

Supplement to the Republic of Zambia Government  
Gazette dated the 14th may, 1993

**GOVERNMENT OF ZAMBIA**

**STATUTORY INSTRUMENT No.72 OF 1993**

**The Environmental Protection and Pollution Control Act, 1990**  
 (No. 12 of 1990)

**The Water Pollution Control (Effluent and Waste Water)  
 Regulations, 1993**

IN EXERCISE of the powers contained in sections *twenty-three*, *thirty-four* and *ninety-six* of the Environmental Protection and Pollution Control Act, 1990, and in consultation with the Council, the following Regulations are hereby made:

1. These Regulations may be cited as the Water Pollution Control (Effluent and Waste Water) Regulations, 1993. **Title**

2. In these Regulations unless the context otherwise requires-

**Interpretation**

**"aquatic environment"** means all surface and groundwaters, but does not include water in installations and facilities for industrial effluent, sewage collection and treatment;

**"discharge"** means spilling, leaking, pumping, pouring, emitting, emptying or dumping;

**"effluent"** means waste water or other fluid of domestic, agricultural, trade or industrial origin, treated or untreated and discharged directly or indirectly into the aquatic environment;

**"inspectorate"** means the Environmental Inspectorate established under section *eighty-one* of the Act;

**"inspector"** means a person appointed as such under section *eighty-three*;

**"licence"** means a licence to discharge effluent issued under section *thirty-one*;

**"pollutant"** means any substance or energy which if it enters or is discharged into water may cause discomfort to, or endanger the health, safety and welfare of persons, or may cause injury or damage to plant or animal life or property, or which may interfere unreasonably with the normal enjoyment of life or

property or use of property or conduct of business and those objects or substances as may inadvertently obstruct or divert the natural flow of a water course when discharged or dumped into it;

**"sewage"** means waste water generated by residential and commercial establishments;

**"sewage system"** includes sewage treatment plants;

"waste water" means water which has been used for domestic, commercial, agricultural, trading or industrial purposes and as a result of such uses may cause water pollution when discharged into the aquatic environment;

**"water pollution"** means the introduction, directly or indirectly of pollutants into an aquatic environment.

**Application  
for Licence to  
discharge  
effluent**

**3** (1) A local authority intending to operate a sewage system or owner or operator of any industry licence or trade which will discharge effluent into the aquatic environment shall apply to the Inspectorate for a licence in Form WPI set out in the First Schedule and shall pay the appropriate fee set out in the Second Schedule.

(2) A local authority operating a sewage system or owner or operator of any industry or trade discharging effluent into the aquatic environment before the commencement of these Regulations shall apply to the Inspectorate for a licence, referred to in sub regulation (1) within thirty days from the commencement of these Regulations.

**Application  
for Licence to  
withdraw  
water for  
diluting  
effluent**

**4** (3) The application referred to in sub regulation (1) shall contain information relating to the quality and quantity of effluent, its treatment and such other information as the Inspectorate may require.

(1) A person intending to withdraw water from a water course or any other source for the purpose of diluting an effluent shall apply to the Inspectorate for a licence in Form WP2 set out in the First Schedule and shall pay the appropriate fee set out in the Second effluent Schedule.

(2) A person who has been withdrawing water from a water course or from any other source for the purpose of diluting effluent before the commencement of these Regulations shall apply for a licence referred to in sub-regulation (1) to the Inspectorate within thirty days of the commencement of these Regulations.

(3) The application referred to in sub regulation (1) shall contain information relating to the amounts of water required, the treatment of effluent and such other information as the Inspector may require.

