

ANNEX 3.8:

THE ORDINANCE ON CLASSIFICATION OF WATERS, OGRS 5/68 – SUMMARY;

THE ORDINANCE ON DANGEROUS SUBSTANCES IN WATERS, OGRS 31/82 – SUMMARY



Extract from legislation:

The Ordinance on Classification of Water courses, Official Gazette of RS, N° 5/68, Article 1, defines that categories of water courses are defined per catchment areas, and in accordance with the list enclosed with this ordinance. Premise 1

Treatment efficiency of wastewaters as well as their disposal must ensure that a specified water quality category of a particular water course is maintained.

The local water courses, the river South Morava and the river Veternica are classified as follows:

- South Morava: from the river Vlasina River confluence - to the river Jablanica confluence - Category IIa.
- Veternica: from Vucje - to the Veternica confluence into the Juzna Morava - Category IIb.

Classes of water quality are defined in the Ordinance on classification of waters, Official Gazette of RS, N° 5/68.

Water quality of the certain water-course category (I, IIa, IIb, III or IV) should meet the quality criteria defined in this ordinance.

Extract from legislation:

Ordinance on classification of waters , Official Gazette of RS, N° 5/68

Article 1, Premise 1.

This regulation establishes general division of waters in four classes according to their characteristics and potential utilization.

Article 2, Premise 2.

Class II - waters suitable for swimming, recreation and water sports, for breeding of less purebred species of fish (cyprinids), as well as waters which after normal treatment (coagulation, filtration and disinfection) can be used for drinking water supply of settlements and in the food industry;

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Article 3.

Waters of the Class II, without border watercourses and watercourses which cross the border of the Republic of Serbia, are divided into subclasses, as follows:

Subclass IIa, comprises waters which after normal treatment (coagulation, filtration and disinfection) can be used for drinking water supply of settlements, for swimming and in the food industry, and

Subclass IIb, comprises waters that can be utilized or used for water sports, recreation, for breeding of less purebred species offish (cyprinids) and for cattle water supply.

Article 4.

Division of the waters into classes and subclasses from Articles 1 and 2 of this regulation is established in accordance with certain parameters and their limit values. Parameters and their limit values for particular classes and subclasses are:

Ord. N°	Parameter	Class I	Subclass IIa	Subclass lib	Class III	Class IV
1.	Suspended solids, during the dry weather, in mg/l - maximum	10	30	40	80	-
2.	Total dry residue, during the dry weather, in mg/l - maximum: - for surface water and natural lakes - for underground waters	350 800	1000 1000	1000 1000	1500 1500	-
3.	pH value	6,8-8,5	6,8-8,5	6,5-8,5	6,0-9,0	-
4.	Saturated oxygen in mg/l - minimum (not applicable for underground water and natural lakes)	8	6	5	4	0,5
5.	Five days biochemical oxygen demand in mg/l - maximum	2	4	6	7	-
6.	Degree of saprobity according to Liebman (not applicable for underground water and natural lakes)	Oligo-saprobic	Beta-meso-saprobic	Beta-alpha-meso-saprobic	Alpha-meso-saprobic	-
7.	Degree of biological productivity (applicable for lakes only)	Oligotrophic	Eutrophic	Eutrophic	-	-
8.	The most probable number of germs in 100 ml of water – maximum	200	6000	10000	-	-
9.	Visible waste materials	without	without	without	without	without
10.	Noticeable colour	without	without	without	-	-
11.	Noticeable smell	without	without	without	-	-

Article 5

Parameters and their limit values from the article 4 of this regulation are applied to waters as follows:

- to watercourses with no regulated flow, for the low monthly average dry weather flow with probability of 95%;
- to watercourses with regulated flow for the guaranteed minimum flow.

The Republic of Serbia Water Resources Master Plan adopted in 2002 specifies that the river South Morava is classified in the class II, without further division into sub-classes.

The following document, currently in effect in the Republic Serbia and quoted almost entirely, provides maximal allowable concentrations for 223 various substances in waters, depending on recipient class.

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Extract from legislation:

The Ordinance on Dangerous Substances in Waters, OGRS 31/82 – Summary

Article 1

Dangerous substances that must not be directly or indirectly discharged into the waters are prescribed by this Rulebook.

