

WATER POLLUTION CONTROL REGULATION

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SECTION ONE

Purpose, Scope, Legal Foundation and Definitions

Purpose, Scope and Legal Foundation

Article 1 - This Regulation was formulated in accordance with Environment Law no. 2872 of 9 August 1983 and with the the legal provisions which have been annexed and amended to that law. Its purpose is to lay down the legal and technical foundations required for defining the principles of water pollution control in order to protect Turkey's water and groundwater potential for uses of all kinds, to ensure its optimum use, and to prevent water pollution in harmony with the targets of economic and social development.

Definitions

Article 2 - The technical terms and concepts in this Regulation are defined as follows:

Receptor medium and classes thereof: the immediate and greater environment, such as lakes, rivers, coastal and sea waters and groundwater, into which wastewater is either discharged or becomes indirectly mixed;

Waste: waste energy and materials in solid, liquid or gaseous state, resulting from production and consumption activities of all kinds, which may give rise either directly or indirectly to changes in the natural composition and properties of the receptor media with which they mix due to their physical, chemical and bacteriological characteristics, and which affect the use potential of the medium;

Wastewater: water which is polluted as a result of industrial, agricultural or other uses or whose properties have been partially or completely altered;

waters originating from mines and mineral ore processing plants; and waters arising from surface or sub-surface runoff caused by rain from paved or unpaved streets, parking lots and similar parts of built-up urban environments;

Wastewater infrastructure plants: the sewerage system in which household and/or industrial wastes are collected, together with the complete system and plants where wastewaters are treated and where the final disposal of treated wastewaters is effected;

Wastewater infrastructure plant management: the metropolitan municipalities, which are responsible for the construction, maintenance and operation of wastewater infrastructure facilities with the knowledge, and under the control and surveillance, of the local representative of the central government, the municipal administrations in the cities; the industrial zone directorates in the organized and small industrial zones; the free zone directorates in free industrial and/or commercial zones set up by special law; and the Ministry of Culture and Tourism or its authorized units in tourism development project zones;

Wastewater purification: the physical, chemical and biological treatment unit or units employed to render water, which has become wastewater as a result of various uses, to recover either all or a part of its lost physical, chemical and bacteriological properties and/or to render it such that it will not alter the natural physical, chemical, bacteriological and ecological properties of the receptor medium into which it is discharged;

Wastewater sources: residences, commercial buildings, industrial enterprises, mines, ore washing and enriching plants, urban areas, agricultural areas, industrial zones, repair shops, workshops, hospitals and other companies, corporations, enterprises or zones that give rise to the creation of wastewaters as a result of their production and other activities including the following:

a) In every wastewater basin, the major sources of pollutant industrial wastewater whose pollution load, as expressed in terms of wastewater flow or any other pollution parameter (kg/day) or other appropriate unit, is more than 1% of the total flow and pollution load borne by the sewerage system in that basin, or whose daily flow in industrial wastewaters is more than 50 m³, or which contains dangerous or hazardous wastes;

b) Small wastewater sources which have no major pollutant properties in

terms of the type and amount of any pollution parameters they contain and whose wastewater flow is less than 50 m³/day;

Wastewater collection basin: the total number of areas where wastewaters are collected before being introduced into receptor media, within the limits specified in the pertinent engineering studies;

House connection (Lateral): the length of pipe, belonging to the property owner, which conveys wastewaters from the wastewater source to the sewerage system and which extends from the sewer ventilation pipe on the property to the wastewater canal;

Fish bioassay: a standard test designed to determine the toxic effect of wastewater on the fish species used as indicator organisms, and which makes it possible to determine toxicity dilution rates by specifying the percentages of fish that remain alive at the end of certain periods, such as 48, 72 or 96 hours, in various dilutions of wastewater;

Dam reservoir: a structure built on a river for the purpose of impounding water or controlling flood water; A dam reservoir is the space created for this purpose at the dam source;

Environmental protection areas: special areas allocated for the purpose of protecting, and passing on undamaged to future generations, the ecological balance in some special regions of the country known for their natural richness. Such areas are designated in accordance with Environment Law no. 2872 of 3/3/1988 and article 9 of Law no. 3416;

Flow: the volume of water passing through a flow cross-section in a given unit of time;

Discharge: the systematic disposal of wastewater, treated or untreated, directly or indirectly either into a receptor medium or under the ground (excluding seepage of returning irrigation waters from coasts or into the soil using appropriate engineering structures);

Diffuser: in deepsea discharges, a special device added to the end of a wastewater pipe for the purpose of diluting the cloud of wastewater introduced into the receptor medium, of ensuring that the primary dilution (S1) value reaches the envisaged levels of 40-100 or higher by using a multi-jet stream, and of regulating the flow properties of the wastewater during its exit into the receptor medium;

Advanced purification technologies of proven economic feasibility: technological methods, devices, modes of operation and treatment methods, whose success has been proved by experience in continuous operation, which can be checked by means of comparable methods, devices and modes of operation, which render practical and usable the measures taken to maintain discharge limits into receptor media and wastewater infrastructure facilities, and which can be implemented under future and country conditions;

Industrial wastewater: process and wash waters of all kinds originating from industrial installations, manufacturing plants, workshops, repair shops, small industrial sites and organized industrial zones, as well as boiler and cooling waters, which are treated and disposed of without mixing with process waters;

Household wastewater: wastewater originating from needs and uses in the normal daily life activities of human beings and issuing from residences and schools, hospitals and small enterprises such as hotels;

Fecal wastes: urine, faeces and other excreta of human beings and other mammals which give rise especially to bacteriological pollution of a body of water;

Basin: the whole of the region in which the groundwater and surface waters that feed a water resource such as a river, lake, dam reservoir or groundwater reservoir collect;

Drinking and bathing water: the water used by human beings in their daily activities for needs such as drinking, washing and bathing, which are available for the common use of a large number of consumers through a mass water supply system and which must possess the properties stated in TS 266;

Drinking and bathing water reservoir: a natural lake or dam reservoir created for this purpose from which water for drinking and other purposes is supplied;

Administration: The Administrations referred to in the Regulation include the following:

a) The Prime Ministry General Directorate of Environment, which is empowered by article 12 (amended by Law no. 3416 of 3/3/88) of

Environment Law no. 2872 to supervise the purification, disposal, importation and treatment of wastes, residues and fuels to render them harmless;

b) The following agencies, which are empowered to issue operating and use permits to companies, corporations and enterprises and to conduct inspections: The Ministry of Health and Social Security under articles 268-275 of Public Health Law no. 1593; the Ministry of Culture and Tourism under Law no. 2634 for the Promotion of Tourism; the Ministry of Industry and Trade and other institutions and agencies under Law no. 3143 concerning the Establishment and Functions of the Ministry of Industry and Trade; local representatives of the central government, and metropolitan and municipal mayors' offices in line with the powers invested in them by Law no. 5442 on Provincial Administration, Law no. 3030 on the Administration of Metropolitan Municipalities, and Municipality Law no. 1580 (and all other provisions regarding this subject in other special laws);

c) Wastewater infrastructure plant managements which issue connection permits and connection quality control permits in areas where such managements are located;

c) For discharge permission of wastewater into water receptor media, the Metropolitan Municipal Mayors Offices within the boundaries of Metropolitan municipalities and the local representative of the central government outside municipal boundaries, in line with the views of, and the decisions taken by, the local environment boards;

d) For deepsea discharges, the Metropolitan Municipal Mayors Offices inside municipal boundaries and the local representative of the central government outside municipal boundaries, on the condition of soliciting the opinion of the General Directorate of the Bank of the Provinces and the consent of the General Directorate of Environment;

e) In the use and protection of groundwaters, the General Directorate of the State Department of Water, which has authority in this area in accordance with Groundwater Law no. 167 and Law no. 6200 concerning the Establishment and Functions of the State Department of Water;

f) In the case of suspension of the activities mentioned in articles 15 and 16 of Environment Law no. 2872, the Ministry of Health and Social Security, the Prime Ministry General Directorate of Environment and the local representative of the central government;

g) To impose penalties of an administrative nature as specified in articles 20, 21, 22 and 23 of the aforementioned law, amended by Law no. 3301, the public agencies and corporations empowered by article 24 of Environment Law no. 2872, amended by Law no. 3301; and,

g) The relevant Provincial Governors Offices and the relevant Regional Directorates of the State Department of Water when a need is felt for the development of an environment management plan within a "basin" covering more than one administrative area;

Sewerage system: a network of canals or connected pipes for either separately collecting, removing or conveying to a treatment plant household and/or industrial wastewaters and rainwater, or, in an integrated system, for collecting all wastewater together;

Inland water resource: all natural and manmade surface and groundwaters on land and, in the case of water resources with a connection to the sea, waters up to the freshwater-saltwater divide;

Coastline: the line formed by the contact between land and water, apart from flood conditions, in seas, natural or manmade lakes, dam reservoirs and rivers;

Coastal protection zone: bodies of water along sea coasts and lake shores which require protection from the risk of pollution when used as beaches or for other similar purposes;

Composite sample: a mixed sample collected at specific time intervals from household and industrial wastewaters in proportion to wastewater flow;

Bays and gulfs: parts of the sea whose exchange of water with the open sea is obstructed by a strait or wider channel, or which are formed by the irregular nature of the coastline;

Belt canal: a wastewater canal constructed for the purpose of protecting dams, lakes and bays where wastewater from the environment is collected along the length of the shore;

Sampling point: the point where wastewater is collected and discharged into the city wastewater system or another receptor medium; or, receptor medium sampling point: the point where samples are collected after wastewater has become thoroughly mixed with the receptor medium following discharge into it;

Amount of wastewater produced: the amount of wastewater produced in a given period as determined either by measurements or by calculations based on water consumption for a specific period;

Organic waste: organic substances which give rise to oxygen consumption by undergoing biochemical breakdown in the water medium with which they mix;

Pre-treatment plant:

a) Water treatment plants of all kinds for ensuring purification of the wastewater collected in a sewerage system up to the limits acceptable in that system, or

b) For ensuring the acceptability of wastewater for a wastewater treatment or disposal plant either attached to an organized industrial zone or publicly operated, for the purpose of complying with the limit values envisaged for water entering such enterprises, or

c) For treatment of wastewaters prior to their direct disposal into a receptor medium by means of deepsea discharges;

House sewage ventilation column: a column, the specifications of which have been stipulated by the Bank of the Provinces, for collecting samples, making measurements, and monitoring wastewater flow at the house connection with the canal;

House wastewater drainage plant: a system providing for the collection, pre-treatment, regulation and connection of wastewater with the city sewerage system;

Reservoir: a volume of water created by impounding;

Industrial zone: organized industrial zones engaged in specific areas of production; regions where various small and large-scale industrial enterprises are found collectively, including small businesses and artisans workshops, small industrial zones and other enterprises with the status of legal entities engaged in production as cooperatives, and where wastewater is collected and disposed of in a common system;

Dilution: reduction of the concentration of a pollutant parameter contained in a wastewater discharge as a result of physical or hydrodynamic

phenomena occurring in the receptor medium due to the discharge itself or to various physical, chemical and biochemical reactions; the quantity of this reduction can be calculated on the basis of the method of discharge into, and the properties of, the receptor medium;

Characteristic water quality: The 90th percentile among the values found in measurements of any parameter in water samples collected to determine the quality of a receptor medium;

Water quality criteria: the physical, chemical and biological properties expected in water resources with respect to conformity to present or anticipated classes of use, in order to establish a basis for protection of water resources and use planning in accordance with the preservation of all such resources as balanced and healthy media, regardless of whether or not their specific uses have been determined;

Water pollution: the discharge of substances or of energy, the effects of which are observable in deterioration of the chemical, physical, bacteriological, radioactive or ecological properties of a water resource, which are directly or indirectly inimical to biological resources, human health or fishing, and which impair the quality of the water for other purposes;

Water pollution control standards: limit values prescribed for subjecting water masses, use of which is planned for specific purposes, to quality inspection in accordance with existing water quality criteria, and for preventing a further deterioration of water quality. Such standards are as follows:

a) "Receptor medium standards" prescribed for preventing deterioration of the quality characteristics of water masses regarded as receptor media due to wastewater discharges,

b) "Discharge standards" which limit the quality characteristics of discharged wastewater for the same purpose;

Water collection basin: the whole of the region in which the surface and groundwaters that feed water resources such as lakes or reservoirs collect, the area near the source of a river which feeds a certain segment of the river;

T₉₀-value: the length of time required for initial concentrations of fecal-

source indicator microorganisms to fall to 10% under stable hydrodynamic and dispersive dilution conditions in marine and coastal environments;

Stratification: the existence of more than one mass of water with different properties in estuaries, gulfs, bays or lakes, or in segments of coastal or open sea waters due to sudden fluctuations in temperature, salinity and, as a result of these, density;

Thorough Mixing Point: the point nearest to the discharge point where the wastewater dispersed into a receptor medium reaches a uniform concentration;

Freshwater parting: the boundary line at which the salinity of inland water resources with a connection to the sea increases perceptibly and where the concentration of chlorine ions is assumed to be 250 mg/lit;

Dangerous and hazardous substances: substances which cause acute or chronic toxicity through absorption by the respiratory or digestive systems or through the skin, which have carcinogenic effects or which are resistant to biological treatment processes, and which, in order not to cause pollution of ground and surface waters, require special treatment or elimination in accordance with the Communiqués to be issued based on this Regulation;

Productivity: the levels of productivity of sea and lake waters which result from their properties and influence their form of use. Gross primary productivity is the amount of inorganic carbon in water masses such as seas and lakes that is converted into organic products per unit of time and surface area and absorbed by an organism; net primary productivity is the amount of primary productivity remaining after deducting internal respiration and other energy losses;

Rainwater source: canals carrying rainwater, surface waters and drainage waters in separate sewer systems;

Groundwater: the water that occupies water-filled crevices under the earth's surface;

Toxicity: the endangering of the balance of the ecosystem and the health of human beings and various indicator organisms when a substance defined as toxic is found above a certain concentration in a water medium; a property that gives rise to acute or chronic illnesses, to teratogenic and genetic damage, or to death.

Toxicity Dilution Factor (TDF): a unit used to indicate the degree of toxicity of wastewaters.

SECTION TWO

Principles

Article 3

A--With respect to water pollution control, a pollutant source of any kind is contingent on a permit as a matter of principle. The amount of wastewater to be permitted and the pollutants it contains must be stated in this permit, whether or not technological measures are required for compliance with standards must also be stated. For wastes of household origin, the amount of wastewater shall be regarded as equal to the amount of clean water entering the house. If the house obtains water from a source other than the city drinking water network, for example, from a well, the amount of wastewater produced shall be indicated in the permit.

B--In order for industrial wastewater sources to receive a permit, information concerning the type of industry, the volume of production, the raw materials used, the number of workers employed, the consumption of water and energy, production flow charts and the sources of the wastewaters discharged during production, the amounts and properties of solid and liquid wastes, and whether or not hazardous wastes are produced shall be provided to the Administration by the industrial establishment. Permits shall be renewed periodically. During the renewal process, the following points shall be investigated: whether or not there has been any modification in the previously specified characteristics of the plant, whether or not the amount of wastewater or the pollution loads have changed, whether or not the technological measures previously required have been implemented, whether or not new measures are required, and whether or not measurement programs are being conducted regularly. If the industrial establishment is found lacking on any of these points, the previously issued permit shall not be renewed. In this case, the parties concerned shall have to re-initiate permission procedures and take the measures required in accordance with the principles stated in articles 26 and 37 of this Regulation before obtaining another permit.

C--Regions where water pollution is highly concentrated shall be designated within the framework of water quality criteria for ensuring the classification of inland surface waters, groundwater and sea water in accordance with uses for various purposes, and the degrees of priority of the various measures required shall be specified.

Environmental Protection Areas:

Article 4 - Although separate receptor media standards have not been laid down in standards lists for the environmental protection areas designated in this Regulation, compliance with the quality parameters for the highest quality waters, given separately for each group in the water quality classification lists given in this Regulation, shall be obligatory as a matter of principle, and special measures shall be taken. The authority to formulate discharge-limiting standards shall belong to the General Directorate of Environment.