5. (1) The Inspectorate shall issue a licence to discharge effluent in Form WP3 of the First Schedule if - **Licence to discharge effluent**
- (a) satisfied that the applicant has adequate and appropriate facilities and equipment for pre-treatment and the effluent will not cause significant damage to the environment;
  - (b) the Inspectorate had published its intention to issue the licence by notice in the Gazette, twenty-eight days before the issue of the licence.
- (2) The licence to discharge effluent into the aquatic environment shall -
- (a) conform to the conditions and standards for chemical and physical parameters contained in the table of standards for effluent and waste water, set out in the Third Schedule;
  - (b) be subject to such other conditions as the Inspectorate may determine; and
  - (c) be valid for thirty-six months and may be renewed for a like period:  
Provided that the Inspectorate may limit the validity of the licence for any period less than thirty-six but not less than six months when necessary.
6. (1) The Inspectorate shall issue a licence to withdraw water from a water course or other source for the purpose of diluting effluent in Form WP4 of the First Schedule if - **Licence to withdraw water for treatment of effluent**
- (a) satisfied that the water being withdrawn from the water course or source would not significantly affect the life of the water course or source;
  - (b) satisfied that the applicant will treat the effluent in a manner that would have no adverse effect on the aquatic environment;
  - (c) the Inspectorate had published the intention to issue the licence by notice in the Gazette, twenty-eighty days before the issue of the licence
- (2) The licence to withdraw water from a water course or source for the treatment of effluent shall -
- (a) be subject to such conditions as the Inspectorate may determine; and
  - (b) be valid for thirty six months and may be renewed for a like period:  
Provided that the Inspectorate may limit the validity of the licence for any period less than thirty-six months but not less than six months, when necessary.

- Duty to keep records** 7. (1) The holder of a licence under these records Regulations shall -
- (a) keep a record of the licensed activities;
  - (b) submit the record referred to in paragraph (a) to the Inspectorate every six months from the commencement of the licensed activities;
  - (c) report to the Inspectorate abnormal discharge of effluent.
- (2) The Inspectorate may order the holder of a licence under these Regulations to install at the expense of the holder of the licence, metering devices and to take samples and analyze them as the Inspectorate may direct.
- Sampling of effluent and analysis** 8. An Inspector may at any reasonable time enter any premises on which a licensed activity is being conducted and take samples analyze and examine materials used for the licensed activity.
- Register of licences** 9. The Inspectorate shall maintain a register of holders of licences to discharge effluent into the aquatic environment or to withdraw water from a water course or any other source for the purpose of diluting an effluent to make it acceptable.
- Offences** 10 Any person who -
- (a) operates or owns a sewage system or an industry or trade which discharges effluent into the aquatic environment without a licence; or
  - (b) withdraws water from a water course for the purpose of diluting effluent without a licence; shall be guilty of an offence.
- Enforcement notice** 11 (1) If the Inspectorate has reasonable cause to believe that a person is contravening any of the provisions of these Regulations or any condition of a licence or is likely to contravene any of the provisions of these Regulations or a condition of licence, the Inspectorate shall serve an enforcement notice on that person;
- (2) An enforcement notice shall -
- (a) state the belief regarding the contravention of the Regulations or a condition of the licence and specify the matter constituting the contravention or making it likely that the contravention will arise, as the case may be;
  - (c) specify the time limit within which the steps described under paragraph (b) have to be taken.

- (b) specify the steps that have to be taken to remedy the contravention or avoid the contravention, as the case may be; and

**12** Any person who contravenes any of the provisions of these Regulations or a condition of the licence after an enforcement notice has been issued under Regulation 11 - **Penalties**

- (a) shall have the licence revoked; and
- (b) shall be guilty of an offence and shall be liable upon conviction to the fine of one hundred thousand Kwacha or imprisonment for a period of three years or both.

FIRST SCHEDULE  
PRESCRIBED FORMS

(Regulations 3, 4, 5 and 6)

REPUBLIC OF ZAMBIA  
Environmental Council

Form WP 1

The Water Pollution Control (Effluent And Waste Water)Regulations,  
1993

APPLICATION TO DISCHARGE EFFLUENT

(Regulation 3)

(To be completed in Triplicate)

To: The Chief Inspector (Pollution Control)  
Environmental Council  
P O Box 35131  
Lusaka

Name  
and address of applicant.....  
.....

Location of Plant/Industry .....  
.....

Indicate source of Raw water (Lake, river, well, common pipe)  
.....  
.....

Location of Raw water (Lake, river, etc.)  
.....  
.....

Raw water demand ..... M<sup>3</sup>/year  
..... M<sup>3</sup>/year max  
..... M<sup>3</sup>/year min  
..... M<sup>3</sup>/hour max

Water-Meter Yes/No

Raw Water Treatment Methods  
.....  
.....

Raw water Quality

pH .....