Article 2

Dangerous substances are substances listed in the Article 3 of this Rulebook, which can endanger the lives of people, fishes and animals, because of their composition, quantity, radioactivity level or other characteristics. Article 3

Maximum concentrations of dangerous substances in waters, given in milligrams per one litre of water (mg/l) for classes determined by the regulations on waters classification, are:

No	Dangerous Substance	Concentration (mg/l)	
		Class	
		I and II	III and IV
1.	Avadex	0,03	1,0
2.	Acrlonitrile	2,0	2,0
3.	Acroleine	0,01	0,01
4.	Aldrine	0,017	0,02
5.	Alkyl benzene sulphonate	0,4	1,0
6.	Amines (C7 - C9)	0,1	0,1
7.	Amines (C10 - C16)	0,04	0,5
8.	Amine (C17 - C20)	0,03	0,05
9.	Amino-phenol (o-)	0,01	-
10.	Amino-phenol (m-)	0,05	0,1
11.	Amino-phenol (r-)	0,05	-
12.	Ammoniac	0,1	0,5
13.	Ammonium ion	1,0	10,0
14.	Anisole	0,02	0,05
15.	Antimony	0,05	0,05
16.	Arsenic	0,05	0,05
17.	Acetone (according to BOD)	0,5	2,0
18.	Acetone- cyan ohydrins	0,001	0,001
19.	Ace to fos	0,03	-
20.	Cooper	0,1(0,01)*	0,1
21.	Barium	1,0	4,0
22.	Benzatrone	0,05	0,05
23.	Gasoline	0,1	0,1
24.	Benzole acid (according to BOD)	5,0	10,0
25.	Benzene	0,5	0,5

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No	Dangerous Substance	Concentration (mg/l)	
		Class	
		I and II	III and IV
26.	Beryllium	0,0002	0,001
27.	Boron	0,3	1,0
28.	Buten-1	0,2	10,0
29.	Butter acid (according to BOD)	5,0	10,0
30.	Butyl acrylate	0,015	1,0
31.	Butyl alcohol	1,0	10,0
32.	Butyl xantogenate	0,001	-
33.	n-Butyl-mercaptane	0,006	-
34.	Vanadium	0,1	0,5
35.	Hydrogen sulphide	-	0,1
36.	Wolfram	0,10	0,10
37.	Iron	0,3	1,0
38.	Dieldrine	0,017	0,02
39.	Diethyldicaprilate tin	0,01	0,01
40.	Diethylditiophosphoric acid	0,1	1,0
41.	Diethyl-ester of maleinic acids	1,0	1,0
42.	Diethyl mercury	0,0001	0,0001
43.	Diethyl-chlortriphosphate	0,02	-
44.	DDT	0,04	0,1
45.	Di-isopropylamine	0,5	0,5
46.	Diisapropylbenzene (m-ip-)	0,05	0,05
47.	Dimethyldioxane	0,005	0,005
48.	Dime thylsulphide	0,03	0,3
49.	Dimethylphenilcarbinole	0,005	0,005
50.	Dimethylformamide	10,0	10,0
51.	o.o-Dimethyl-s-ethyl-	0,001	1,0
52.	p'p'-Dimetoxidipheniltrichloretane	0,005	0,1
53.	Dinitrobenzene	0,5	1,0
54.	Di nitron aphtalene	0,5	1,0
55.	2,4-Dinitrophenole	0,03	0,03
56.	1,2-Dintro-4-Chlorbenzene	0,5	1,0
57.	2,2-Diphenilol propane	0,01	-
58.	Diphenilpropane	0,01	0,5
59.	Dichloraniline (3,4 and 2,5)	0,05	4,0
60.	Dichlorobenzene	0,002	0,02
61.	1,3-Dichlorbuten-2	0,05	2,0
62.	Dichlordibutyl-tin	0,002	0,002
63.	p'p'-Dichlordiphenildichloretane	0,003	0,1
64.	Dichloretane	2,0	10,0
65.	2,4-Dichlorphenol	0,002	1,0