Basin Plans

Article 5 - Effective use of water resources requires that the areas of use of these resources be established in accordance with a basin plan. Due to the limited number of freshwater resources in particular in Turkey and to the growing need for water, these resources shall be used economically as a matter of principle.

If it is economically and technically feasible, it may be possible to improve the low quality of a water resource. The conformity, or lack of it, of the existing quality of resources with the required quality criteria for various areas of use shall therefore be determined, and basin plans shall be developed by the relevant Provincial Governors Offices and the Regional Directorates of the State Department of Water.

Pollutant Effects from which Water shall be Protected

Article 6 - The chief factors and problems giving rise to pollution of water receptor media from household, industrial and agricultural sources, marine traffic and other sources are as follows:

A - Fecal wastes;

B - Organic wastes;

C - Discharges in excess of standards of nutrient substances which cause excessive increases in productivity;

D - Wastewater;

E - Radioactive wastes;

F - Increased turbidity, shallowness and alteration of coastlines caused by mud and garbage, excavation wastes and other types of wastes;

G - The substances other than those enumerated above for which limit values are prescribed in the "Dangerous and Hazardous Substances Communiqué".

SECTION THREE

Quality Classification of Water Media

Classification of Inland Surface Waters

Article 7 - The classification by water quality of inland surface waters in rivers, lakes and dam reservoirs is as follows:

Class I: High quality water

Class II: Slightly polluted water

Class III: Polluted water

Class IV: Extremely polluted water

The water quality parameters used in this classification and the limit values based on them are given separately for Classes I, II, III and IV in Table 1. In order for a water resource to be included in any one of these classes, the values of all its parameters must be in harmony with the parameter values given for that class.

Water that conforms with the quality classes cited above shall be suitable for the following needs:

A - Class I - High quality water

a) Supply of drinking water following disinfection

b) Recreational purposes (including swimming and other sports involving bodily contact with water)

c) Propagation of trout

d) Animal production and farming needs

e) Other purposes

B - Class II - Slightly polluted water

a) Supply of drinking water following advanced or appropriate purification

b) Recreational purposes

c) Propagation of fish other than trout

d) Irrigation water, on condition of compliance with the water quality criteria for irrigation water stated in the Technical Methods Communiqué.

e) All uses outside Class I

C - Class III - Polluted water

May be used following appropriate ^{disposal} treatment to supply industrial water in industries other than foodstuffs and textiles, which require quality water.

D - Class IV - Extremely polluted water

Refers to surface waters of inferior quality with respect to the quality parameters given for Classes I, II and III above.

Determination of Classes of Sampling Points Based on Parameter Groups

Article 8 - Separate quality classes shall be determined for each parameter group (A, B, C, D) shown in Table 1 based on the results of analyses conducted on samples collected from a water resource. Furthermore, based on every parameter within that group, separate quality classes shall be determined, e.g., chemical oxygen demand (COD), biochemical oxygen demand (BOD), total organic carbon, and other similar parameters. The lowest quality class pertaining to a group shall determine the group's class.

On the basis of the pollution parameters measured, averages, standard deviations and the necessary statistical parameters shall be calculated in order to find the characteristic value. The characteristic value is expressed by the parameter value representing the standardized variable, which is equivalent to the variable corresponding to 0.90 probability in the table of distribution of appropriate probability. Results originating from obvious errors in analysis or reflecting accidents shall not be taken into account in determining characteristic values. If the characteristic value determined for a comparison parameter measured at a point in a body of water is smaller than the maximum value given for a particular water quality class according to the upper limits for each class shown in Table 1, then the sampling point shall belong to that class. The comparison is based on the assumption that pH will remain within the range given for that class and that the lower limits of dissolved oxygen concentration and percentage saturation will be within the range of figures given for that class.

Quality Classification of Lake Waters

Article 9 - The quality characteristics and classification of lakes, ponds and dam reservoirs used for various purposes shall be as shown in Table 1 in the form explained in articles 7 and 8. However, classification of lakes and dam reservoirs shall not be based on the dissolved oxygen concentrations and oxygen saturation percentages given in Table 1.

Receptor Medium Standards for Lake Waters

Article 10 - Limits on nitrogen and phosphorus are introduced in Table 2 in order to control the phenomenon of eutrophication, which constitutes a major threat to lakes, ponds and dam reservoirs. A protection program shall be developed based on determinations of productivity in lakes in which nitrogen and phosphorus inputs are close to or over the standards prescribed for the lake's use. Such programs shall be prepared by the General Directorate of Environment in coordination with the relevant agencies and corporations in the local area. If fish are propagated in inland surface waters of this type, Marine Products Law no. 1380 and the provisions of the regulation based on it shall also apply.

Determination of Quality Zones in Inland Surface Waters

Article 11 - The determination of quality zones of inland surface waters shall be based on the results of the following procedures:

A - The tributaries and wastewater discharge points of surface waters shall be indicated. Sampling points shall be selected accordingly. Geographical and hydrological phenomena that disrupt the continuity of current conditions shall be taken into account in selecting sampling points.

B - The frequency of, and the minimum period required for, sampling and the analyses to be done on the samples shall be determined in accordance with the "Communiqué on Methods of Sampling and Analysis".

C - Following the analyses, characteristic values representative of the sample shall be determined.

D - The analyses done on the collected water samples shall be classified in the parameter groups "A, B, C, D".

E - The characteristic values of a sample determined for the quality parameters chosen on the basis of groups "A, B, C, D" shall be compared with the standards given in Table I "A, B, C, D". The class (I, II, III or IV) of the point where the sample was taken shall be determined following this comparison.

F - The quality classes determined for various sampling points on a surface water medium shall be shown in the form of a table or indicated on a map or plan. The quality class of a river segment or area of standing water shall be determined on the basis of such indications.

G - The use potential of surface water of each quality class is different. In Class I water collection basins, the measures stated in article 20 of this Regulation shall be taken in order to protect this potential, regardless of whether or not the water resource is currently being used to supply drinking water. No wastes or wastewater of any kind shall be discharged into the sampling point source of Class II waters with a potential for supplying water for drinking and other uses. For other purposes, the existing quality of Class II waters shall be absolutely protected as a matter of principle and, if it is economically and technically feasible, the quality of Class III waters shall be improved. The existing quality of Class IV waters shall also be improved within the framework of a long-term basin water quality management plan.

H - Since the determinations of quality class explained thus far will take time, the Administration within this period shall have quality classes determined by a scientific institution and/or qualified individual, upon

consultation with the General Directorate or the Regional Directorates of the State Department of Water, in waters into which wastes or treated or untreated wastewater is discharged, if there is reason to believe that the goals targeted in paragraph (G) are being jeopardized.

1 - The procedures outlined in this article shall be carried out by the General Directorate of the State Department of Water within the framework of the functions and responsibilities invested in it by law no. 6200 of 18.12.1953 on the establishment and functions of the General Directorate of the State Department of Water and by law no. 1053 of 3.7.1968 concerning the supply of industrial water and of water for drinking and other purposes in Ankara, Istanbul and other cities of over 100,000 population.

Classification of Groundwater

Article 12 - The classes of groundwater as defined by their quality are given below:

Groundwater Class I: High quality groundwater

Groundwater Class II: Medium quality groundwater

Groundwater Class III: Low quality groundwater

A - Groundwater Class I - High quality groundwater

Groundwater of Class I is groundwater that may be used as drinking water and in the food industry. Groundwater of this class is also suitable for all other purposes. If necessary, Groundwater Class I waters may be used as drinking water following an appropriate disinfectant process. Groundwaters that attain the quality parameters for Class I surface waters shall be regarded as Class I waters, provided that the required oxygen can be supplied by aeration alone.

B - Groundwater Class II - Medium quality groundwater

Groundwaters of Class II is water that may be used as drinking water following a purification process. Such water may be used as agricultural water and animal water or as cooling water in industry without any need for purification. Water which attains the quality parameters for Class II surface water shall be regarded as Class II water. However, it is not

necessary that water falling within this class conform to the standards for iron, ammonia, manganese and dissolved oxygen.

C - Groundwater Class III - Low quality groundwater

Groundwater of Class III is water with properties inferior to the quality parameters given above. The use of such water shall be determined by the degree of purification attainable economically and technologically and with respect to health.

Determination of Classes of Groundwater

Article 13 - Classes of sampling points shall be determined as follows:

A - Sampling points for the classification of groundwater shall be selected by experts. Until such determination has been made, all wells from which groundwater is drawn shall be sampling points. The frequency of sampling, the minimum period required, the analyses to be made and the determination of a characteristic value shall be carried out in accordance with the "Communiqué on Methods of Sampling and Analysis".

B - Only three classes (Groundwater Classes I, II and III) shall be used in the classification of sampling points.

Classification of Sea and Coastal Water

Article 14 - Sea and coastal waters shall be subject to the following classification with respect to the qualities required for their use for various purposes.

Seawater Class I: Fish and seafood propagation

Seawater Class II: Recreation

Seawater Class III: Commercial, industrial and other uses

Areas of seawater use and their properties based on the above classification are given below:

A) Seawater Class I - Seafood and fish propagation

a) Open seas where intensive commercial fishing and seafood fishing are practiced

b) Areas of intensive coastal fishing and shellfish production

c) Areas with fishing weirs

Compliance with Marine Products Law no. 3180 and the regulation based on it shall be obligatory for the quality of sea and coastal waters among the above areas.

B) Seawater Class II - Recreation

The required seawater quality has been determined for coastal waters of this class used as beaches, for seawater of this class used for sports regardless of whether bodily contact is involved, and for aesthetic considerations. The receptor medium standards, compliance with which is expected in seas used for these purposes, are given in Table 3.

C) Seawater Class III - Commercial, industrial and other purposes

Seawater quality is exposed to a high risk of pollution due to marine traffic, port services and, related to these, discharges of wastewater, bilge and ballast water, as well as accidents. Furthermore, there is also a significant risk of marine pollution as a result of the withdrawal of water for cooling and other industrial uses, and of the exploration for, and extraction of, petroleum and other minerals from the seabed. Even though the quality criteria in Table 4 are generally sought in such waters, the use potential of this class shall not be impaired when quality falls below this level. Nevertheless, persons who cause the quality of such waters to fall below this level shall be prosecuted under the pollution ban and subject to the penalties stated in Environment Law no. 2872.

Quality Criteria of Sea Waters

Article 15 - In order to preserve all coastal and sea waters as healthy environments, regardless of whether or not they have been classified for any purpose whatsoever, conformity to general seawater quality criteria shall be mandatory as a matter of principle. These criteria are given in Table 4. The quality of sea and coastal waters where fish and seafood propagate must conform with the relevant provisions of Marine Products Law no. 1380 and the regulation based on it.

Compliance is mandatory with the provisions of the international treaties to which Turkey is a signatory and which were drawn up for the purpose of

preventing pollution of seawater. Compliance with the general seawater quality criteria and with the standards for coastal water used for recreational purposes is envisaged by this Regulation, and persons who cause the deterioration of seawater quality as envisaged in Tables 3 and 4 shall be penalized by the authorized agencies and institutions indicated in article 24 (amended by Law no. 3301) of Environment Law no. 2872.

SECTION FOUR

Principles of Water Quality Planning and Prohibitions

Pollution bans regarding inland surface waters used to supply water for drinking and other purposes

Article 16 - For the protection of water reservoirs and other water resources used for drinking and other purposes, the general principles and protection areas indicated below shall be valid until special provisions have been introduced for each resource:

A) Activities that will cause pollution of the waters either in, or in the vicinity of, drinking and bathing water reservoirs shall not be allowed.

B) Wastes such as garbage and debris may not be dumped into such water resources, nor may permission be granted for the dumping thereof.

C) Permission shall not be given for the use of boats, motorboats and other craft using liquid fuel. Permission may be given to sailboats, rowboats, rafts or battery-powered craft. In exceptional cases the General Directorate or the Regional Directorates of the State Department of Water may grant permission for the use of liquid fuel-powered craft. The discharge into drinking and bathing water reservoirs of wastewater and bilge water of any kind that may be produced by craft used for this purpose is prohibited even following purification.

D) Publicly held land or land owned by the State or the municipalities within the water collection basins of drinking and bathing water reservoirs is subject to the restrictions governing protection areas.

E) Permission shall not be given for swimming, fishing, hunting or picnicking in areas less than 300 m from the water sampling point.

F) Contract fishing is prohibited in reservoirs for supplying drinking water.

However, permission for contract fishing may be granted by the General Directorate of the State Department of Water in reservoirs constituting economic zones on the condition of first obtaining the consent of the Prime Ministry General Directorate of Environment.

Absolute Protection Zone

Article 17 - An absolute protection zone is a 300-m wide strip extending from the maximum water level of a drinking and bathing water reservoir. If the boundary of such a zone exceeds the boundary of the water collection basin, the absolute protection zone shall end at the basin boundary. The following protective measures shall be taken in such zones:

A) The region within the protection zone shall be expropriated by the Administration as authorized by law. If such expropriation entails extraordinary costs due to existing densely settled areas either within or without city limits, the arrangements necessary for protecting the drinking water resource shall be effected by the administration.

B) With the exception of the compulsory technical facilities entailed by a drinking and bathing water project and by improvement of the sewerage systems of existing buildings, no buildings may be constructed in such a zone. Existing construction in the zone has been frozen.

C) In keeping with the environmental order and management plan, areas shall be designated within the zone for using the lake for picnicking, swimming, fishing and hunting purposes. Such areas may not be less than 300 m from the water supply plant.

D) Either the zone shall be enclosed by a fence or a protected area shall be set up around it as deemed necessary by the Administration.

Proximate Protection Zone

Article 18 - This is a 700-m wide strip extending from the absolute protection zone surrounding a drinking and bathing water reservoir. If the boundary of the zone exceeds the boundary of the water collection basin, the proximate protection zone shall end at the basin boundary. The following rules shall apply within such zones:

A) Dwellings and touristic and industrial installations shall not be permitted.

B) Depositing of garbage and debris shall not be permitted.

C) Excavations shall not be permitted apart from those coming under the scope of the Law for the Protection of Cultural and Natural Resources and the compulsory technical facilities mentioned in article 17 B.

D) Storage of solid and liquid fuels and the use of the land for cemeteries shall not be permitted. Existing construction in such zones has been frozen.

E) In keeping with the approved environmental order and implementation plans and plan decisions, permission may be given for outdoor cafés, refreshment stands and similar single-story structures of a non-permanent nature that may be easily dismantled, to meet daily public and touristic needs for using the area for recreational and picnic purposes.

F) The enclosed areas of the structures mentioned in paragraph E above may not exceed 100 m²

G) The sanitation facilities of the structures mentioned in paragraph E above shall be arranged in accordance with the provisions of the "Regulation on the Pits to be Dug in Areas where the Construction of Sewage Pipes is Impossible", which was issued by the Ministry of Health and Social Security on 19.3.1971 and published in Official Gazette no. 13783.

H) Agricultural activities other than animal farming may be permitted on the condition that artificial fertilizers and pesticides are not used. Furthermore, the employment of methods that exacerbate erosion shall also be prevented.

I) Only functions relating to transportation may be permitted on segments of road passing through the zone and constructed according to the building plan

Mediate Protection Zone

Article 19 - This is a 1-km wide strip extending from the boundary of the proximate protection zone surrounding a drinking and bathing water reservoir. If the boundary of a mediate protection zone exceeds the boundary of the water collection basin, the zone shall end at the basin boundary. Protective measures in such zones shall be as follows:

A) No industrial plants or residences shall be permitted in such zones.

B) No lot created by the division of the zone may be smaller than 5000 m². Such lots must have a frontage of at least 25 m following the divisions as shown on the deed or cadastral survey or on a title deed map, or made in some other acceptable way.

C) As long as they present no aesthetically or hygienically objectionable conditions, permission may be granted for the construction on lots in the zone of country houses or summer cottages for occupation by a family, or for entertainment or touristic facilities or their outbuildings, provided that such buildings do not occupy more than 55% of the surface area of the lot, that the total internal area of the building on two stories does not exceed 250 m², that the height of the eaves from the natural ground level does not exceed 6.50 meters, and that the building is not less than 5 meters from the road or the lot boundary.