Total Dissolved Solids ..... mg/L

Total Suspended Solids ..... mg/L

Conductivity ..... US/cm

Is part of Raw water used to dilute effluent prior to discharge?  
.....  
.....  
.....

Type of Effluent (cooling, process, Municipal, etc.,)	Discharge m <sup>3</sup> /year min	Discharge m <sup>3</sup> /year max	Discharge m <sup>3</sup> /year Average
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Point of entry of Effluent into water course/aquatic environment

### WASTE WATER QUALITY

#### A. Physical

1. Temperature (Thermometer)	.....°C
2. Colour (Hazen Units)	.....Hazen Units
3. Odour and Taste (Threshold odour number)	.....
4. Turbidity (NTU scale)	.....NTU
5. Total suspended solids(Gravimetric method)	.....mg/L
6. Settleable matter sedimentation in 2 hours (Imhoff funnel)	.....mg/L
7. Total Dissolved Solids (Evaporation @ 105 C and Gravimetric method)	.....mg/L
8. Conductivity (Electrometric method)	.....µS/cm

#### B. Bacteriological

9. Total Coliform/100 ml (Membrane Filtration method)	.....
10. Faecal Coliform/100ml (Membrane Filtration method)	.....
11. Algae /100 ml (Colony counter)	.....cells

#### C. Chemical

12. pH (0-14 scale) (Electro-metric method)	.....
13. Dissolved oxygen mg Oxygen / Litre (Modified Winkler method and membrane electrode method)	.....mg/L
14. Chemical Oxygen Demand (COD) (Dichromat method)	.....mg/L
15. Biochemical Oxygen Demand (BOD) (Modified Winkler method and Membrane Electrode method)	.....mg/L
16. Nitrates (NO <sub>3</sub> as nitrogen) (Spectrophotometric method and electrometric method)	.....mg/L
17. Nitrite (NO <sub>2</sub> as nitrogen/L Spectrophotometric sulphanilamide)	.....mg/L
18. Organic Nitrogen (Spectro-photometric method N-Kjeldal)	.....mg/L
19. Ammonia and Ammonium (Total) (NH <sub>3</sub> as N/L) (Nesslerization method and Electrometric method)	.....mg/L
20. Cyanides (Spectrophoto-metric method)	.....mg/L
21. Phosphorous (Total) (PO <sub>4</sub> as P/L) (Colori-metric method)	.....mg/L
22. Sulphates (Turbidimetric method)	.....mg/L
23. Sulfite (Iodometric method)	.....mg/L
24. Sulphide (Iodometric and electrometric method)	.....mg/L
25. Chlorides Cl/L (Silver nitrate and Mercuric nitrate)	.....mg/L
26. Active chloride Cl <sub>2</sub> /L (Iodometric method)	.....mg/L

27. Active Bromine (Br <sub>2</sub> /L)	.....	mg/L
28. Fluorides F/L (Electro-metric method and Colorimetric method with distillation)	.....	mg/L

### **C. Metals**

29. Aluminium compounds (Atomic Absorption method)	.....	mg/L
30. Antimony (Atomic absorption method)	.....	mg/L
31. Arsenic compounds (Atomic Absorption method)	.....	mg/L
32. Barium compounds (water soluble concentration) (Atomic Absorption method)	.....	mg/L
33. Beryllium salts and compounds (Atomic Absorption method)	.....	mg/L
34. Boron compounds (Spectro photometric method-curcumin method)	.....	mg/L
35. Cadmium compounds (Atomic Absorption method)	.....	mg/L
36. Chromium Hexavalent, Trivalent (Atomic absorption method)	.....	mg/L
37. Cobalt compounds (Atomic Absorption method)	.....	mg/L
38. Copper compounds (Atomic Absorption method)	.....	mg/L
39. Iron Compounds (Atomic Absorption method)	.....	mg/L
40. Lead compounds (Atomic Absorption method)	.....	mg/L
41. Magnesium (Atomic Absorption method and flame photometric method)	.....	mg/L
42. Manganese (Atomic Absorption method)	.....	mg/L
43. Mercury (Atomic Absorption method)	.....	mg/L
44. Molybdenum (Atomic Absorption method)	.....	mg/L
45. Nickel (Atomic Absorption method)	.....	mg/L
46. Selenium (Atomic Absorption method)	.....	mg/L
47. Silver (Atomic Absorption method)	.....	mg/L
48. Thallium (Atomic Absorption method)	.....	mg/L
49. Tin compounds (Atomic Absorption method)	.....	mg/L
50. Vanadium compounds (Atomic Absorption method)	.....	mg/L
51. Zinc compounds (Atomic Absorption method)	.....	mg/L