No	Dangerous Substance	Concentration (mg/l)	
		Class	
		I and II	III and IV
66.	Dichlorcyclohexane	0,02	0,25
67.	Dicyclohexilaminonitrite	0,001	-
68.	Dodecilbenzosulphonate	0,05	5,0
69.	Endrine	0,001	0,01
70.	Epichlorhydrine	0,01	0,01
71.	Ethylacrylate	0,005	-
72.	Ethylamine	0,5	-
73.	Ethyl-benzene	0,01	2,0
74.	Ethylene	0,5	1,5
75.	Ethylenglycole	1,0	1,0
76.	Ethylmercurychloride	0,0001	0,0001
77.	Mercury	0,001	0,001
78.	Isobutyl alcohol	1,0	-
79.	Isobutylene	0,5	10,0
80.	Isoprene	0,005	-
81.	Cadmium	0,005	0,01
82.	Potassiumdiethylditiophosphat	0,2	2,0
83.	Potassiumdiisopropylditiophosphat	0,02	1,0
84.	Caprolactam	1,0	1,0
85.	Carbine	0,03	-
86.	Carbophos	0,05	1,0
87.	Kerosene	0,1	-
88.	Cobalt	0,2	2,0
89.	Cresilditiophosphate	0,001	0,05
90.	Cresol (o-)	0,05	0,1
91.	Cresol (m-)	0,002	0,1
92.	Xilole	0,05	0,1
93.	Lindane	0,056	-
94.	2,5-Lutidine	0,05	0,05
95.	Maleinic anhydride	1,0	1,0
96.	Mesidine	0,01	0,01
97.	Mesitilene	0,02	-
98.	Mercaptoethyldiethylamine (beta-)	0,1	10
99.	Mercaptophos (mixture of tiole 1 and tiole II,	0,01	1,0
100.	Methanol (according to BOD)	0,5	2,0
101.	Metaphos	0,02	0,5
102.	Methylacrylate	0,02	-
103.	Methylacetofos	0,03	-
104.	Methylbenzoat	0,001	0,1
105.	Methylditiocarbamat (Na-salt)	0,02	0,5

No	Dangerous Substance	Concentration (mg/l)	
		Class	
		I and II	III and IV
106.	Methyle thy lke tone	1,0	10,0
107.	Methylsistox	0,03	-
108.	Metoxichlor	0,035	-
109.	Milk acid (according to BOD)	1,0	5,0
110.	Molybdenum	0,5	0,5
111.	Monoethyldichlortriphosphate	0,02	0,02
112.	Formic acid (according to BOD)	1,0	5,0
113.	Sodiumadipate	1,0	1,0
114.	Sodiumtelurate	0,01	0,01
115.	Naphthalene	0,05	-
116.	Naphtha sulphuric	0,05	0,3
117.	Naphtha - other	0,05	0,3
118.	Oil acids	0,3	-
119.	Nickel	0,05	0,1
120.	Nitrates (as N)	10,0	15,0
121.	Nitrites (as N)	0,05	0,5
122.	Nitrometane	0,005	1,0
123.	Nitro-propane	0,005	1,0
124.	Nitrotoluole (o-)	0,05	-
125.	Nitrotoluole (m-)	0,01	-
126.	Nitrophenole (o-)	0,06	0,06
127.	Nitrophenole (m-)	0,06	0,06
128.	Nitrophenole (p-)	0,025	0,025
129.	Nitrophorm	0,01	0,1
130.	Nitrochlorbenzene	0,05	0,05
131.	Nitrocyclohexane	0,1	0,1
132.	Nonile alcohol	0,01	0,01
133.	Octal alcohol (primary and secondary)	0,05	-
134.	Lead	0,05	0,1
135.	Pentachlorbutane	0,02	0,3
136.	Pentachlorphenole	0,3	0,05
137.	Picoline (alpha-)	0,05	0,05
138.	Pikrinic acid	0,5	0,5
139.	Pyridine	0,2	0,2
140.	Polyacrylamide	2,0	-
141.	Polynuclear aromatic hydro-carbonates (carcinogenic): fluorantene+3,4-benzfluorantene+11,12-benzfluorantene+3,4-benzpyrene+1,12 benzperilene+indeno (1,2,3-Cd) pyrene	0,0002	-
142.	Polychlorated biphenyls	-	-
143.	Polychlor pynene	0,2	0,2