Apart from houses, other buildings not in the nature of integrated facilities, such as dairy barns, chicken coops, stables, sheepfolds, water and fodder silos; grain silos, fertilizer and silage pits, beehives, fish farms and flour mills may be constructed provided that they are not less than 5 meters from lot boundaries and 10 meters from the access road and that the area of the construction does not exceed 55% of the lot itself and the height of the building 6.50 meters.

Greenhouses with simple coverings, other than those with cement foundations and steel roofs, are not subject to the distances and heights mentioned above. Furthermore the consent of the Provincial Organization of the Ministry of Agriculture, Forestry and Rural Affairs is required regarding such structures, together with a notarized written statement from the owners that the facility will not be used for any other purpose. The buildings mentioned in this article shall be constructed in accordance with the 1/50- or 1/100-scale type projects prepared by the relevant Ministry and agencies. Furthermore, all buildings must be constructed in keeping with the building regulations.

D) Wastewater may be used for irrigation following appropriate purification in keeping with the quality criteria for irrigation water given in the "Communiqué on Technical Procedures"

E) Under no circumstances shall permission be granted for opening or operating a mine.

F) Farming may be allowed in the vicinity provided that artificial fertilizers and pesticides are not used.

G) Permission may not be granted for garbage dumps or disposals in the vicinity.

Remote Protective Zone

Article 20 - A remote protective zone is the whole of the water collection basin that falls outside the other protective zones surrounding drinking and bathing water reservoirs as defined above. The following protective measures shall be implemented in such zones:

A) Permission shall not be given in the zone for new industries that produce liquid, gaseous or solid wastes of a polluting nature.

B) Already existing plants set up within a remote protective zone shall be removed from the zone as a matter of principle. However, if this is impossible, the Administration may request the disposal of the liquid, gaseous and solid wastes mentioned in paragraph A above by means of advanced-level technological purification and disposal techniques of proven economic feasibility.

C) No waste or wastewater of any kind may be discharged into any of the waters, rivers or dry stream beds that feed a drinking and bathing water reservoir. As of the effective date of this Regulation, permission may not be granted for industrial installations of the type indicated in paragraph A of article 20 or for new residences apart from those indicated in paragraph C of article 19. However, permission may be granted for the discharge of wastewaters originating from existing residential areas which cannot be relocated, following treatment to prevent impairment of the quality criteria of the reservoir water according to the inland water resource classes given in Table 1.

D) The necessary measures shall be taken against pollution of drinking and bathing water reservoirs from the air or from the soil as a result of erosion.

E) The construction of regulated garbage storage depots and disposal areas may be permitted by the Administration with the consent of the Prime Ministry General Directorate of Environment.

Pollution Bans regarding Lakes

Article 21 - Untreated household wastewater may not be introduced into reservoirs built for purposes other than supplying drinking and bathing water or into ponds and lakes used for purposes other than this.

When deemed necessary on the basis of an environmental impact assessment, the relevant Administration may request existing or newly established industrial enterprises in such lake basins to implement treatment of proven economic feasibility at the appropriate technological level.

Furthermore, in accordance with the principles laid down in articles 33, 34 and 35 of this Regulation regarding the discharge of wastewater into lakes, deepsea discharges may not be made.

The discharge standards that must be met in accordance with the principle of total purification of treated household wastes are given in article 32 of this Regulation. Furthermore, total coliform as well as the elements nitrogen and phosphorus, which cause eutrophication, must conform to acceptable tolerances for the lake as receptor medium as a matter of principle. From the standpoint of eutrophication control especially, household wastewaters may be discharged into lakes following purification in a tertiary treatment plant for removing nitrogen and phosphorus, beyond the traditional biological purification methods used to ensure discharge standards in accordance with article 32 of this Regulation. If the investments required for this purpose are extremely costly, the wastewaters may be disposed of outside the water collection basin provided that an economic comparison is made first. If, despite all the measures taken, the quality of the lake water as a receptor medium does not attain the desirable levels given in Table 2, the General Directorate of Environment shall ensure coordination among the General Directorate of the State Department of Water, the General Directorate of the Bank of the Provinces, and the relevant organizations of the Ministry of Agriculture, Forestry and Rural Affairs for the preparation of a Basin Water Quality Regulation Plan. Compliance with the protection plan developed in this way shall be compulsory as a matter of principle.

Pollution Bans and Groundwater Arrangements

Article 22 - Authority and responsibility with regard to the use and protection of groundwater are invested in the General Directorate of the

State Department of Water. Furthermore, the obligations explained below must be fulfilled until special planning principles have been introduced for the protection of groundwater:

A) Groundwater, regardless of its class, shall be designated as a pollutant source if changes or deterioration occur in its quality, and polluters shall be prosecuted.

B) Safe levels of water withdrawal must be determined in all coastal regions to prevent the encroachment of salt water and to protect groundwater quality. Illegal wells which draw water in excess of safe levels shall be identified and closed by the Administration. The actions of individuals and legal entities who commit such acts comes under the scope of the pollution ban, and the relevant provisions of the Environment Law shall be enforced with respect to them.

C) Since persistent pollutants are likely to appear in drains and wells over extended periods of time, activities are prohibited that make use of the substances mentioned in the "Communiqué on Dangerous and Hazardous Substances", which must not be introduced into environmental media in any form whatsoever.

D) Permission shall not be given for the discharge or passage of solid and liquid wastes or for the construction of any buildings within 50 meters of wells, springs and infiltration galleries from which groundwater of Classes I and II is obtained for the mass supply of drinking water. Such groundwater resources shall be surrounded by a barbed wire fence to allow implementation of protective measures.

E) The size of a protective zone may be decreased or increased by the Administration in light of local conditions. When necessary, a second protective strip may be created and use permission granted for purposes such as transit or recreation without allowing any building in the zone.

F) If existing conditions do not allow implementation of the measures stated in paragraphs A, B, C, D, and E above in the creation of protective strips, an effort shall be made to expropriate the buildings in question. If this is also impossible, measures shall be taken to prevent the discharge of wastes within the protective zone.

G) Substances that may become dissolved in wastewater or rainwater and thereby conveyed to groundwater may not be directly stored on the ground within a groundwater feeding basin.

H) Wastes containing substances of classes STS3 and STS4 as stated in the "Communiqué on Dangerous and Hazardous Substances" may only be stored after taking the measures prescribed in the Communiqué.

I) In order to prevent the pollution of groundwater, all storage tanks for special wastes as well as tanks for process and treatment sludge, garbage, and chemical substances of all kinds must be constructed in such a way as to prevent seepage.

J) If wastewater is used for irrigation, the amount of irrigation and the irrigation program must be regulated in such a way as to reduce to a minimum the risk of persistent pollution of groundwater due to seepage.

K) Especially in areas where groundwater is used for drinking purposes, the agricultural pesticides employed must be of the type readily decomposable under natural conditions and not accumulating as deposits in the organs of living creatures over the long term. Permission must be obtained from the relevant units of the Ministry of Agriculture, Forestry and Rural Affairs for the use of such pesticides.

L) The relevant units of the Ministry of Agriculture, Forestry and Rural Affairs shall specify in detail the method of calculating the required amounts of fertilizers and shall conduct inspections regarding their overuse.

M) When the use of radioactive trace elements is required, they shall be used in such a way as not to cause water pollution.

N) Bearing in mind the possibility of accident, measures shall be taken to prevent the pollution of groundwater during activities involving the use of dangerous and hazardous substances. For example, substances such as perlite or sawdust shall be stocked for this purpose and kept handy for use in absorbing substances diffused in the environment in case of accident.

O) It is unlawful to make excavations for the purpose of obtaining sand from areas inside a groundwater feeding basin from which groundwater is used.

P) Artificial feeding of groundwater shall be carried out in accordance with the provisions of existing groundwater legislation.

Pollution Bans regarding Seas

Article 23 - All discharges and uses of sea and coastal waters of all kinds that give rise to the pollutant effects mentioned in article 6 of this Regulation are restricted or prohibited. The prohibitions introduced on the dumping and discharge of wastes without permission into Turkey's territorial waters also include indirect effects originating from outside and spreading into waters over which Turkey exercises economic rights of use. In such cases, the Administration shall take the necessary measures against persons who create such effects or the risk thereof. Accordingly,

A) It is unlawful for any person, without first obtaining the required permission, to bring from Turkey or from outside Turkey any substances that are prohibited or subject to permission and to dump or discharge them into the waters described above or into nearby waters which could affect them.

B) It is unlawful for ships sailing in seas under Turkey's jurisdiction and for airplanes flying in the airspace over such seas to discharge into them any bilge, ballast, garbage, household or industrial wastewaters.

C) The technical restrictions introduced to prevent pollution of coastal waters from septic tanks built on or near the sandy strip along the shore are required to comply with the "Communiqué on Technical Procedures".

D) Disposal in the open sea of the remains of seafood, fish, sponges and other marine products in connection with fishing and similar activities is not subject to permission in areas outside harbors, ports and gulfs.

E) Apart from the practices envisaged by special permits granted by other relevant laws, the dumping of excavation debris, rubble, sludge from sea floor dredging, purification and process effluent, and other wastes along coasts or into the sea for disposal purposes is prohibited.

F) Ships and other seagoing vessels that fail to comply with these prohibitions shall be fined in accordance with articles 22 and 23 (amended by Law no. 3301) of Environment Law no. 2872.

Control of Petroleum Discharges

Article 24 - All discharges of oil and petroleum wastes, bilge waters and ballast waters into water media from motorized vessels of any kind are prohibited.

All enterprises engaged in the processing, filling, emptying and storage of petroleum and its derivatives are required to have on hand at all times the organization, equipment and materials required for combatting possible oil spills into a water medium as a result of accident or other special conditions.

It is unlawful to precipitate oil which is dispersed in a water medium using chemical precipitants or to dilute it using chemical dispersants except under conditions where there is a risk of fire due to accident.

SECTION FIVE

Principles of Wastewater Discharge

Discharge into Sewerage Systems

Article 25 - The basic principles governing the discharge of wastewater into sewerage systems are as follows:

A) On principle, wastewaters of all kinds in areas having a sewerage system have the right and the obligation to be connected to the sewerage network.

B) Sewerage systems may not be destroyed or used for other purposes.

C) Individuals and legal entities that give rise to the creation of wastewater are required to bear all the costs that may arise from their use of the sewerage system or of existing treatment or disposal plants.

D) In order for industrial wastewater to be connected with the sewerage system and conveyable by means of a pump or similar conveyance, compliance with the following conditions is obligatory:

a) The wastewater must not cause damage to the structure or impede the operation of the sewerage system,

b) It must not create any health hazards for sanitation personnel or for nearby residents,

c) It must not have any undesirable effects on the operation and efficiency of the treatment plant to which the sewerage system is connected.

d) It must not contain substances which cannot be treated by traditional biological purification,

e) It must not make the removal or use of the sludge and similar wastes created at a wastewater treatment plant more difficult or cause them to acquire properties that would give rise to environmental pollution.

Principles of Direct Discharge into a Water Receptor Medium

Article 26 - Regulation of the quality and quantity of wastewaters, reduction and treatment of pollution, and monitoring and documentation at regular intervals in compliance with wastewater discharge standards are the polluter's responsibility and obligation. From the standpoint of monitoring compliance with standards, the measurements required from the polluter must be preserved for a period of three years. The administration shall determine, by its own measurements if necessary, whether or not this obligation is being fulfilled. The cost of any measurements made by the Administration for inspection purposes shall be borne by the polluter.

Implementation to prevent the pollution of water receptor media shall be governed by the general principles stated below:

A) On the condition that they conform to the principles governing connection with the sewerage system, industrial installations in areas having a wastewater collection system and treatment plant may discharge their wastewaters into the city sewerage network. Wastewater sources outside cities which discharge their wastes directly into a receptor medium are required to build individual or common treatment plants for the purification of their wastewaters. Industries producing wastes similar in nature within cities shall investigate and assess the feasibility of building a common wastewater infrastructure plant for treating their wastes.

B) In order to maintain discharge standards, the dilution of wastewater with rainwater, cooling water, slightly polluted wash water or other slightly polluted waters is strictly prohibited.

C) The conditions and limit values envisaged in the "Communique on Dangerous and Hazardous Substances" govern the presence in wastewater of the substances enumerated in that Communique and their discharge into receptor media.

D) The discharge of solid wastes and effluent of all kinds, treatment sludge and septic sludge into water receptor media is prohibited.

E) Depending on the nature of their activities, individuals and legal entities are obligated to meet the discharge standards given in Tables 5-21. Apart from certain parameters given in special units, concentration units (mg/l or ml/l) and/or pollution load (kg/t) per unit of production have been used in these standards. To facilitate monitoring, however, standards are based on concentrations. If both types of discharge standards have been given for a certain branch of industry, these values shall govern separately the design and operation of treatment plants. Furthermore, to comply with the provisions of paragraph C above in connection with dangerous and hazardous substances, it is compulsory to procure the documents required in accordance with the "Communiqué on Dangerous and Hazardous Substances".

F) If the same industrial establishment encompasses more than one sector of industry, the most stringent standards given separately for each sector shall apply.

G) The discharge of wastewater into irrigation and drainage canals is governed by the same provisions implemented in direct discharges into a water receptor medium

Direct Discharges into a Water Receptor Medium

Article 27 - Bearing in mind the types of industries, the small industrial zones, the organized industrial zones and other small enterprises in Turkey, separate standards have been formulated for each industry. Mixtures of various industrial wastewaters are also represented as mixed industrial sectors with separate group standards

The standards compliance with which is compulsory in discharges of household wastewaters into water receptor media are also given in similar form.

Companies, corporations and enterprises that can document that the water they have obtained and used from a water medium of any kind has been discharged back into the same water medium without any change in its quality are regarded as not having infringed discharge standards for the amount of water in question. However, if such enterprises produce wastewater or use a separate water resource with a quality other than that

stated above, this exception shall not apply to any water discharged after undergoing a loss of quality.

If companies, corporations and enterprises take and use waters which are polluted by the discharge standards for their groups, they shall be responsible for ensuring that the wastewater they discharge is not more polluted than the water they originally took.

Use of Wastewater in Irrigation

Article 28 - In areas where irrigation water is scarce and therefore of economic value, encouragement shall be given for the use in irrigation of wastewater which has been purified to such a degree as to meet the quality criteria given in the "Communiqué on Technical Procedures". The preliminary processes implemented and the investigations required for this purpose shall be carried out in accordance with the "Technical Procedures Communiqué" to be issued based on this Regulation. The suitability of a wastewater mass for this type of use shall be determined jointly by the relevant public agencies including the General Directorate of the State Department of Water, the General Directorate of the Bank of the Provinces and the relevant units of the Ministry of Agriculture, Forestry and Rural Affairs.

Principles of Collecting and Evaluating Composite Samples

Article 29 - The standards introduced in this Regulation concerning the direct discharge of wastewater into water receptor media refer to the limit values which must not be exceeded in the composite wastewater samples collected.

When the standards for discharges of wastewater into a water receptor medium are stated in terms of concentration units, three separate limits are given. These express the concentrations obtained from instantaneous, 2-hourly, and 24-hourly samples of composite exit water. The inspections to be conducted by the Administration shall be based on instantaneous, 2-hourly and 24-hourly composite samples under normal operating conditions and the standards pertaining to them. During the inspection, the arithmetic average of separate 2-hourly measurement results on each of three different workdays shall be compared with the standards given for instantaneous and 2-hourly composite samples. As a requirement, these samples must have been collected within the most recent year. The average of the results must not exceed the standards given for the

instantaneous and 2-hourly composite samples. If compliance with standards is attained in measurements following improvements effected after violations in which the arithmetic average exceeded the standard value, the previous arithmetic averages shall be overlooked. When necessary, the administration may check whether or not the results of the 24-hour composite samples also conform to the standards stated in this Regulation. The polluter is responsible for monitoring and documenting both limit values in accordance with article 26 of this Regulation. In particular, the design and operation of any treatment plants to be built shall be based on the standards given for 24-hour composite samples. At plants not having a 24-hour work system, the composite samples collected over the total period of the workday shall be compared with the standards given for 24-hour composites.