### **D. Organics**

52. Total hydrocarbons (Chromatographic method)	.....	mg/L
53. Oils (Mineral and Crude) (Chromatographic method and Gravimetric method)	.....	mg/L
54. Phenols (steam distillable) (Non-steam distilled) (Colorimetric method)	.....	mg/L
55. Fats and saponifiable oils (Gravimetric method and chromatographic method)	.....	mg/L
56. Detergents (Atomic) (Atomic Absorption Spectrophometric)	.....	mg/L
57. Pesticides and PCB's (Total) (Chromatographic method)	.....	mg/L
58. Trihaloforms (Chromatographic)	.....	mg/L

### **E. Radioactive Materials**

58. Radioactive materials specified by International accepted Atomic Energy Agency	No discharge accepted	Not permitted
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Other specify .....

Type of Waste Water Treatment Facilities (settling, filtering, Chemical)

Treatment

Efficiency %	Suspended solids	BOD	COD	Phosphate
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No. 1 Method .....

No. 2 Method .....

No. 3 Method .....

Any other information.....

Date .....

Signature .....

Designation/Title .....

FOR OFFICE USE ONLY

Application received ..... Fee Paid .....

**Chief Inspector (Pollution Control)**

**Environmental Council**

**Inspectorate**

**REPUBLIC OF ZAMBIA  
Environmental Council**

**Form WP 2**

**The Water Pollution Control (Effluent And Waste Water)Regulations,  
1993**

**APPLICATION TO WITHDRAW WATER FOR TREATMENT OF EFFLUENT**

*(Regulation 4)*

(To be completed in Triplicate)

To: The Chief Inspector (Pollution Control)  
Environmental Council  
P O Box 35131  
LUSAKA

Name and address of applicant .....

Indicate source of Raw water (Lake, river, etc.)

Location of Raw water (Lake, river, etc.)

Raw water demand ..... M<sup>3</sup>/year  
 ..... M<sup>3</sup>/year max  
 ..... M<sup>3</sup>/year min  
 ..... M<sup>3</sup>/hour max

Water-Meter Yes/No

Raw Water Treatment Methods

Raw water Quality

pH .....

Total Dissolved Solids ..... mg/L

Total Suspended Solids ..... mg/L

Conductivity ..... US/cm

Type of Effluent (cooling, process, Municipal, etc.,)	Discharge m <sup>3</sup> /year min	Discharge m <sup>3</sup> /year max	Discharge m <sup>3</sup> /year Average
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Point of entry of Effluent into water course/aquatic environment

**WASTE WATER QUALITY**

**A. Physical**

1. Temperature (Thermometer)	.....°C
2. Colour (Hazen Units)	.....Hazen Units
3. Odour and Taste (Threshold odour number)	.....
4. Turbidity (NTU scale)	.....NTU
5. Total suspended solids(Gravimetric method)	.....mg/L
6. Settleable matter sedimentation in 2 hours (Imhoff funnel)	.....mg/L
7. Total Dissolved Solids (Evaporation @ 105 C and Gravimetric method)	.....mg/L
8. Conductivity (Electrometric method)	.....µS/cm

**B. Bacteriological**

9. Total Coliform/100 ml (Membrane Filtration method)	.....
10. Faecal Coliform/100ml (Membrane Filtration method)	.....
11. Algae /100 ml (Colony counter)	.....cells

