWEA and its Group Companies operating sites and headquarters in Abu Dhabi.

1.0 STANDARD LIMITS FOR EFFLUENTS DISCHARGED TO THE MARINE ENVIRONMENT

Parameter	Unit	Desirable Limit
Ammonia Total as (N)	mg/l	2
Arsenic	mg/l	0.05
Biochemical Oxygen Demand (BOD)	mg/l	50
Cadmium	mg/l	0.05
Chlorine (residual)	mg/l	1
Chromium	mg/l	0.2
Chemical Oxygen Demand (COD)	mg/l	100
Copper	mg/l	0.5
Cyanide	mg/l	0.05
Iron	mg/l	2
Lead	mg/l	0.1
Manganese	mg/l	0.2
Mercury	mg/l	0.001
Nickel	mg/l	0.1
Oil and Grease	mg/l	10
PH		6-9
Phenols	mg/l	0.1
Selenium	mg/l	0.02
Silver	mg/l	0.005
Sulphide	mg/l	0.1
Temperature	C	5
Total Dissolved Solids (TDS)	mg/l	1500
Total Suspended Solids (TSS)	mg/l	50
Turbidity	NTU	75
Zinc	mg/l	0.5

2.0 STANDARD LIMITS FOR EFFLUENTS DISCHARGED TO THE DESERT

Parameter	Unit	Desirable Limit
Ammonia Total as (N)	mg/l	10
Arsenic	mg/l	0.5
Biochemical Oxygen Demand (BOD)	mg/l	50
Cadmium	mg/l	0.1
Chlorine (residual)	mg/l	2
Chromium	mg/l	0.2
Copper	mg/l	3
Chemical Oxygen Demand (COD)	mg/l	200
Cyanide	mg/l	0.1
Iron	mg/l	5
Lead	mg/l	0.3
Manganese	mg/l	3
Mercury	mg/l	0.05
Nickel	mg/l	1
Oil and Grease	mg/l	25
PH		6-9
Phenols	mg/l	0.5
Selenium	mg/l	0.09
Silver	mg/l	0.01
Sulphide	mg/l	0.5
Total Suspended Solids (TSS)	mg/l	50
Turbidity	NTU	120
Zinc	mg/l	5

3.0 STANDARD LIMITS FOR TREATED WASTEWATER USED FOR IRRIGATION

Parameter	Unit	Desirable Limit
Aluminium		5.0
Arsenic (Al)		0.1
Barium (Ba)		1.0
Beryllium (Be)		0.1
BOD (Biochemical oxygen demand)		15.0
Boron (B)		0.5
Cadmium (Cd)		0.01
Chlorine Residual		0.1 – 0.5
Chromium, total (Cr)		0.1
Cobalt (Co)		0.05
COD (Chemical oxygen demand)		150
Copper (Cu)		1.5
Cyanide (Cn)		0.05
Electrolytic conductivity		3000 (micro S/cm)
Faecal coliform bacteria per 100ml		<100.0 (Number of)
Fluoride		1.0
Iron (Fe)		5.0
Lead (Pb)		0.1
Lithium (Li)		0.1
Magnesium (Mg)		150.0
Manganese (Mn)		0.2
Mercury (Hg)		0.001
Nickel (Ni)		0.2
Nitrogen, ammoniacal (as N)		5.0
Nitrogen, nitrate as NO3		50
Oil and grease		0.5
pH (units)		6 to 9 (pH units)
Phenols		0.001
Phosphate, total as P		30.0
Selenium (Se)		0.02
Silver (Ag)		0.01
Sodium (Na)		200.0
Sodium absorption ratio		10.0 (meq/l)
Sulphate (SO_4^{2-})		400.0
Sulphide (S^{2-})		0.1
Total dissolved solids (TDS)		1500
Total suspended solids (TSS)		15.0
Vanadium (V)		0.1
Zinc (Zn)		5.0

4.0 STANDARD LIMITS FOR AIR EMISSIONS

4.1 STATIONARY SOURCES

SUBSTANCE	SYMBOL	SOURCES	EMISSION LIMITS (mg/Nm3)
Visible emissions		Combustion sources Other sources	250 none
Carbon Monoxide	CO	All sources	500
Nitrogen Oxides (as Nitrogen dioxide)	NOx	Combustion sources Material producing industries Other sources	See 4.2 1500 200
Sulpher Dioxide	SO2	Combustion sources Material producing industries Other sources	500 2000 1000
Sulphur Trioxide Including sulphuric acid mist (express as sulphur trioxide)	SO3	Material producing industries Other sources	150 50
Total Suspended Particles	TSP	Combustion sources Cement industry Other sources	250 50 150
Ammonia and Ammonium compounds (expressed as ammonia)	NH3	Material producing industries Other sources	50 10
Benzene	C6H6	All sources	5
Iron	Fe	Iron and steel foundries	100
Lead and its compounds	Pb	All sources	5
Antimony and its compounds	Sb	Material producing industries Other sources	5 1
Arsenic and its compounds	As	All sources	1
Cadmium and its compounds	Cd	All sources	1
Mercury and its compounds	Hg	All sources	0.5
Nickel and its compounds	Ni	All sources	1
Copper and its compounds	Cu	All sources	5
Hydrogen sulphide	H2S	All sources	5
Chloride	Cl	Chlorine works Other sources	200 10
Hydrogen chloride	HCL	Chlorine works Other sources	200 20
Hydrogen Fluoride	HF	All sources	2
Silicon Fluoride	SiF4	All sources	10
Fluoride and its compounds	F	Aluminium smelters Other sources	20 50
Formaldehyde	CH2O	Material producing industries Other sources	20 2
Carbon	C	Odes production Waste incineration	250 50
Total Volatile Organic Compounds	VOC	All sources	20
Dioxins & Furans		All sources	1 (ng TEQ/m3)

4.2 STATIONARY COMBUSTION SOURCES USING HYDROCARBON FUEL

SUBSTANCE	SYMBOL	SOURCES	EMISSION LIMITS (mg/Nm3)
Visible Emissions		All sources	250
Nitrogen Oxides (expressed as nitrogen Dioxide (NO2))	NOx	Fuel combustion units: Gas fuel Liquid fuel	 350 500
		Turbine units: Gas fuel Liquid fuel	 70 150
Sulphur Dioxide	SO2	All sources	500
Total Suspended Particles	TSP	All sources	250
Carbon Monoxide	CO	All sources	500