Measures to be taken to Reduce Amounts of, and Damage by, Wastewater

Article 30 - The methods generally regarded as feasible for the treatment of wastewater are defined in the "Communiqué on Technical Procedures". In selecting methods of wastewater treatment, the necessary measures shall be taken to prevent environmental problems outside the water receptor medium, such as air pollution, soil pollution and solid wastes.

Within the framework of this Regulation, the General Directorate of Environment, the Local Environment Boards and the Wastewater Infrastructure Plant Managements are in no way responsible for proposing or approving treatment plant projects.

Industrial Wastewater Discharge Standards

Article 31 - Industries have been grouped into 16 sectors based on their type of production. The wastewater standards given in Tables 5-20 shall not apply to plants in these sectors which operate on an entirely dry basis. These sectors and the types of industries they include are given below:

A) Food industry

Flour factories, macaroni factories, yeast industry, milk and dairy products, refineries for extraction of oil from oil seeds and refining of liquid oils, olive oil and soap production, solid oil refining, slaughterhouses and integrated meat plants, fish and bone meal production, processing of slaughterhouse by-products, fruit and vegetable washing and processing, processing of plants, sugar industry, salt processing plants, fish farming, seafood processing, and similar industrial installations

B) Beverage industry

Non-alcoholic beverages (soft drink) industry, alcohol and alcoholic beverages industry, beer and malt industry, production of alcohol from molasses

C) Mining industry

Production and transport of ferrous and non-ferrous metal ores and coal, boron ores, ceramics industry, cement, stone crushing, and earth industry, and similar industrial installations

D) Glass industry

Manufacturing of glass objects, plate and window glass, fiberglass production, production of silver-plated and unplated mirrors

E) Coal processing and energy production sector

Processing of anthracite and lignite, coke and citygas production, thermal power plants, nuclear power plants, geothermal power plants, cooling water, closed circuit industrial cooling waters, fuel oil and coal-fired steam boilers, and similar facilities

F) Textile industry

Staple fiber and thread production and finishing, woven fabric finishing, cotton textiles, cotton gins, wool washing, finishing and weaving, knitted fabrics finishing, carpet finishing, and synthetic textile finishing

G) Petroleum industry

Petroleum refineries, petroleum filling installations and other similar facilities

H) Leather and leather products industry

I) Paper and pulp industry

Hemicellulose production, bleached cellulose production, unbleached cellulose production, pure cellulose production, production of starch-reinforced and non-starched paper, production of fine paper from pure

cellulose, coated and filled paper production, production of paper with low scrap content, production of paper from scrap paper, parchment production

J) Chemical industry

Chlor alkali production, perborate and other boron products industry, orpiment production; paint and dye industry; dye raw material and auxiliary products industry; pharmaceutical industry; fertilizer industry, plastics industry; pipe, film, hose and rubber industry, vehicle tire and rubber coating industry; medical and agricultural preparations industry (laboratories, tannin-containing products, cosmetics); detergent industry; petrochemical and hydrocarbon production plants, soda production, carbide production, production of barium compounds, dispersed oxide production

K) Metal industry

Iron and steel processing plants, general metal preparation and processing, galvanizing, firing electrolytic plating, metal tinting, zinc plating, battery production, enamelling and glazing plants, metal honing and sanding plants, metal polishing and varnishing plants, lacquer and dye, non-ferrous metal production, aluminum oxide and aluminum smelting, ferrous and non-ferrous foundries, and metal casting plants

L) Wood products and furniture industry

Lumber and joinery, fiberboard, boxes, packaging, shuttles, duralite and similar products

M) Mass production of machinery, electrical machinery and instruments, spare parts industry

N) Vehicle manufacturing and repair industry

Automotive repair shops, automobile, truck, tractor, minibus, bicycle, motorcycle and other vehicle manufacturing plants, shipbuilding and dismantling yards

O) Mixed industries

Large and small organized industrial zones and other industries unclassifiable by sector

P) Other plants producing industrial-type wastewater

Backwash waters of drinking water filters, industrial cooling water, water and sludge from filters used for air pollution control, gas station and car wash wastewaters, wastewater from solid waste recycling and disposal plants, wastewater from glue and adhesive production, water softening, demineralization and regeneration, active carbon washing and regeneration plants

Wastewater discharge standards for the industries listed above are given in Tables 5-20. Discharge standards for types of industries not included in this Regulation shall be determined by the Prime Ministry General Directorate of Environment based on Table 19.

Discharge Standards for Household Wastewater

Article 32 - The standards desirable in discharges into water receptor media of waters either directly from household wastewater sources or following treatment in city treatment plants are given in Table 21. Household wastewaters are classified as follows based on their pollution loads.

A) Having a pollution load of less than 60 kg/day of untreated BOD₅ (Equivalent to a population of 1000 persons or less)

B) Having a pollution load of 60-600 kg/day of untreated BOD₅ (Equivalent to a population of 1000-10,000 persons)

C) Having a pollution load of more than 600 kg/day of untreated BOD₅ (Equivalent to a population of 10,000 and up)

Standards governing discharges to be made into a receptor medium from these sources have been given separately in Table 21.

Discharges into Receptor Media by means of Deepsea Discharge

Article 33 - Coastal settlements and industries in coastal areas may be given permission for deepsea discharges of waste and cooling waters if an adequate dilution capacity can be demonstrated in the receptor medium through detailed engineering studies. In such cases, the discharge standards determined for direct discharges of household and industrial wastewaters into a receptor medium shall not apply. If deepsea discharges

of untreated wastewater and cooling waters into semienclosed bays and gulfs with a low exchange rate and dilution potential are necessitated by geographical conditions, this may be permitted in accordance with article 42 of this Regulation under the following conditions: if it can be proved through an environmental impact assessment that the discharge to be made will not upset the ecological balances of the receptor medium and that, in particular, heavy metals, nutrients and the substances to be indicated in the "Dangerous and Hazardous Substances Communiqué" will not accumulate.

Properties of Wastewaters Disposable by Deepsea Discharge

Article 34 - Apart from the Metropolitan Municipalities (based on the consent of the General Directorate of the Bank of the Provinces and the General Directorate of Environment), Wastewater Infrastructure Plant Managements, industries, corporations, companies and other enterprises as well as resort villages must obtain a deepsea discharge permit in accordance with article 42 of this Regulation in order to carry out deepsea discharges. Since only a limited degree of treatment is implemented before such a discharge is carried out, the properties of the wastewater that may be introduced into the receptor medium as a result are restricted in order to protect the marine environment. These restrictions are listed below:

A) In order for deepsea discharges to be made into receptor waters, the wastewaters must not contain any of the substances listed in the "Dangerous and Hazardous Substances Communiqué" in excess the limits stated in therein.

B) The properties of wastewaters, permission for the deepsea discharge of which may be given in accordance with article 33, are given in Table 22. Permission may not be given for discharge into the sea of waters with pollutant properties in excess of the limit values in this table or other than the parameters given.

Criteria Governing Deep Sea Discharges

Article 35 - The deepsea discharge criteria to be implemented when wastewaters are disposed of by deepsea discharges are given in Table 23. The following points must also be taken into consideration in the design of discharge systems:

A) In order for the wastewaters regarded as permissible by this Regulation to be discharged in the sea, the initial dilution S1 value in the project must

not be below 40 and preferably $S_1 = 100$. The data required for determining this dilution shall be given in the "Technical Procedures Communiqué".

B) The minimum discharge depth must be 20 meters. If it is not economically feasible to descend to this depth, the length of the discharge pipe, diffuser excluded, from the average coastline must not be less than the figure shown in Table. The length of the discharge pipe for "major sources of pollution" such as activities, industrial installations and settlements of greater population than those shown in the table shall be determined together with preliminary or complete treatment alternatives.

C) The T_{90} value may be assumed to be at least 1.5 hours in the summer months on the Aegean and the Mediterranean and 2 hours on the Black Sea. It must be borne in mind that T_{90} values will be higher in the winter months with averages around 3-5 hours.

Exceptional Provisions

Article 36 - Permits for deepsea discharge projects which have been prepared in light of the basic criteria explained above shall be issued by the Mayors Offices of the Metropolitan Municipalities within metropolitan municipal boundaries and by the local representative of the central government outside such boundaries taking into consideration the view of the General Directorate of the Bank of the Provinces and the consent of the General Directorate of Environment. However, if the maximum wastewater flow to be discharged is less than 50 m³/day, no permission need be obtained following application for the project itself. In this case, only compliance with the standards stated in Table 22 is required. However, the Administration may make discharges of less than 50 m³/day into a given marine environment contingent on permission if the wastewater sources in question have, or will have, collective undesirable effects on seawater quality. If required for permission, more stringent criteria and measures than those envisaged by article 35 may be requested by the relevant Administration.

Deepsea discharges of less than 50 m per day into semienclosed bays, gulfs, estuaries, mouths of rivers, lagoons and similar environments where seawater movements are limited shall also require a permit from the Administration. Likewise, even if compliance with the technical conditions envisaged in this Regulation can be documented, permission for deepsea discharges shall not be granted if they are deemed risky with respect to

the properties of the receptor medium by the General Directorate of Environment.

SECTION SIX

Principles of Discharge Permission

Permission for Wastewater Discharges into Water Receptor Media

Article 37 - Permission from the Administration is compulsory for all direct discharges of household and/or industrial wastewaters into water receptor media on the condition of compliance with the principles of this Regulation. Exit water quality and fulfillment of the other conditions as requested by the Administration for each discharge within the framework of this Regulation must be ensured. The Mayors Offices of the Metropolitan Municipalities within the boundaries of the large cities and the local representative of the central government outside such boundaries are authorized to grant permission for wastewater discharges of all types into water receptor media in line with the decisions and views of the Local Environment Boards. Permission for direct discharges into a water receptor medium in areas in which such media are grossly polluted shall be granted only upon the consent of the General Directorate of Environment. Designations of place and limits and other procedures to be implemented in such areas shall be determined by the General Directorate of Environment.

The principles governing the granting of discharge permits are as follows:

- A) Permits granted by the Administration for wastewater discharges are valid for a period of three years.
- B) To prevent undesirable effects on the existing uses or to regulate the quality of a water receptor medium, the relevant Administration is authorized to refuse permission for discharges into it, or to limit such discharges beyond the limits already envisaged by this Regulation.

Continuation of Responsibility to Take Measures Against Pollution

Article 38 - Wastewater infrastructure plant managements and corporations, companies and enterprises with discharge permits are legally responsible for not exceeding the wastewater discharge standards and not disposing of pollutants in the receptor medium beyond the limits envisaged in their permit. As permit holders, they are not necessarily immune to penalties and legal prosecution for violations.

Restriction or Revocation of Discharge Permits

Article 39 - Wastewater discharge permits may be restricted or revoked under the following conditions:

- A) If it is determined that discharges in the form permitted will have an undesirable effect on either the present or future uses of the water receptor medium,
- B) If the discharge is not carried out in conformity with the principles laid down by the Administration in issuing the permit.

Discharge Permit Application Procedure

Article 40 - An application form for discharges into a water receptor medium and sample permit applications with explanations shall be given in the "Technical Procedures Communiqué". In his application permit, a person or corporation is responsible for filling out the forms truthfully.

Objections to Discharge Permission

Article 41 - If it is determined that certain undesirable effects are being created as a result of wastewater discharges into a water receptor medium, the third parties who have witnessed the harm or who are likely to suffer as a result of it have the right to object to the discharge permit by presenting their evidence to the permit-granting Administration. If such legally presented objections are recognized, the parties making the discharge shall be obliged to take the required amelioratory measures.

Deepsea Discharge Permits

Article 42 - Permits for deepsea discharges shall be granted within the framework of the following principles:

- A) Deepsea discharge permits shall be issued within a maximum of six months of application by the Mayors Offices of the Metropolitan Municipalities inside the boundaries of large cities and by the local representative of the central government outside such boundaries based on the views of the General Directorate of the Bank of the Provinces and the consent of the General Directorate of Environment. The application must include the following: the period of time of the deepsea discharge project under preparation, the targeted and observed sea water quality

properties, the economic, topographical and bathymetric characteristics of the region where the facilities are to be built, together with its uses including seafood production, the measures to be taken in case of accidents or power cuts, and estimates of future developments, expansion and project modifications. An application form with the necessary explanations and a sample application shall be provided in the "Technical Procedures Communiqué".

B) Permission shall be valid for a period of three years. If it is determined within this period that the obligations undertaken have not been fulfilled, the previously issued deepsea discharge permit shall be revoked by the relevant Administration either directly or at the request of the General Directorate of Environment. Wastewater infrastructure plant managements and companies, corporations and enterprises holding permits are responsible following construction and operation of their facilities for not exceeding discharge standards and for not dumping into the sea pollutants other than those envisaged in their project.

SECTION SEVEN

Implementation at Wastewater Infrastructure Plants

Principles of Collection and Disposal of Wastewater

Article 43 - Within their areas of authority, wastewater infrastructure plant managements shall collect, convey and dispose of wastewater in accordance with paragraph 3 of article 11 of the Environment Law.

Property owners within the boundaries of authority of these managements have the right and obligation to link up their wastewater with common wastewater infrastructure plants of this type and to make use of them.

The connections to be set up with wastewater collection systems and disposal plants and the regulations governing the use of such plants shall be explained in detail in the "Communiqué on Wastewater Infrastructure Plants".

Wastewater Connection Permission and Documents

Article 44 - The right of lots, corporations, companies and enterprises to link up their wastewater with wastewater infrastructure plants in a city

and/or industrial zone is contingent on the permission of the wastewater infrastructure plant management. Wastewater connection permission is the permission which is granted by the wastewater infrastructure plant management in return for a written document in the case of household wastes and, in the case of industrial and mixed wastewaters, if the conditions stated in a connection quality control permit are fulfilled. Connection quality control permission is granted by the wastewater infrastructure plant management in the form of a quality control document stating the conditions for connection with the sewerage system. Such permits and documents shall be issued on condition of compliance with the points specified in articles 45, 46, 47 and 48 of this Regulation and in accordance with the "Communiqué on Wastewater Infrastructure Plants".

Restrictions on Connections with the Sewerage System

Article 45 - Connections with sewerage systems built and operated within the scope of wastewater infrastructure plants are subject to the following restrictions:

- A) If there is a separate sewerage system, rainwater and other non-polluted drainage waters may not be connected to the system.
- B) Amounts and properties of wastewater in dry weather shall be determined for both integrated and separate systems.
- C) Non-continuously operating plants are obligated to build a balancing tank prior to connection with the sewerage system regardless of whether a pre-treatment plant is required or not. The capacities of such balancing tanks shall be given in the "Communiqué on Wastewater Infrastructure Plants". At plants without balancing tanks, the amounts and pollution loads of the wastewater in question shall be determined based on the amount and quality of the maximum wastewater that will issue from the plant.
- D) Connection with a sewerage system of cooling waters not containing pollutants is prohibited without the approval of the authorized wastewater infrastructure plant management.
- E) Industrial wastewaters may not be introduced into a sewerage system by diluting them with unpolluted waters in order to obviate the necessity of pre-treatment.

F) The wastewaters discharged into wastewater infrastructure plants may not be used for any purpose whatsoever without the written permission of the wastewater infrastructure plant management.

Substances that May Not be Introduced into Wastewater Collection Systems

Article 46 - The disposal of the following substances in wastewater infrastructure plants is prohibited: substances that have undesirable effects on the efficiency of the treatment plant, on the operation of activated sludge treatment, and on the disposal or re-use of sludge; and substances that cause damage to wastewater plants, or that obstruct, render difficult or threaten their functions and maintenance, or that cause harm to the personnel working at such plants. The use at industrial installations of garbage grinders as a preliminary to introducing such garbage or other solid wastes into sewage is prohibited. These substances will be specified in detail in the "Communiqué on Wastewater Infrastructure Plants".

Properties of Wastewaters to be Connected with Wastewater Infrastructure Plants

Article 47 - Industrial wastewaters defined as "major pollutant wastewater sources" must meet the standards given in Table 25 in order to be accepted at wastewater infrastructure plants.