**C. Chemical**

12. pH (0-14 scale) (Electro-metric method)	.....
13. Dissolved oxygen mg Oxygen / Litre (Modified Winkler method and membrane electrode method)	.....mg/L
14. Chemical Oxygen Demand (COD) (Dichromat method)	.....mg/L
15. Biochemical Oxygen Demand (BOD) (Modified Winkler method and Membrane Electrode method)	.....mg/L
16. Nitrates (NO <sub>3</sub> as nitrogen) (Spectrophotometric method and electrometric method)	.....mg/L
17. Nitrite (NO <sub>2</sub> as nitrogen/L Spectrophotometric sulphanilamide)	.....mg/L...
18. Organic Nitrogen (Spectro-photometric method N-Kjeldal)	.....mg/L
19. Ammonia and Ammonium (Total) (NH <sub>3</sub> as N/L) (Nesslerization method and Electrometric method)	.....mg/L
20. Cyanides (Spectrophoto-metric method)	.....mg/L
21. Phosphorous (Total) (PO <sub>4</sub> as P/L) (Colori-metric method)	.....mg/L
22. Sulphates (Turbidimetric method)	.....mg/L
23. Sulfite (Iodometric method)	.....mg/L
24. Sulphide (Iodometric and electrometric method)	.....mg/L
25. Chlorides Cl/L (Silver nitrate and Mercuric nitrate)	.....mg/L
26. Active chloride Cl <sub>2</sub> /L (Iodometric method)	.....

27. Active Bromine (Br <sub>2</sub> /L)	.....	mg/L
28. Fluorides F/L (Electro-metric method and Colorimetric method with distillation)	.....	mg/L

### **C. Metals**

29. Aluminium compounds (Atomic Absorption method)	.....	mg/L
30. Antimony (Atomic absorption method)	.....	mg/L
31. Arsenic compounds (Atomic Absorption method)	.....	mg/L
32. Barium compounds (water soluble concentration) (Atomic Absorption method)	.....	mg/L
33. Beryllium salts and compounds (Atomic Absorption method)	.....	mg/L
34. Boron compounds (Spectro photometric method-curcumin method)	.....	mg/L
35. Cadmium compounds (Atomic Absorption method)	.....	mg/L
36. Chromium Hexavalent, Trivalent (Atomic absorption method)	.....	mg/L
37. Cobalt compounds (Atomic Absorption method)	.....	mg/L
38. Copper compounds (Atomic Absorption method)	.....	mg/L
39. Iron Compounds (Atomic Absorption method)	.....	mg/L
40. Lead compounds (Atomic Absorption method)	.....	mg/L
41. Magnesium (Atomic Absorption method and flame photometric method)	.....	mg/L
42. Manganese (Atomic Absorption method)	.....	mg/L
43. Mercury (Atomic Absorption method)	.....	mg/L
44. Molybdenum (Atomic Absorption method)	.....	mg/L
45. Nickel (Atomic Absorption method)	.....	mg/L
46. Selenium (Atomic Absorption method)	.....	mg/L
47. Silver (Atomic Absorption method)	.....	mg/L
48. Thallium (Atomic Absorption method)	.....	mg/L
49. Tin compounds (Atomic Absorption method)	.....	mg/L
50. Vanadium compounds (Atomic Absorption method)	.....	mg/L
51. Zinc compounds (Atomic Absorption method)	.....	mg/L

### **D. Organics**

52. Total hydrocarbons (Chromatographic method)	.....	mg/L
53. Oils (Mineral and Crude) (Chromatographic method and Gravimetric method)	.....	mg/L
54. Phenols (steam distillable) (Non-steam distilled) (Colorimetric method)	.....	mg/L
55. Fats and saponifiable oils (Gravimetric method and chromatographic method)	.....	mg/L
56. Detergents (Atomic) (Atomic Absorption Spectrophometric)	.....	mg/L
57. Pesticides and PCB's (Total) (Chromatographic method)	.....	mg/L
58. Trihaloforms (Chromatographic)	.....	mg/L

### **E. Radioactive Materials**

58. Radioactive materials specified by International accepted Atomic Energy Agency	No discharge accepted	Not permitted
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Other specify .....

Type of Waste Water Treatment Facilities (settling, filtering, Chemical)

Treatment

Efficiency %	Suspended solids	BOD	COD	Phosphate
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No. 1 Method .....

No. 2 Method .....

No. 3 Method .....

Any other information.....

Date ..... Signature .....

Designation/Title .....

FOR OFFICE USE ONLY

Application received ..... Fee Paid .....