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No	Dangerous Substance	Concentration (mg/l)	
		Class	
		I and II	III and IV
144.	Propylene	0,5	1,5
145.	Propylenglicol (according to BOD)	2,0	10,0
146.	Saponins	0,2	2,0
147.	Selenium	0,01	0,01
148.	Simasine (not dissolved)	-	3,5
149.	Simasine (2-oxiderivate)	-	-
150.	Synthetic oil acids C5 -C20 (according to BOD)	1,0	5,0
151.	Silver	0,01	0,02
152.	Sterol	0,1	10,0
153.	Sulphides	-	0,05
154.	Sulphites	0,05	0,1
155.	Tannins	0,5	10,0
156.	Telur	0,01	0,01
157.	Turpentine	0,2	5,0
158.	Terpineole (alpha-)	0,05	-
159.	Tetraethyl-tin	0,0002	0,0002
160.	Tetraethyl-lead	-	0,0001
161.	Tetranitrometane	0,5	2,0
162.	Tetrahydroynone	0,05	-
163.	Tetrachlorbenzene	0,01	0,02
164.	Tetrachloretane	0,2	5,0
165.	Tetrachlorononane	0,003	1,0
166.	Tetrachlorpentane	0,005	2,0
167.	Tetrachlorpropane	0,01	3,0
168.	Tetrachlorundecane	0,007	3,0
169.	Tetrachlorheptane	0,0025	1,0
170.	Tiophene	2,0	20,0
171.	Tiofos	0,003	1,0
172.	Titanium	0,10	0,10
173.	Toxaphene	0,005	-
174.	Toluene	0,5	25,0
175.	Tributylpehosphate	0,01	5,0
176.	Triethylenglicole (according to BOD)	2,0	10,0
177.	2,4,6-Trinitrotoluol	0,2	0,4
178.	1,2,4-Trichlorbenzene	0,03	0,1
179.	Trichlorethylene	0,5	10,0
180.	2,4,6- Trichlorphenole	0,0004	1,0
181.	Carbon-disulphide	1,0	5,0
182.	Carbon-tetrachloride	0,3	0,3
183.	Phenyl-hydrazine	0,01	0,01

No	Dangerous Substance	Concentration (mg/l)	
		Class	
		I and II	III and IV
184.	Phenol	0,001	0,3
185.	Fluorine	1,0	1,5
186.	Phosalone	0,0005	-
187.	Formaldehyde	0,5	0,5
188.	Phosbutyle	0,03	-
189.	Phosphamide	0,03	1,0
190.	Furan	0,2	0,2
191.	Hexamethylendiamine	0,01	0,01
192.	Hexachlorbenzene	0,05	0,05
193.	Hexachlorbutadiene	0,01	0,08
194.	Hexachlorbutane	0,01	0,3
195.	Hexachloretane	0,01	1,0
196.	Hexachlorcyclopentadiene	0,001	0,6
197.	Hexachlorcyclohexane	0,02	1,0
198.	Heptachlor	0,018	0,05
199.	Heptachlorepoxyde	0,018	-
200.	Heptile alcohol	0,005	0,005
201.	Herbicides: 2,4 D+2,4,5-T+2,4,5-TP	0,100	-
202.	Hydro-hynone	0,2	0,5
203.	Chlorine – active	0,005	0,01
204.	Chloranile	0,01	-
205.	Chlorbenzene	0,02	0,02
206.	Chlordane	0,003	-
207.	Chlorenant acid (omega-)	0,05	0,5
208.	Chlornitrozocyclohexane	0,005	1,25
209.	Chloropelargonic acid	0,3	-
210.	Chloroprene	0,1	10,0
211.	Chloroundecanic acid (omega-)	0,1	0,5
212.	Chlorophos	0,05	10,0
213.	Chlorocyclohexane	0,05	0,1
214.	Chrome 6-valent	0,1	0,1
215.	Chrome 3-valent	0,1	0,5
216.	Cyanides	0,1	0,1
217.	Cianuric acid	6,0	10,0
218.	Cyclohexane	0,1	0,1
219.	Cyclohexanole	0,5	0,5
220.	Cyclohexanone	0,02	0,02
221.	Cyclohexanonoxim	1,0	1,0
222.	Cyclohexene	0,02	0,02
223.	Zinc	0,2	1,0

Article 4

If multiple dangerous substances are recorded in water, the MAC-s in water must fulfil the following:

$$\frac{C_a}{L_a} + \frac{C_b}{L_b} + \dots + \frac{C_n}{L_n} \leq 1$$

where C stands for actual concentration and L stands for a corresponding MAC.

Article 5

Concentrations of dangerous substances are to be measured:

1. When using water for drinking, recreation, irrigation, for cattle water supply and similar purposes - at the location of intake, or at the limit of the first zone of sanitary protection;
2. When using water for other purposes - in the zone after 95% mixing.