If wastewater infrastructure plant managements wish to dispose of the wastewaters collected in sewerage systems within the boundaries of their authority without treatment until such time as the required wastewater treatment or disposal systems are built, they are obligated to report this to, and obtain the consent of, the General Directorate of Environment. Such applications shall be made through the relevant government official.

Pre-treatment Plants

Article 48 - Industries not regarded by wastewater infrastructure plant managements as suitable for direct connection due to the properties of their wastewater are responsible for setting up and operating a preliminary treatment system as defined in this Regulation. Building, operating, maintenance, regulating and documentation costs shall be borne by the industries in question.

Furthermore, within the framework of the principles outlined in article 11 of Environment Law no. 2872, the technical specifications of which are laid down in the connection quality control document, the parties concerned shall be held responsible for setting up and operating a special treatment plant at sources of industrial wastewater whose wastewater flow in any waste collection basin whatsoever and whose total pollution load with respect to any parameter given in the group standards from Tables 5-20 for the relevant sector of industry is more than 10% of the total flow and pollutant load borne by that sewerage system. In this case, the wastewater standards and the regulations governing direct discharges into a water receptor medium shall apply; moreover, in accordance with article 37 of this Regulation, the property owner shall be required to obtain the permission of the relevant Administration.

Connection with the Sewerage System and Regulation of Discharges

Article 49 - Wastewater-producing companies, corporations and enterprises shall construct a control vent either at the point of the wastewater connection with the sewerage system or within easy reach of the preliminary treatment plant exit. The type and project for such a control vent shall be submitted to the relevant wastewater infrastructure plant management in the form of a plan. When necessary, the management shall confirm the properties of the wastewater either at the connection point or at the exit of the pre-treatment plant in the form explained in article 29 of this Regulation. The wastewater infrastructure plant management shall specify additional measures for sources from which sudden, uncontrollable discharges may occur. Detailed information concerning such measures is given in the "Connection Quality Control Permit".

Actions Coming Under the Scope of "Violations of the Regulation" within the Framework of Use of Wastewater Infrastructure Plants

Article 50 - The actions that come under the scope of "Violation of the Regulation" within the framework of use of wastewater infrastructure plants are enumerated below:

A) If the property owner does not link up with the city wastewater system within the allowed period of time despite the obligations stated in article 43 concerning conditions of using wastewater infrastructure plant;

B) If, contrary to the provisions in articles 44, 45 and 46 concerning restrictions on connection and related prohibitions, wastewaters or substances connection of which is prohibited are discharged into the wastewater system or if the limit values envisaged in the wastewater connection quality control permit are exceeded;

C) If, contrary to articles 47 and 48 governing restrictions on connection with the sewerage system, wastewaters are introduced into the wastewater infrastructure system without preliminary treatment;

D) If, contrary to paragraph D of article 45 which states the restrictions governing connection, groundwater or waters not requiring treatment are introduced into a wastewater infrastructure plant without first securing approval;

E) If, contrary to article 49 on the responsibilities for control and documentation, the required measuring devices and control vents for the measuring the amounts and properties of wastewater have not been set up or are not being operated at the plant exit, if such facilities are not being properly maintained, if appropriate and competent personnel have not been appointed to them, or if the records have not been preserved for a period of three years, or if they have not been presented despite the official inspector's request;

F) If, contrary to article 49 on the system of regulation, permission has not been granted for inspection of the wastewater or wastewater system on the lot.

If any of the actions described above are observed, the individuals and legal entities involved shall be prosecuted under articles 20, 21, 22 and 23, amended by Law no. 3301, of Environment Law no. 2872 in accordance with the records to be kept by the relevant wastewater infrastructure plant management.

SECTION EIGHT

Miscellaneous Provisions

Communiqués

Article 51 - In connection with the implementation of this Regulation, the Communiqués listed below shall be issued separately by the Prime

Ministry General Directorate of Environment within three months of its publication date.

- Communiqué on Methods of Sampling and Analysis
- Communiqué on Technical Procedures
- Communiqué on Administrative Procedures
- Communiqué on Dangerous and Hazardous Substances
- Communiqué on Wastewater Infrastructure Facilities
- Communiqué on the Minimum Pollution Concentrations Attainable in Wastewater Discharges

The general technical and administrative provisions on the subject shall be valid up to the date of publication of these communiqués. When necessary, the Prime Ministry General Directorate of Environment may issue technical or administrative communiqués on subjects relating to this Regulation other than those cited above, and may also revise the above communiqués.

Inspection

Article 52 - The principles governing the inspections to be conducted within the framework of this Regulation are stated below:

A) Inspection of wastewater discharges of all kinds to be made into sewerage systems or into water receptor media in accordance with this Regulation shall be conducted by the General Directorate of Environment in accordance with article 12 (amended by law no. 3416) of Environment Law no. 2872. However, government officials, the Ministry of Health and Social Security, municipal mayors, and harbor chiefs may also conduct inspections under the authority invested in them by Public Health Law no. 1593, Provincial Administration Law no. 5442, Municipalities Law no. 1580, Metropolitan Municipalities Law no. 3030 and Harbors Law no. 618. Following such inspections, persons who have violated the Environment Law or who have failed to fulfill their obligations as stated in the Law shall be granted an additional period in which to do so. If at the end of this period they have still not fulfilled their obligations, the required procedures shall be initiated by the authorities cited in articles 15 and 16 of the Environment Law to suspend their activities either partially or

completely. The penalties stated in articles 20, 21, 22 and 23 (amended by Law no. 3301) of the Environment Law shall also be imposed by the officials authorized to do so under article 24 (amended by Law no. 3301) of the said Law.

B) Plant owners and operators as well as owners and operators of the property on which plants are built have the following obligations:

a) To allow persons, or their representatives, appointed by the authorized official to enter the premises;

b) To permit samples to be taken and measurements to be made in situ by authorized persons to determine pollution and water quality levels for the purpose of preventing serious hazards to public health and to residents in the environment;

c) To provide the documents and data requested by authorized persons.

C) Depending on its size, every corporation, company or enterprise is required to employ one or more "Environmental Pollution Inspector".

D) Operators of establishments to which an "Environmental Pollution Inspector" has been appointed at the request of the authorized official shall make their inspectors' services available during the procedures explained in paragraph B above. Plant operators and owners shall provide the materials needed, special motor vehicles and/or fuel required for such inspections to be conducted.

E) Owners and operators of corporations, companies and enterprises shall permit the persons, or their representatives, appointed by the authorized official to take samples and to analyze them in situ.

F) The costs of the tests and measurements carried out in connection with permit or inspection procedures shall be borne by the polluting company or enterprise.

G) For compliance with the provisions of this Regulation, owners and operators of property on which no plant is located shall also permit the persons, or their representatives, appointed by the authorized official to enter the premises and conduct tests. In exercising this authority, the appointed inspectors shall take care to safeguard the interests of the property owners and operators, and the cost of any damages incurred shall be borne by the official authorized to make the inspection.

H) The information and documents obtained from corporations, companies and enterprises during inspections may not be used for other purposes.

Prosecution

Article 53 - Persons failing to comply with the provisions of this Regulation shall be prosecuted under the relevant provisions of Environment Law no. 2872.

Exceptional Conditions

TEMPORARY ARTICLE 1 -

A) The discharge standards stated by the General Directorate of Environment for companies, corporations and enterprises before this Regulation went into effect are valid for a period of three years from the effective date of the Regulation. At the end of this period compliance with the standards in this Regulation is compulsory.

B) The validity of the quality criteria stated in the "discharge quality control permits" issued to companies, corporations and enterprises within the authority of the Metropolitan Municipalities before this Regulation went into effect has been extended for three years from the effective date of this Regulation.

Implementation During the Transition Period

TEMPORARY ARTICLE 2 - Companies, corporations and enterprises which produce and discharge wastewater and do not hold a "Discharge Permit" and a "Connection Quality Control Permit" are obligated to obtain such permits by application to the authorized official in the area within six months from the effective date of this Regulation. The relevant Administration shall evaluate and finalize such applications within a maximum of one year of the application date. If permission is not granted, the Administration shall inform the applicant of this in writing together with a statement of reasons. The transition period shall be specified for granting permission for existing or future plants, for projects of wastewater infrastructure plants contingent on implementation of treatment, for construction of linkups, and for construction and setting into operation of treatment plants. Such transition periods may not exceed the following limits:

A) Corporations, companies and enterprises within the boundaries of a wastewater infrastructure plant management which are in a position to connect with a sewerage network, regardless of whether or not it culminates in a treatment plant, must complete their pre-treatment requirements within a maximum of one and a half (1.5) years from the issue date of the "Connection Quality Control Permit"

B) Corporations, companies and enterprises within the boundaries of wastewater infrastructure plant managements either in the process of building a sewerage system or planning such a project even if construction has not yet been started, shall make discharges into the receptor medium in accordance with Articles 47 and 48, within the bounds of their authority as stated in paragraph B of article 37 and in conformity with the final disposal methods envisaged in the project for such canals whether or not they are in place. These parties are obligated to implement treatment measures within at most one and half (1.5) years of the issue date of their "Connection Quality Control Permit" by the wastewater infrastructure plant management.

C) Corporations, companies and enterprises within the boundaries of wastewater infrastructure plant managements without a sewerage system or project are obligated either to undertake treatment in line with standards governing discharges into receptor media or to undertake the necessary modifications in their production technologies within at most two and a half (2.5) years of the issue date of their "Discharge Permit" by the Administration.

D) Corporations, companies and enterprises without sewerage systems and outside the boundaries of regions where wastewaters are disposed of collectively, are required either to build treatment plants in line with the standards governing discharges into receptor media or to undertake the necessary modifications in their production technologies within two (2) years from the issue date of their "Discharge Permit" by the Administration.

E) Under conditions presenting a risk of environmental pollution, the relevant Administration is authorized to reduce the transition periods mentioned in temporary articles 1 and 2 based on the consent of the General Directorate of Environment.

F) Corporations, companies and enterprises which have been warned by the relevant Administration and allowed a definite period in which to

implement the necessary measures are required to take the measures mentioned in the said article within the time period remaining after the periods granted under the provisions of Law no. 2872 and other relevant legislation before this Regulation went into effect have been subtracted from the periods specified in the above paragraphs. If the periods mentioned in the above paragraphs have already been exceeded before publication of this Regulation, an additional period not to exceed six (6) months may be allowed by the relevant Administration.

Implementation during the Transition Period

TEMPORARY ARTICLE 3 - The periods granted in temporary articles 1 and 2 to allow plants and operations making direct discharges into receptor media to build the necessary treatment plants shall in no way inhibit their prosecution under the legal and penal provisions of the Environment Law and its annexes and amendments.

Effectiveness

Article 54 - This Regulation shall become effective on the date of its publication.

Enforcement

Article 55 - The Minister of State attached to the General Directorate of Environment shall enforce the provisions of this Regulation.

Table 1: Quality Criteria of Inland Water Resources by Class

Water Quality Parameter	Water Quality Class			
	I	II	III	IV
A) Physical and inorganic-chemical parameters				
1. Temperature (° C)	25	25	30	>30
2. pH	6.5-8.5	6.5-8.5	6.0-9.0	outside 6.0-9.0
3. Dissolved oxygen (mg O ₂ /l) ^a	8	4	3	< 3
4. Oxygen saturation (%) ^a	90	70	40	< 40
5. Chlorine ions (mg Cl ⁻ /l)	25	200	400 ^b	>400
6. Sulfate ions (mg SO ₄ /l)	200	200	400	>400
7. Nitrogen as ammonia (mg NH ₄ -N/l)	0.2 ^c	1 ^c	2 ^c	>2
8. Nitrogen as nitrite (mg NO ₂ -N/l)	0.002	0.01	0.05	>0.05
9. Nitrogen as nitrate (mg NO ₃ -N/l)	5	10	20	>20
10. Total phosphorus (mg PO ₄ -P/l)	0.02	0.16	0.65	>0.65
11. Total dissolved matter (mg/l)	500	1500	5000	5000
12. Color (Pt-Co units)	5	50	300	>300
13. Sodium (mg Na ⁺ /l)	125	125	250	>250
B) Organic parameters				
1. COD (mg/l)	25	50	70	>70
2. BOD (mg/l)	4	8	20	>20
3. Organic carbon (mg/l)	5	8	12	>12
4. Total Kjeldahl nitrogen (mg/l)	0.5	1.5	5	>5
5. Unacidified oil and grease (mg/l)	0.02	0.3	0.5	>0.5
6. Methylene blue active substances (MBAS) (mg/l)	0.05	0.2	1	>1.5
7. Phenolic substances (airborne) (mg/l)	0.002	0.01	0.1	>0.1
8. Mineral oils and derivatives (mg/l)	0.02	0.1	0.5	>0.5
9. Total pesticides (mg/l)	0.001	0.01	0.1	>0.1
C) Inorganic pollution parameters^d				
1. Mercury (µg Hg/l)	0.1	0.5	2	>2
2. Cadmium (µg Cd/l)	3	5	10	>10
3. Lead (µg Pb/l)	10	10	50	>50
4. Arsenic (µg As/l)	20	50	100	>100
5. Copper (µg Cu/l)	20	50	200	>200
6. Chromium (total) (µg Cr/l)	20	20	200	>200
7. Chromium (µg Cr ⁶⁺ /l)	indeterminable	20	50	>50
8. Cobalt (µg Co/l)	10	20	200	>200
9. Nickel (µg Ni/l)	20	50	200	>200
10. Zinc (µg Zn/l)	200	500	2000	>2000
11. Cyanide (total) (µg CN/l)	10	50	100	>100
12. Fluorine (µg F/l)	1000	1500	2000	>2000
13. Free chlorine (µg Cl ₂ /l)	10	10	50	50
14. Sulfur (µg S/l)	2	2	10	>10

15. Iron ($\mu\text{g Fe/l}$)	300	1000	5000	>5000
16. Manganese ($\mu\text{g Mn/l}$)	100	500	3000	>5000
17. Boron ($\mu\text{g B/l}$)	1000*	1000*	1000*	>1000
18. Selenium ($\mu\text{g Se/l}$)	10	10	20	>20
19. Barium ($\mu\text{g Ba/l}$)	1000	2000	2000	>2000
20. Aluminum (mg Al/l)	0.3	0.3	1	>1
21. Radioactivity (pCi/l)				
alpha-activity	1	10	10	>10
beta-activity	10	100	100	>100

B) Bacteriological parameters

1. Fecal coliform (MPN/100 ml)	10	200	2000	>2000
2. Total coliform (MPN/100 ml)	100	2000	10000	>10000

(a) It is sufficient to ensure concentration and percentage saturation of only one of the parameters.
 (b) It may be necessary to lower the limit of this concentration for irrigation of chlorine-sensitive plants.

(c) The concentration of free ammonia may not exceed $0.02 \text{ mg NH}_3\text{-N/l}$ depending on pH.

(d) Criteria in this group give total concentrations of chemical derivatives constituting parameters.

(e) These criteria may have to be lowered to $300 \mu\text{g/l}$ for irrigation of boron-sensitive plants.

Table 2: Eutrophication Control Limit Values in Lakes, Ponds, Marshes and Dam Reservoirs

Desired Properties	Area of Use	
	Nature Conservation Areas & Recreation	Various Uses (including natural salt, bitter and soda-rich lakes)
pH	6.5-8.5	6-10.5
COD (mg/l)	3	8
Dissolved oxygen (mg/l)	7.5	5
Suspended solids (mg/l)	5	15
Total coliform (MPN)/ 100 ml	1000	1000
Total nitrogen (mg/l)	0.1	1
Total phosphorus (mg/l)	0.005	0.1

Table 3: Standards for Coastal and Sea Waters Used for Recreational Purposes

Parameter	Standard	Remarks
Color	Natural	Should not differ aesthetically from the natural color of sea water.
Taste and odor	Natural	May not be other than natural taste and odor.
Transparency	More than	Should not differ aesthetically from

	2 meters	the natural turbidity of sea water. Not be less than 2 m as measured by Secchi disk.
pH	6-9	
Oil & grease (mg/l)		Should not differ aesthetically from the natural oil & grease content of sea water.
Total coliform (MPN/100 ml)	1000	Every 15 days, or at the request of the Administration in doubtful cases; by membrane filter or multi-tube fermentation.
Fecal coliform (MPN/100 ml)	200	
Surface active substances show- ing a reaction to methylene blue	Should not form persistent foam. Less than the equivalent of 0.3 mg/l lauryl sulfate	Equivalent of mg/l lauryl sulfate as analysed at the request of the rele- vant Administration in any doubtful cases.
Phenols (mg/l)	So little as to give off no phenol odor but less than 0.005 mg/l	Must not exceed the standard when analysed at the request of the rele- vant Administration in any doubtful cases.
Dissolved oxygen	Not less than 80% saturation	
Tar residues & floating materials	None	

Table 4: General Quality Criteria for Sea Water

Parameter	Criteria	Remarks
pH	6.0-9.0	
Color and turbidity	Natural	Should be such as not to affect more than 90% of the normal level of photosynthetic activity required for natural marine life at measurement depth.