**Chief Inspector (Pollution Control)**  
**Environmental Council**  
**Inspectorate**

REPUBLIC OF ZAMBIA  
Environmental Council

Form WP 3

The Water Pollution Control (Effluent And Waste Water)Regulations,  
1993

APPLICATION TO DISCHARGE EFFLUENT

(Regulation 5)

Licence No. ....

Name.....

Address.....

You are hereby licensed to Discharge effluent at .....

The licence is valid from ..... 19 .....

to..... 19 .....

The licence is subject to the following conditions

Date .....

*Chief Inspector (Pollution Control)*  
*Environmental Council*  
*Inspectorate*

REPUBLIC OF ZAMBIA  
Environmental Council

Form WP 4

The Water Pollution Control (Effluent And Waste Water)Regulations,  
1993

APPLICATION TO WITHDRAW WATER FOR TREATMENT OF EFFLUENT

(Regulation 6)

Licence No. ....

Name.....

Address.....

You are hereby licensed to withdraw water for the treatment of effluent from.....

quantity.....

The licence is valid from ..... 19 .....

to..... 19 .....

The licence is subject to the following conditions

Date .....

*Chief Inspector (Pollution Control)*  
*Environmental Council*  
*Inspectorate*

**SECOND SCHEDULE***(Regulation 3 and 4)***PRESCRIBED FEES**

	K
Application for licence to Discharge effluent	100,000.00
Application for licence to withdraw water for treatment of effluent	100,000.00

**THIRD SCHEDULE***(Regulation 5 (2) )***TABLE OF STANDARDS (LIMITS) FOR EFFLUENTS AND WASTE WATER****Column 1  
PARAMETER****Column 2  
EFFLUENT AND WASTE WATER  
INTO AQUATIC ENVIRONMENT****A. Physical**

1. Temperature (Thermometer)	40 °C at point of entry
2. Colour (Hazen Units)	20 Hazen units
3. Odour and Taste (Threshold odour number)	Must not cause any deterioration in taste or odour as compared with natural state
4. Turbidity (NTU scale)	15 Nephelometer turbidity units
5. Total suspended solids(Gravimetric method)	100 mg/L must not cause formation of sludge or scum in receiving water
6. Settleable matter sedimentation in 2 hours (Imhoff funnel)	0.5 mg/L in two hours. Must not cause formation of sludge in receiving water
7. Total Dissolved Solids (Evaporation @ 105 C and Gravimetric method)	3000 mg/L The TDS of waste water must not adversely affect surface water
8. Conductivity (Electrometric method)	4300 $\mu$ S/cm

**B. Bacteriological**

9. Total Coliform/100 ml (Membrane Filtration method)	2500°
10. Faecal Coliform/100ml (Membrane Filtration method)	5000°
11. Algae /100 ml (Colony counter)	1000 cells

**C. Chemical**

12. pH (0-14 scale) (Electro-metric method)	6.0 - 9.0
13. Dissolved oxygen mg Oxygen / Litre (Modified Winkler method and membrane electrode method)	5 mg/L after complete mixing extreme temperature may result in lower values

**Column 1**  
**PARAMETER**

**A. Physical**

14. Chemical Oxygen Demand (COD) (Dichromat method)
15. Biochemical Oxygen Demand (BOD) (Modified Winkler method and Membrane Electrode method)
16. Nitrates (NO<sub>3</sub> as nitrogen) (Spectrophotometric method and electrometric method)
17. Nitrite (NO<sub>2</sub> as nitrogen/L Spectrophotometric sulphanilamide)
18. Organic Nitrogen (Spectro-photometric method N-Kjeldal)
19. Ammonia and Ammonium (Total) (NH<sub>3</sub> as N/L) (Nesslerization method and Electrometric method)
20. Cyanides (Spectrophotometric method)
21. Phosphorous (Total) (PO<sub>4</sub> as P/L) (Colorimetric method)
22. Sulphates (Turbidimetric method)
23. Sulfite (Iodometric method)
24. Sulphide (Iodometric and electrometric method)
25. Chlorides Cl/L (Silver nitrate and Mercuric nitrate)
26. Active chloride Cl<sub>2</sub>/L (Iodometric method)
27. Active Bromine (Br<sub>2</sub>/L)
28. Fluorides F/L (Electro-metric method and Colorimetric method with distillation)