Floting material		Floting oil, tar, garbage, and other liquids and solids must not be found.
Suspended solids (mg/l)	30	
Dissolved oxygen (mg/l)	More than 90% saturation	Dissolved oxygen levels should be monitored at all depths.
Crude oil and oil derivatives (mg/l)	0.003	Water, biota and sediment should be evaluated separately; preferably none should be found at all.
Radioactivity		Should not exceed natural types and levels of radioactivity for the particular marine environment. Artificial radioactivity should be indeterminable.
Productivity		Seasonal productivity levels for the particular marine environment should be preserved.
Toxicity	None	
Phenols (mg/l)	0.001	
Heavy metals		
Copper (mg/l)	0.01	
Cadmium (mg/l)	0.01	
Chromium (mg/l)	0.1	
Lead (mg/l)	0.1	
Nickel (mg/l)	0.1	
Zinc (mg/l)	0.1	
Mercury (mg/l)	0.004	
Arsenic (mg/l)	0.1	
Ammonia (mg/l)	0.02	

Table 5: Wastewater Discharge Standards in the Food Industry

Table 5.1. Sector: Food Industry (Flour and Macaroni Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	60	50
Chemical oxygen demand (COD)	mg/l	250	200
Suspended solids	mg/l	120	100
pH		6-9	6-9

Table 5.2. Sector: Food Industry (Yeast Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	100	80
Chemical oxygen demand (COD)	mg/l	400	300
Suspended matter	mg/l	200	100
Oil and grease	mg/l	60	30
pH		6-9	6-9

Table 5.3. Sector: Food Industry (Milk and Dairy Products)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	40
Chemical oxygen demand (COD)	mg/l	170	160
Oil and grease	mg/l	60	30
pH		6-9	6-9

Table 5.4. Sector: Food Industry (Production and Refining of Oil from Oil Seeds, Excluding Olive Oil)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	170
Oil and grease	mg/l	60	30
pH		6-9	6-9

Table 5.5. Sector: Food Industry (Olive Oil and Soap Production, Solid Oil Refining)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	250	230
Oil and grease	mg/l	60	30
pH		6-9	6-9

Table 5.6. Sector: Food Industry (Slaughterhouses and Integrated Meat Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l		40
Chemical oxygen demand (COD)	mg/l	250	160
Oil and grease	mg/l	30	20
pH		6-9	6-9

Table 5.7. Sector: Food Industry (Fish and Bone Meal Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l		25
Chemical oxygen demand (COD)	mg/l		140
Precipitable solids	mg/l	0.5	

Table 5.8. Sector: Food Industry (Processing Plants for Slaughterhouse By-Products)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l		40
Chemical oxygen demand (COD)	mg/l	200	160
Suspended solids	mg/l	100	60
Oil and grease	mg/l	30	20
pH		6-9	6-9

Table 5.9. Sector: Food Industry (Vegetable and Fruit Washing and Processing Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	60	45
Suspended solids	mg/l	200	100
pH		6-9	6-9

Table 5.10. Sector: Food Industry (Fish Processing Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	60	50
Chemical oxygen demand (COD)	mg/l	200	150
Fish bioassay (TDF)		4	3
pH		6-9	6-9

Table 5.11. e. Sector: Food Industry (Sugar Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	40
Chemical oxygen demand (COD)	mg/l	500	450

Suspended solids	mg/l	100	80
Fish Bioassay (TDF)		4	

Table 5.11.b. Sector: If there is Dilution with Condensation Liquids

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	30	
Chemical oxygen demand (COD)	mg/l	60	
Fish Bioassay (TDF)		4	

Table 5.12. Sector: Food Industry (Salt Processing Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Suspended solids	mg/l	200	100
pH		6-9	6-9

Table 5.13. Sector: Food Industry (Fish Farming)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	20	10
Chemical oxygen demand (COD)	mg/l	50	30

Table 5.14. Sector: Food Industry (Seafood Processing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	35	25
Chemical oxygen demand (COD)	mg/l	300	250
Oil and grease	mg/l	30	20
pH		6-9	6-9

Table 6: Wastewater Discharge Standards in the Beverage Industry

Table 6.1. Sector: Beverage Industry (Non-alcoholic "Soft Drink" Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	40
Chemical oxygen demand (COD)	mg/l	160	110
pH		6-9	6-9

Table 6.2. Sector: Beverage Industry (Alcohol and Alcohol Beverage Industry)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l		40
Chemical oxygen demand (COD)	mg/l	300	200
pH		6-9	6-9

Table 6.3. Sector: Beverage Industry (Malt and Beer Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	40
Chemical oxygen demand (COD)	mg/l	120	100
pH		6-9	6-9

Table 6.4. Sector: Beverage Industry (Production of Alcohol from Molasses)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l		80
	kg/t		25
Chemical oxygen demand (COD)	mg/l		150
	kg/t		45
Precipitable solids	ml/l	0.3	

Table 7. Wastewater Discharge Standards in the Mining Industry

Table 7.1. Sector: Mining Industry (Preparation of Iron and Non-ferrous Metal Ores, Calcium Fluoride, Graphite and Similar Ores) (*)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	80	60
Suspended solids	mg/l	70	50
Lead (Pb)	mg/l	0.5	
Total cyanide (CN ⁻)	mg/l	0.1	
Iron (Fe)	mg/l	3	
Zinc (Zn)	mg/l	3	
Free sulfur (S)	mg/l	15	10
Fish bioassay (TDF)		4	
Mercury (Hg)	mg/l		0.5
Cadmium (Cd)	mg/l	0.1	
Copper (Cu)	mg/l	5	3
Total chromium	mg/l	2	1
pH		6-9	6-9

(*) A value of 150 mg/l is permitted for COD in area of seafloor or hydrothermal origin. A COD concentration of 65 mg/l and an iron concentration of 10 mg/l is acceptable in the preparation of graphite ores.

Table 7.2. Sector: Mining Industry (Coal Production and Transportation)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	30
Chemical oxygen demand (COD)	mg/l	160	110
pH		6-9	6-9

Table 7.3. Sector: Non-metallic Mineral Industry (Boron Urea)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	100	
Boron (B)	mg/l	500	
Fish Bioassay (TDF)		8	
pH		6-9	6-9

Table 7.4. Sector: Mining Industry (Production of Earthenware Vessels)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	80	
Suspended solids	mg/l	100	
Lead (Pb)	mg/l	1	
Cadmium (Cd)	mg/l	0.1	
pH		6-9	6-9

Table 7.5. Sector: Mining Industry (Cement, Stone Crushing and Earth Industry)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Suspended solids	mg/l	100	
Chromium (Cr ⁺⁶)	mg/l	0.3	
Oil and grease	mg/l	10	
pH		6-9	6-9

Table 8: Wastewater Discharge Standards in the Glass Industry

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Chemical oxygen demand (COD)	mg/l		160 ^{at} -250 ^{at}
Fluorine (F ⁻)	mg/l		30

Nickel (Ni)	mg/l	3
Silver (Ag)	mg/l	1
Lead (Pb)	mg/l	1.0
Sulfate (SO ₄ ⁻²)	mg/l	3000
pH		6-9

(*) If the plant's pollution load is less than 1000 kg COD/year, COD will be assumed to be 200 mg/l in the manufacture of unplated mirrors and 250 mg/l in the manufacture of silver-plated mirrors.

(**) If the plant's pollution load is more than 1000 kg COD/year, COD will be assumed to be 160 mg/l in the manufacture of unplated mirrors and 200 mg/l in the manufacture of silver-plated mirrors.

Table 9: Wastewater Discharge Standards in the Coal Processing and Energy Production Industry

Table 9.1. Sector: Coal and Energy (Preparation of Anthracite and Lignite)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	100
Suspended solids	mg/l	150	100
Oil and grease	mg/l	20	10
Total cyanide (CN ⁻)	mg/l		0.5
Temperature	(° C)	35	30
pH		6-9	6-9

Table 9.2. Sector: Coal and Energy (Coke and City Gas Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	150	100
Oil and grease	mg/l	20	10
Total cyanide (CN ⁻)	mg/l		0.5
Phenols	mg/l	1.0	0.5

Temperature	(° C)	35	30
pH		6-9	6-9

Table 9.3. Sector: Coal and Energy (Thermal Power Plants)

Parameters	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	60	30
Total suspended solids	mg/l	150	100
Oil and grease	mg/l	20	10
Total phosphorus	mg/l	8	
Total cyanide (CN ⁻)	mg/l		0.5
Temperature	(° C)		35
pH		6-9	6-9

Table 9.4. Sector: Coal and Energy (Nuclear Power Plants) (*)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Temperature	(° C)	35	30

(*) The restrictive values to be used in protecting human health and the environment from radiation from nuclear fuels and radioactive substances under the authority invested in the Atomic Energy Commission of Turkey by Law no. 2690 are outside the scope of this Regulation

Table 9.5. Sector: Coal and Energy (Geothermal Resources)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	60	30
Oil and grease	mg/l	20	10
Total cyanide (CN ⁻)	mg/l		0.5
Temperature	(° C)	35	30
pH		6-9	6-9

Table 9.6. Sector: Coal and Energy (Cooling Water)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Oil and grease	mg/l	20	10
Total suspended solids	mg/l	150	100
Temperature	(° C)	35	30
pH		6-9	6-9

Table 9.7. Sector: Coal and Energy (Closed Circuit Industrial Cooling Waters)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	40	
Suspended solids	mg/l	100	
Free chlorine	mg/l	0.3	
Total phosphorus	mg/l	5.0	
Zinc (Zn)	mg/l	4.0	

Table 9.9. Sector: Coal and Energy (Fuel Oil and Coal-fired Boiler Cooling Waters)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Precipitable solids	mg/l	0.3	
Hydrazine	mg/l	5	
Total phosphorus	mg/l		8 *
Vanadium	mg/l		3 **
Iron	mg/l		7 ***

(*) To be tested only in boiler blow-off waters.

(**) To be tested in the waste gas scrubbing waters of fuel oil-fired steam boilers.

(***) To be tested in the waste gases of coal-fired boilers and the waste gas scrubbing waters of air pre-treated plants.

Table 10: Wastewater Discharge Standards in the Textile Industry

Table 10.1. Sector: Textile Industry (Staple Fiber and Thread Production and Finishing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	80	60
Chemical oxygen demand (COD)	mg/l	350	240
Ammonia (NH ₄ -N)	mg/l	5	
Free chlorine	mg/l	0.3	
Total chromium	mg/l	2	1
Sulfur (S ⁻²)	mg/l	0.1	
Sulfide	mg/l	1	
Oil and grease	mg/l	10	
Fish bioassay (TDF)		4	3
pH		6-9	6-9

Table 10.2. Sector: Textile Industry (Woven Fabrics Finishing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	90	70
Chemical oxygen demand (COD)	mg/l	400	300
Total suspended solids	mg/l	140	100
Ammonia (NH ₄ -N)	mg/l	5	
Free chlorine	mg/l	0.3	
Total chromium	mg/l	2	1
Sulfur (S ⁻²)	mg/l	0.1	
Sulfide	mg/l	1	
Phenols	mg/l	1	0.5

Fish bioassay (TDF)	4	3
pH	6-9	6-9

Table 10.3. Sector: Textile Industry (Cotton Textiles)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	90	60
Chemical oxygen demand (COD)	mg/l	250	200
Total suspended solids	mg/l	160	120
Ammonia (NH ₄ -N)	mg/l	5	
Free chlorine	mg/l	0.3	
Total chromium	mg/l	2	1
Sulfur (S ⁻²)	mg/l	0.1	
Sulfide	mg/l	1	
Oil and grease	mg/l	10	
Fish bioassay (TDF)		4	3
pH		6-9	6-9

Table 10.4. Sector: Textile Industry (Wool Washing, Finishing, Weaving, etc)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	200	100
Chemical oxygen demand (COD)	mg/l	400	300
Total suspended solids	mg/l	400	300
Ammonia (NH ₄ -N)	mg/l	5	
Free chlorine	mg/l	0.3	
Oil and grease	mg/l	200	100
Total chromium	mg/l	2	1

Sulfur (S^{-2})	mg/l	0.1	
Sulfide	mg/l	1	
pH		6-9	6-9

Table 10.5. Sector: Textile Industry (Knitted Fabric Finishing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	40
Chemical oxygen demand (COD)	mg/l	300	200
Ammonia (NH ₄ -N)	mg/l	5	
Free chlorine	mg/l	0.3	
Oil and grease	mg/l	10	
Total chromium	mg/l	2	1
Sulfur (S^{-2})	mg/l	0.1	
Sulfide	mg/l	1	
Phenols	mg/l	1	0.5
Fish bioassay (TDF)		4	3
pH		6-9	6-9

Table 10.6. Sector: Textile Industry (Carpet Finishing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	120	100
Chemical oxygen demand (COD)	mg/l	300	200
Total suspended solids	mg/l	160	120
Ammonia (NH ₄ -N)	mg/l	5	
Free chlorine	mg/l	0.3	
Oil and grease	mg/l	10	

Total chromium	mg/l	2	1
Sulfur (S ²⁻)	mg/l	0.1	
Sulfide	mg/l	1	
Phenols	mg/l	1	0.5
pH		6-9	6-9

Table 10.7. Sector: Textile Industry (Synthetic Textile Finishing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	100	30
Chemical oxygen demand (COD)	mg/l	400	300
Sulfur (S ²⁻)	mg/l	0.1	
Phenols	mg/l	1	0.5
Zinc (Zn)	mg/l	12	10
Fish bioassay (YDF)		3	2
pH		6-9	6-9

Table 11: Wastewater Discharge Standards in the Petroleum Industry

Table 11.1. Sector: Oil Industry (Oil Refineries)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	100	50
Chemical oxygen demand (COD)	mg/l	120	60
Suspended solids	mg/l	20	10
Oil and grease	mg/l	20	10
Ammonia (NH ₄ -N)	mg/l	40	20
Hydrocarbons	mg/l	15	10

Sulfur (S^{-2})	mg/l	2	1
Phenols	mg/l	2	1
Chromium (Cr^{+6})	mg/l	0.2	0.1
Total cyanide (CN^{-})	mg/l	2	1
pH		6-9	6-9

Table 11.2. Sector: Oil Industry (Petroleum Filling Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	100	50
Chemical oxygen demand (COD)	mg/l	400	200
Suspended solids	mg/l	60	30
Oil and grease	mg/l	40	20
Hydrocarbons	mg/l	6	5
Phenols	mg/l	2	1
Total cyanide (CN^{-})	mg/l	0.5	0.2
Sulfur (S^{-2})	mg/l	2	1
pH		6-9	6-9

Table 12: Wastewater Discharge Standards in the Leather and Leather Products Industry

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	150	100
Chemical oxygen demand (COD)	mg/l	250	200
Suspended solids	mg/l	200	150
Oil and grease	mg/l	30	20
Sulfur (S^{-2})	mg/l	2	1

Chromium (Cr ⁺⁶)	mg/l	0.5	0.3
Total chromium	mg/l	3	2
Fish bioassay (TDF)		4	4
pH		6-9	6-9

Table 13: Wastewater Discharge Standards in the Paper and Pulp Industry

Table 13.1. Sector: Paper Industry (Hemicellulose Production)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Flow	m ³ /t		100
Biochemical oxygen demand (BOD ₅)	mg/l		300
	kg/t		30
Chemical oxygen demand (COD)	mg/l		800
	kg/t		80
Suspended solids	mg/l		50
	kg/t		5
Precipitable solids	ml/l	3	
Fish bioassay (TDF)			8

Table 13.2. Sector: Paper Industry (Cellulose Production from Wastepaper, Straw and Unbleached Paper)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Flow	m ³ /t		150
Biochemical oxygen demand (BOD ₅)	mg/l		270
	kg/t		40
Chemical oxygen demand (COD)	mg/l		870
	kg/t		130
Suspended solids	mg/l		80
	kg/t		12
Precipitable solids	ml/l	4.5	
Fish bioassay (TDF)			8

Table 13.3. Sector: Paper Industry (Bleached Cellulose Production)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Flow	m ³ /t		200
Biochemical oxygen demand (BOD ₅)	mg/l		350
	kg/t		70
Chemical oxygen demand (COD)	mg/l		1000
	kg/t		220
Suspended solids	mg/l		50
	kg/t		10
Precipitable solids	ml/l	6	
Fish bioassay (TDF)			8

Table 13.4. Sector: Paper Industry (Pure Cellulose Production)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Flow	m ³ /t		230
Biochemical oxygen demand (BOD ₅)	mg/l		500
	kg/t		120
Chemical oxygen demand (COD)	mg/l		1500
	kg/t		350
Suspended solids	mg/l		50
	kg/t		11.5
Precipitable solids	ml/l	7	
Fish bioassay (TDF)			8

Table 13.5. Sector: Paper Industry (Non-sterched Paper Production)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Biochemical oxygen demand (BOD ₅)	mg/l		40
	kg/t		3
Chemical oxygen demand (COD)	mg/l		100
	kg/t		6
Precipitable solids	ml/l	0.5	

Table 13.6. Sector: Paper Industry (Starch-reinforced Paper Production)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Biochemical oxygen demand (BOD ₅)	mg/l		40
	kg/t		3
Chemical oxygen demand (COD)	mg/l		100
	kg/t		8
Precipitable solids	ml/l	0.6	

Table 13.7. Sector: Paper Industry (Production of Fine Texture Paper from Pure Pulp)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Biochemical oxygen demand (BOD ₅)	mg/l		40
	kg/t		6
Chemical oxygen demand (COD)	mg/l		120
	kg/t		15
Precipitable solids	ml/l	0.5	

Table 13.8. Sector: Paper Industry (Coated and Filled Paper Production)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Biochemical oxygen demand (BOD ₅)	mg/l		35
	kg/t		0.7
Chemical oxygen demand (COD)	mg/l		75
	kg/t		2*
Precipitable solids	ml/l	0.5	

(* This value is 5 in the case of over 50% thermomechanical pulp.

Table 13.9. Sector: Paper Industry (Paper containing over 5% Wood Fiber and a Low Percentage of Scrap)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Biochemical oxygen demand (BOD ₅)	mg/l		35
	kg/t		0.8
Chemical oxygen demand (COD)	mg/l		100
	kg/t		5
Precipitable solids	ml/l	0.5	

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Table 13.10. Sector: Paper Industry (Paper Manufacture from Scrap Paper)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Biochemical oxygen demand (BOD ₅)	mg/l		45
	kg/t		1.2
Chemical oxygen demand (COD)	mg/l		120
	kg/t		6
Precipitable solids	ml/l	0.5	

Table 13.11. Sector: Paper Industry (Parchment Paper)

Parameter	Unit	Instant Sample	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l		40
	kg/t		6
Chemical oxygen demand (COD)	mg/l		100
	kg/t		12
Precipitable solids	ml/l	0.5	

Table 14: Wastewater Discharge Standards in the Chemical Industry

Table 14.1. Sector: Chemical Industry (Chlor Alkali Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	80	50
Mercury (Hg)	mg/l		0.05
Active chlorine	mg/l	5	
Fish bioassay (TDF)		5	
pH		6-9	6-9

Table 14.2. Sector: Chemical Industry (Perborate and other Boron Products Industry)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	100	
Boron (B)	mg/l	500	

Fish bioassay (TDF)	8
pH	6-9

Table 14.3. Sector: Chemical Industry (Orpiment Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	150
Sulfur (S^{2-})	mg/l	2.0	1.0
Oil and grease	mg/l	20	10
Fish bioassay (TDF)		4	4
pH		6-9	6-9

Table 14.4 Sector: Chemical Industry (Dye Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	20	30
Chemical oxygen demand (COD)	mg/l	200	150
Suspended solids	mg/l	60	40
Fish bioassay (TDF)		3	
pH		6-9	6-9

Table 14.5. Sector: Chemical Industry (Raw and Auxiliary Materials in Dye Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	150
Chromium (Cr^{+6})	mg/l	0.5	0.3
Cadmium (Cd)	mg/l	0.15	0.1
Zinc (Zn)	mg/l	4	3
Total chromium	mg/l	2	1

Lead (Pb)	mg/l	2	1
Iron (Fe)	mg/l	30	
Total cyanide (CN ⁻)	mg/l	2	1
Fish bioassay (TDF)		6	3
pH		6-9	6-9

Table 14.6. Sector: Chemical Industry (Pharmaceuticals Industry)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	
Fish bioassay (TDF)		6	
pH		6-9	6-9

Table 14.7. Sector: Chemical Industry (Fertilizer Production)

Table 14.7.a. Production of Fertilizer Containing Nitrogen and Other Nutrients

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Chemical oxygen demand (COD)	mg/l		200
	kg/t		3
Suspended solids	mg/l		100
Total cadmium	mg/l		0.5
	g/t		0.5/1*
Ammonia (NH ₄ -N)	mg/l		50
	kg/t		14
Nitrate (NO ₃ -N)	mg/l		50
	kg/t		14
Phosphate (PO ₄ -P)	mg/l		35
	kg/t		3
Fluorine (F ⁻)	mg/l		15
	kg/t		3.5
pH		6-9	6-9

(* Standard value of 0.5 g/t assumed up to 50 g cadmium. Standard value of 1.0 g/t to be used for 50-100 g cadmium.

Table 14.7.b. Production of Fertilizer Containing Only Nitrogen

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Chemical oxygen demand (COD)	mg/l		150
	kg/t		2
Suspended solids	mg/l		100
Ammonia (NH ₄ -N)	mg/l		50
	kg/t		4
Nitrate (NO ₃ -N)	mg/l		50
	kg/t		4
pH		6-9	6-9

Table 14.7. c. Production of Phosphate Fertilizers and Phosphoric Acid

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Chemical oxygen demand (COD)	mg/l		200
	kg/t		3
Suspended solids	mg/l		100
Total cadmium	mg/l		0.5
	kg/t		0.5/1 *
Phosphate (PO ₄ -P)	mg/l		35
	kg/t		3
Fluorine (F ⁻)	mg/l		15
	kg/t		3
pH		6-9	6-9

(* Standard value of 0.5 g/t assumed for up to 50 g cadmium. Standard value of 1.0 g/t used for 50/100 g cadmium.

Table 14.8. Sector: Chemical Industry (Plastic Processing and Plastic Materials Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	30
Chemical oxygen demand (COD)	mg/l	200	100
Suspended solids	mg/l	65	45
Oil and grease	mg/l	25	10
Total phosphorus	mg/l	2.5	1

Fish bioassay (TDF)	6	3
pH	6-9	6-9

Table 14.9. Sector: Chemical Industry (Medical and Agricultural Preparations)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	
Fish bioassay (TDF)		10	
pH		6-9	

Table 14.10. Sector: Chemical Industry (Detergent Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	100
Suspended matter	mg/l	150	100
Surface active substances	mg/l	10	5
Total phosphorus (P)	mg/l	2	1
pH		6-9	6-9

Table 14.11. Sector: Chemical Industry (Rubber Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	60	50
Chemical oxygen demand (COD)	mg/l	200	100
Suspended solids	mg/l	65	45
pH		6-9	6-9

Table 14.12. Sector: Chemical Industry (Petrochemical and Hydrocarbon Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	100	50
Chemical oxygen demand (COD)	mg/l	300	250
Suspended solids	mg/l	200	100
Oil and grease	mg/l	30	10
Hydrocarbons	mg/l	15	10
Ammonia (NH ₄ -N)	mg/l	20	10
Phenols	mg/l	2	1
Total cyanide (CN ⁻)	mg/l	1	0.5
Sulfur (S ⁻²)	mg/l	2	1
Mercury (Hg)	mg/l		0.05
Cadmium (Cd)	mg/l	0.15	0.10
Zinc (Zn)	mg/l	1	0.5
Lead (Pb)	mg/l	1	0.5
Chromium (Cr ⁺⁶)	mg/l	0.5	0.2
Copper (Cu)	mg/l	1	0.5
Fish bioassay (TDF)		6	4
pH		6-9	6-9

Table 14.13. Sector: Chemical Industry (Soda Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Suspended solids	mg/l	1500	
	kg/t	190	
Chlorine *	mg/l	15000	
	kg/t	1200	
Fish bioassay (TDF) *		32	
pH		6-9	

(*) Compliance with these parameter limits is not required for discharges into the sea as receptor medium.

Table 14.14. Sector: Chemical Industry (Carbide Production)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Precipitable solids	ml/l	0.3	
	mg/l	0.5	
Free chlorine *	mg/l		0.5
Free cyanide	g/t		4
Suspended solids	mg/l		100
Fish bioassay (TDF)			2
pH		6-9	6-9

(*) Expresses the amount of free chlorine remaining after removal of hypochloride and cyanide.

Table 14.15. Sector: Chemical Industry (Production of Barium Compounds)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Chemical oxygen demand (COD)	mg/l		100
Precipitable solids	ml/l	0.5	
Sulfur (S ²⁻)	mg/l		1
Barium (Ba)	mg/l		5
Fish bioassay (TDF)			3
pH		6-9	6-9

Table 14.16. Sector: Chemical Industry (Disperged Oxide Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Free chlorine	mg/l		4
	kg/t		0.6
Chlorine	mg/l		3100
	kg/t		470
Fish bioassay (TDF)		16	

Table 15: Wastewater Discharge Standards in the Metal Industry

Table 15.1. Sector: Metal Industry (Iron-Steel Production)

Table 15.1.a. General Iron and Steel

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Chemical oxygen demand (COD)	mg/l		100
Oil and grease	mg/l		20
Precipitable solids	ml/l	0.5	
Lead (Pb)	mg/l		0.5
Iron (Fe)	mg/l		20
Zinc (Zn)	mg/l		4
pH		6-9	6-9

Table 15.1.b. Iron-Steel Processing Plants

Parameter	Unit	Instant Sample	Composite Sample 24-hour
Foundries			
Chemical oxygen demand (COD)	mg/l		200
Precipitable solids	ml/l	0.8	
Pipe Production			
Chemical oxygen demand (COD)	mg/l		200
Can & Canister Production			
Chemical oxygen demand (COD)	mg/l		200
Lead Treatment and Pickling Units			
Lead (Pb)	mg/l		2

Table 15.2. Sector: Metal Industry (General Metal Preparation and Processing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	100
Suspended solids	mg/l	125	50
Oil and grease	mg/l	20	10
Ammonia (NH ₄ -N)	mg/l	100	
Nitrite (NO ₂ -N)	mg/l	10	5
Active chlorine	mg/l	0.5	
Sulfur (S ⁻²)	mg/l	2	
Total chromium *	mg/l	2	1
Chromium (Cr ⁺⁶) *	mg/l	0.5	0.5
Lead (Pb) *	mg/l	2	1
Total cyanide (CN ⁻) *	mg/l	0.5	0.1
Mercury (Hg) *	mg/l	0.05	0.01
Cadmium (Cd) *	mg/l	0.5	0.1
Aluminum (Al) *	mg/l	3	2
Iron (Fe) *	mg/l	3	
Fluorine (F ⁻) *	mg/l	50	30
Copper (Cu) *	mg/l	3	1
Nickel (Ni) *	mg/l	3	2
Zinc (Zn) *	mg/l	5	3
Silver (Ag) *	mg/l	0.1	
Fish bioassay (TDF)		10	
pH		6-9	6-9

(*) The parameter anticipated in the wastewater are the ones that should be analyzed. Otherwise conformity with the figures given in the table should be monitored by analyzing parameters other than these.

Table 15.3. Sector: Metal Industry (Galvanizing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	600	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Ammonia (NH ₄ -N)	mg/l	100	
Active chlorine	mg/l	0.5	
Total chromium	mg/l	2	
Chromium (Cr ⁺⁶)	mg/l	0.5	
Lead (Pb)	mg/l	1	
Total cyanide (CN ⁻)	mg/l	0.2	
Cadmium (Cd)	mg/l	0.5	
Aluminum (Al)	mg/l	3	
Iron (Fe)	mg/l	3	
Fluorine (F ⁻)	mg/l	50	
Copper (Cu)	mg/l	2	
Nickel (Ni)	mg/l	3	
Zinc (Zn)	mg/l	5	
Silver (Ag)	mg/l	0.1	
Fish bioassay (TDF)		8	
pH		6-9	

Table 15.4. Sector: Metal Industry (Firing)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	100	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Ammonia (NH ₄ -N)	mg/l	10	
Active chlorine	mg/l	0.5	
Total chromium	mg/l	1	
Chromium (Cr ⁺⁶)	mg/l	0.5	
Aluminium (Al)	mg/l	3	
Iron (Fe)	mg/l	3	
Fluorine (F ⁻)	mg/l	20	
Copper (Cu)	mg/l	2	
Nickel (Ni)	mg/l	2	
Zinc (Zn)	mg/l	5	
Fish bioassay (TDF)		5	
pH		6-9	

Table 15.5. Sector: Metal Industry (Electrolytic Plating)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24 hours
Chemical oxygen demand (COD)	mg/l	100	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Nitrite (NO ₂ -N)	mg/l	5	
Active chlorine	mg/l	0.5	
Total chromium	mg/l	1	

Chromium (Cr ⁺⁶)	mg/l	0.5
Aluminum (Al)	mg/l	3
Fluorine (F ⁻)	mg/l	50
Zinc (Zn)	mg/l	3
Fish bioassay (TDF)	mg/l	2
pH		6-9

Table 15.6. Sector: Metal Industry (Metal Tinting)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Nitrate (NO ₂ -N)	mg/l	10	
Active chlorine	mg/l	0.5	
Total chromium	mg/l	1	
Chromium (Cr ⁺⁶)	mg/l	0.5	
Iron (Fe)	mg/l	3	
Nickel (Ni)	mg/l	2	
Fish bioassay (TDF)		8	
pH		6.9	

Table 15.7. Sector: Metal Industry (Hot Galvanizing-Zinc Plating Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	

Ammonia (NH ₄ -N)	mg/l	400
Cadmium (Cd)	mg/l	0.1
Iron (Fe)	mg/l	3
Fluorine (F ⁻)	mg/l	50
Zinc (Zn)	mg/l	5
Fish bioassay (TDF)		10
pH		6-9

Table 15.8. Sector: Metal Industry (Quenching and Hardening)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	1000	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Nitrite (NO ₂ -N)	mg/l	5	
Active chlorine	mg/l	0.5	
Total cyanide (CN ⁻)	mg/l	1	
Fish bioassay (TDF)		40	
pH		6-9	

Table 15.9. Sector: Metal Industry (Conductive Plating Manufacture)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	2500	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Ammonia (NH ₄ -N)	mg/l	100	
Sulfur (S ⁻²)	mg/l	2	

Total chromium	mg/l	1
Chromium (Cr ⁺⁶)	mg/l	0.5
Lead (Pb)	mg/l	1
Total cyanide (CN ⁻)	mg/l	0.2
Iron (Fe)	mg/l	3
Fluorine (F ⁻)	mg/l	50
Copper (Cu)	mg/l	2
Nickel (Ni)	mg/l	3
Silver (Ag)	mg/l	0.1
Fish bioassay (TDF)		10
pH		6-9