**C. Metals**

29. Aluminium compounds (Atomic Absorption method)
30. Antimony (Atomic absorption method)
31. Arsenic compounds (Atomic Absorption method)
32. Barium compounds (water soluble concentration) (Atomic Absorption method)
33. Beryllium salts and compounds (Atomic Absorption method)

**Column 2**  
**EFFLUENT AND WASTE WATER INTO AQUATIC ENVIRONMENT**

- COD based on the limiting values for organic carbon 90 mg O<sub>2</sub>/L average for 24 hours
- 50 mg O<sub>2</sub>/L (mean value over 24 hours period ) According to circumstances in relation to the self cleaning capacity of waters
- The nitrates burden must be reduced as far as possible according to circumstances: water course 50 mg/L; Lakes 20 mg/L
- 2.0 mg NO<sub>2</sub> as N/L
- 5.0 mg/L Mean\* (\* the % of nutrient elements for degradation of BOD should be 0,4 - 1 % for phosphorous ( different for processes using algae )
- The burden of ammonium salts must be reduced to 10 mg/L (depending upon temperature, pH and salinity)
- 0.2 mg/L
- Treatment installation located in the catchment area of lakes: 1.0 mg/L; located outside the catchment area: reduce the load of P as low as possible (PO<sub>4</sub> = 6 mg/L
- The Sulphate burden must be reduced to 1500 mg/L
- 0.1 mg/L (presence of Oxygen changes SO<sub>3</sub> to SO<sub>4</sub>)
- 0.1 mg/L (depending on temperature, pH and dissolved O<sub>2</sub>)
- Chloride levels must be 800 mg/L
- 0.5 mg/L
- 0.1 mg/L
- 2.0 mg/L
- 2.5 mg/L
- 0.5 mg/L
- 0.05 mg/L
- 0.5 mg/L
- 0.5 mg/L

**Column 1**  
**PARAMETER**

**Column 2**  
**EFFLUENT AND WASTE WATER**  
**INTO AQUATIC ENVIRONMENT**

**A. Physical**

34. Boron compounds (Spectro photometric method- curcumin method)	0.5 mg/L
35. Cadmium compounds (Atomic Absorption method)	0.5 mg/L
36. Chromium Hexavalent, Trivalent (Atomic absorption method)	0.1 mg/L
37. Cobalt compounds (Atomic Absorption method)	1.0 mg/L
38. Copper compounds (Atomic Absorption method)	1.5 mg/L
39. Iron Compounds (Atomic Absorption method)	2.0 mg/L
40. Lead compounds (Atomic Absorption method)	0.5 mg/L
41. Magnesium (Atomic Absorption method and flame photometric method)	500 mg/L
42. Manganese (Atomic Absorption method)	1.0 mg/L
43. Mercury (Atomic Absorption method)	0.002 mg/L
44. Molybdenum (Atomic Absorption method)	5.0 mg/L
45. Nickel (Atomic Absorption method)	0.5 mg/L
46. Selenium (Atomic Absorption method)	0.02 mg/L
47. Silver (Atomic Absorption method)	0.1 mg/L
48. Thallium (Atomic Absorption method)	0.5 mg/L
49. Tin compounds (Atomic Absorption method)	2.0 mg/L
50. Vanadium compounds (Atomic Absorption method)	1.0 mg/L
51. Zinc compounds (Atomic Absorption method)	10 mg/L

**D. Organics**

52. Total hydrocarbons (Chromatographic method)	10.0 mg/L
53. Oils (Mineral and Crude) (Chromatographic method and Gravimetric method)	5.0 mg/L
54. Phenols (steam distillable) (Colorimetric method) (Non-steam distilled)	0.2 mg/L 0.05 mg/L
55. Fats and saponifiable oils (Gravimetric method and chromatographic method)	20 mg/L
56. Detergents (Atomic) (Atomic Absorption Spectrophometric)	2.0 mg/L ( Detergents should contain at least biodegradable compounds)
57. Pesticides and PCB's (Total) (Chromatographic method)	0.5 mg/L
58. Trihaloforms (Chromatographic)	0.5 mg/L

**E. Radioactive Materials**

58. Radioactive materials specified by International accepted Atomic Energy Agency	No discharge accepted	Not permitted
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