Table 15.10. Sector: Metal Industry (Battery Manufacture)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	250	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Ammonia (NH ₄ -N)	mg/l	150	
Sulfur (S ⁻²)	mg/l	2	
Lead (Pb)	mg/l	2	
Mercury (Hg)	mg/l	0.05	
Cadmium (Cd)	mg/l	0.5	
Iron (Fe)	mg/l	3	
Copper (Cu)	mg/l	2	
Nickel (Ni)	mg/l	3	
Zinc (Zn)	mg/l	5	

Silver (Ag)	mg/l	0.1
Fish bioassay (TDF)		8
pH		6-9

Table 15.11. Sector: Metal Industry (Glazing and Enamelling Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
		79	
Chemical oxygen demand (COD)	mg/l	100	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Ammonia (NH ₄ -N)	mg/l	20	
Nitrite (NO ₂ ⁻ N)	mg/l	5	
Total chromium	mg/l	2	
Chromium (Cr ⁺⁶)	mg/l	0.5	
Lead (Pb)	mg/l	1	
Cadmium (Cd)	mg/l	0.2	
Aluminium (Al)	mg/l	2	
Iron (Fe)	mg/l	3	
Fluorine (F ⁻)	mg/l	50	
Copper (Cu)	mg/l	2	
Nickel (Ni)	mg/l	2	
Zinc (Zn)	mg/l	2	
Fish bioassay (TDF)		4	
pH		6-9	

Table 15.13. Sector: Metal Industry (Metal Honing and Sanding Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	800	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Ammonia (NH ₄ -N)	mg/l	300	
Nitrite (NO ₂ ^{-N})	mg/l	10	
Total chromium	mg/l	1	
Chromium (Cr ⁺⁶)	mg/l	0.5	
Lead (Pb)	mg/l	1	
Total cyanide (CN ⁻)	mg/l	0.2	
Cadmium (Cd)	mg/l	0.1	
Aluminum (Al)	mg/l	3	
Iron (Fe)	mg/l	3	
Fluoride (F ⁻)	mg/l	30	
Copper (Cu)	mg/l	1	
Nickel (Ni)	mg/l	1	
Zinc (Zn)	mg/l	3	
Fish bioassay (TBF)		30	
pH		6.9	

Table 15.13. Sector: Metal Industry (Metal Polishing and Vernishing Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	1500	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	

Aluminum (Al)	mg/l	3
Iron (Fe)	mg/l	3
Copper (Cu)	mg/l	2
Zinc (Zn)	mg/l	3
Fish bioassay (TDF)		8
pH		6-9

Table 15.14. Sector: Metal Industry (Lacquer and Paint)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	800	
Suspended solids	mg/l	125	
Oil and grease	mg/l	20	
Total chromium	mg/l	1	
Chromium (Cr ⁺⁶)	mg/l	0.5	
Lead (Pb)	mg/l	1	
Cadmium (Cd)	mg/l	0.5	
Aluminum (Al)	mg/l	3	
Iron (Fe)	mg/l	3	
Copper (Cu)	mg/l	2	
Nickel (Ni)	mg/l	1	
Zinc (Zn)	mg/l	3	
Fish bioassay (TDF)		10	
pH		6-9	

Table 15.15. Sector: Metal Industry (Non-ferrous Metal Production Excluding Aluminum)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	100	50
Suspended solids	mg/l	125	100
Cadmium (Cd) *	mg/l	1	
Oil and grease	mg/l	20	
Mercury (Hg) *	mg/l		0.5
Zinc (Zn) *	mg/l	5	
Lead (Pb) *	mg/l	2	
Copper (Cu) *	mg/l	2	
Iron (Fe) *	mg/l	10	
Total chromium *	mg/l	2	
Chromium (Cr ⁺⁶) *	mg/l	0.5	
Arsenic *	mg/l	0.1	
Nickel (Ni) *	mg/l	3	
Total cyanide (CN ⁻)	mg/l	0.1	
pH		6-9	6-9

(*) The parameters anticipated in the wastewater are the ones that should be analyzed. Otherwise, conformity with the figures given in the table should be monitored by analyzing parameters other than these.

Table 15.16. Sector: Metal Industry (Aluminum Oxide and Aluminum Smelting)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	140
Suspended solids	mg/l	125	100
Oil and grease	mg/l	20	10

Aluminium (Al)	mg/l	3	
Active chlorine	mg/l	0.5	
Fluorine	mg/l	50	
pH		6-9	6-9

Table 15.17. Sector: Metal Industry (Iron and Non-ferrous Metal Foundries and Casting Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	150
Suspended solids	mg/l	150	100
Oil and grease	mg/l	20	10
Cadmium (Cd) *	mg/l	1	
Mercury (Hg) *	mg/l		0.05
Zinc (Zn) *	mg/l	5	
Lead (Pb) *	mg/l	2	
Copper (Cu) *	mg/l	2	
Iron (Fe) *	mg/l	10	
Total chromium	mg/l	2	
Chromium (Cr ⁺⁶)	mg/l	0.5	
Arsenic *	mg/l	0.1	
Aluminium	mg/l	3	2
Nickel (Ni)	mg/l	3	
Total cyanide (CN ⁻)	mg/l	0.1	
pH		6-9	6-9

(* The parameters anticipated in the wastewater are the ones that should be analyzed. Otherwise, conformity with the figures given in the table should be monitored by analyzing parameters other than these.

Table 16: Wastewater Discharge Standards in the Wood Products and Furniture Industry (Fiberboard, Duralite, Joinery, Timber, Boxes, Packaging, Stutties, etc)

Parameter	Unit	Instant Sample	Composite Sample 2-hour
Biochemical oxygen demand (BOD ₅)	mg/l		50
	kg/t		2
Chemical oxygen demand (COD)	mg/l		100
	kg/t		8
Precipitable solids	ml/l	0.7	
pH		6.9	6.9

Table 17: Wastewater Discharge Standards in the Mass Production of Machinery, Electrical Machinery and Instruments, and the Spare Parts Industry

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	250	100
Oil and grease	mg/l	20	10
Ammonia (NH ₄ -N)	mg/l	150	100
Chromium (Cr ⁺⁶)	mg/l	0.5	0.5
Lead (Pb)	mg/l	2	1
Total cyanide (CN ⁻)	mg/l	0.5	0.1
pH		6-9	6-9

Table 18: Wastewater Discharge Standards in the Automotive Manufacture and Repair Industry

Table 18.1. Sector: Automotive Industry (Automobile and Tractor Repair Shops)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Oil and grease	mg/l	20	10
Ammonia (NH ₄ -N)	mg/l	100	
Total cyanide (CN ⁻)	mg/l	1	0.2
Total chromium	mg/l	2	1

Fish bioassay (TDF)	10	
pH	6-9	6-9

Table 18.2. Sector: Automotive Industry (Automobile, Truck, Tractor, Minibus, Bicycle and Motorcycle Manufacturing Plants)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	400	300
Suspended solids	mg/l	80	40
Oil and grease	mg/l	20	10
Ammonia (NH ₄ -N)	mg/l	100	
Nitrite (NO ₂ -N)	mg/l	5	
Free cyanide	mg/l	0.05	
Total chromium	mg/l	0.5	
Chromium (Cr ⁺⁶)	mg/l	0.05	
Nickel (Ni)	mg/l	1	
Cadmium (Cd)	mg/l	0.05	
Iron (Fe)	mg/l	3	
Aluminium (Al)	mg/l	3	
Lead (Pb)	mg/l	0.3	
Copper (Cu)	mg/l	0.3	
Zinc (Zn)	mg/l	2	
Mercury (Hg)	mg/l	0.005	
Fluorine (F ⁻)	mg/l	5	
Fish bioassay (TDF)		8	
pH		6-9	6-9

Table 18.3. Sector: Ship Building and Dismantling Yards (*)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	400	200
Oil and grease	mg/l	20	10
Total cyanide (CN ⁻)	mg/l	1	0.2
Total chromium	mg/l	2	1
Fish bioassay (TDF)		10	
pH		6-9	6-9

(*) Compliance with receptor medium standards is generally compulsory in marine environments (Table 4). If coastal protection zones in the nearby environment are used for recreational purposes, recreation standards must not be infringed in such zones.

Table 19: Wastewater Discharge Standards in Mixed Industries (Small and Large Organized Industrial Zones, and Unclassifiable Industries)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	100	50
Chemical oxygen demand (COD)	mg/l	160	100
Suspended solids	mg/l	200	100
Oil and grease	mg/l	20	10
Total phosphorus	mg/l	2	1
Total chromium	mg/l	2	1
Chromium (Cr ⁺⁶)	mg/l	0.5	0.5
Lead (Pb)	mg/l	2	1
Total cyanide (CN ⁻)	mg/l	1	0.5
Cadmium (Cd)	mg/l	0.1	
Iron (Fe)	mg/l	10	
Fluorine (F ⁻)	mg/l	15	

Copper (Cu)	mg/l	3	
Nickel (Ni)	mg/l	5	
Zinc (Zn)	mg/l		
Mercury (Hg)			0.05
Fish bioassay (TDF)		10	10
pH		6-9	6-9

Table 20: Discharge Standards for Other Industrial Wastewaters

Table 20.1. Sector: Other Industrial Wastewaters (Industrial Cooling Waters, etc)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	150
Oil and grease	mg/l	20	10
Fish bioassay (TDF)		5	
Temperature	(°C)	35	30
pH		6-9	6-9

Table 20.2. Sector: Other Industrial Wastewaters (Exit Waters from Filters used to Control Air Pollution)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	250	200
Suspended solids	mg/l	150	100
Sulfate (SO_4^{-2})	mg/l	2500	1500
Fish bioassay (TDF)		10	
Temperature	(°C)	35	30
pH		6-9	6-9

Table 20.3. Sector: Other Industrial Wastewaters (Gas Station and Car Wash Wastewaters)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	200	150
Oil and grease	mg/l	20	10
Fish bioassay (TDF)		20	
pH		6-9	6-9

Table 20.4. Sector: Other Industrial Wastewaters (Glue and Adhesive Production)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	30
Chemical oxygen demand (COD)	mg/l	140	120
pH		6-9	6-9

Table 20.5. Sector: Other Industrial Wastewaters (Backwash Waters of Drinking Water Filters)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chemical oxygen demand (COD)	mg/l	100	70
Suspended solids	mg/l	150	100
pH		6-9	6-9

Table 20.6. Sector: Solid Waste Recycling and Disposal Plants

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	100	50
Chemical oxygen demand (COD)	mg/l	160	100
Suspended solids	mg/l	200	100
Oil and grease	mg/l	20	10

Total phosphorus (PO ₄ -P)	mg/l	2	1
Total chromium	mg/l	2	1
Chromium (Cr ⁺⁶)	mg/l	0.5	0.3
Lead (Pb)	mg/l	2	1
Total cyanide (CN ⁻)	mg/l	1	0.5
Cadmium (Cd)	mg/l	0.1	
Iron (Fe)	mg/l	10	
Fluorine (F ⁻)	mg/l	15	
Copper (Cu)	mg/l	3	
Zinc (Zn)	mg/l	5	
Fish bioassay (TDF)		10	
pH		6-9	6.9

Table 20.7. Sector: Water Softening, Demineralization and Regeneration, Active Carbon Washing and Regeneration Plants

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Chlorine (Cl ⁻)	mg/l	2000	1500
Sulfate (SO ₄ ⁻²)	mg/l	3000	2500
Iron (Fe)	mg/l	10	
Fish bioassay (TDF)		10	
pH		6-9	6.9

Table 21: Wastewater Discharge Standards for Household Wastewater

Table 21.1. Sector: Household Wastewaters (Class 1: Less than 1000 Population and Pollution Load of 60 kg/day untreated BOD)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	45
Chemical oxygen demand (COD)	mg/l	180	120
Suspended solids	mg/l	70	45
pH		6-9	6-9

Table 21.2. Sector: Household Wastewaters (Class 2: Population 1000-10,000 and Pollution Load of 60-6000 kg/day untreated BOD)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	45
Chemical oxygen demand (COD)	mg/l	160	110
Suspended solids	mg/l	60	30
pH		6-9	6-9

Table 21.3. Sector: Household Wastewaters (Class 3: Population Over 10,000 and Pollution Loads of more than 600 kg/day untreated BOD)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅)	mg/l	50	45
Chemical oxygen demand (COD)	mg/l	140	100
Suspended solids	mg/l	45	30
pH		6-9	6-9

Table 21.4. Sector: Household Wastewaters (For Urban Wastewater Treatment Plants, Regardless of Population, using Biological Purification by means of a System of Stabilization Pools)

Parameter	Unit	Composite Sample 2-hour	Composite Sample 24-hour
Biochemical oxygen demand (BOD ₅) (dissolved)	mg/l	75	50
Chemical oxygen demand (COD)	mg/l	150	100
Suspended solids	mg/l	200	150
pH		6-9	6-9

Table 22: Properties of Wastewaters Permitted in Deepsea Discharges

Parameter	Class	Remarks
pH	6-9	
Temperature	35° C	
Suspended solids (mg/l)	350	
Oil & grease	10	
Floating materials	None	
5-day Biochemical Oxygen Demand (BOD ₅)	250	
Chemical Oxygen Demand (COD) (mg/l)	400	
Total nitrogen (mg/l)	40	
Total phosphorus (mg/l)	10	
Surface active substances (mg/l)	10	Discharges of substances decomposition of which in line with Turkish Standards is impossible is prohibited on principle.
Other parameters		Compliance with the limit values given for these parameters in the Communiqué on Dangerous and Hazardous Substances is compulsory.

Table 23: Criteria for Deepsea Discharges

Parameter	Limit
Temperature	Regardless of the dilution capacity of the marine environment, the temperature of water to be discharged into the sea must not exceed 35° C. Hot water discharges may not increase seawater temperature as a result of the primary dilution (S1) physically caused by the diffuser by more than 1° C in summer (June-Sept) or by more than 2° C in the other months.
Total and Fecal Coliform in Most Probable Number (MPN)	Following total dilution by deepsea discharge in protected zones with human contact, the total coliform level in MPN must be less than 1000 TC/100 ml and the fecal coliform level less than 200 FC/100 ml 90% of the time.
Solid and floating material	Visible solid and floating matter at a diffuser exit must not be found outside a strip the total width of which is equal to the depth of the sea at that point.
Other parameters	Compliance with the limits given in Table 4 is compulsory.

Table 24: Minimum Length of Discharge Pipe Based on Household Wastewater Flow

Population	Flow	Minimum Length of Discharge Pipe
<1000	200 m ³ /day	500 m
1000-10,000	200-2000 m ³ /day	1,300 m

Table 25: Wastewater Discharge Standards Envisaged in Discharges into Wastewater Infrastructure Plants

Parameter	At wastewater infrastructure plants whose sewerage systems culminate in total treatment.	At wastewater infrastructure plants whose sewerage system culminate in deepsea discharges.
Temperature (° C)	40	40
pH	6.5-10.0	6.5-10.0
Suspended solids (mg/l)	500	350
Oil & grease (mg/l)	250	50

Tar and petroleum-based oils (mg/l)	50	10
Chemical oxygen demand (COD) (mg/l)	4000	600
SO ₄ (sulfate) (mg/l)	1000	1000
Total sulfur (S) (mg/l)	2	2
Phenols (mg/l)	20	10
Free chlorine (mg/l)	5	5
Total nitrogen (N) (mg/l)	- (a)	40
Total phosphorus (P) (mg/l)	- (a)	10
Arsenic (As) (mg/l)	3	10
Total cyanide (Total CN ⁻) (mg/l)	10	10
Total lead (Pb) (mg/l)	3	3
Total cadmium (Cd) (mg/l)	2	2
Total chromium (Cr) (mg/l)	5	5
Total mercury (Hg) (mg/l)	0.2	0.2
Total copper (Cu) (mg/l)	2	2
Total nickel (Ni) (mg/l)	5	5
Total zinc (Zn) (mg/l)	10	10
Total tin (Sn) (mg/l)	5	5
Total silver (Ag) (mg/l)	5	5
Cl ⁻ (chlorine) (mg/l)	10000	

Surface active substances Discharges of substances the biological decomposition of which in line with Turkish Standards is impossible is prohibited on principle.

(a) These parameters shall not be considered in wastewater analyses.