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THE CABINET OF MINISTERS OF THE
REPUBLIC OF LATVIA

12.03.2002

Regulations No. 118

Riga

Regulations on surface and ground water quality
(Protocol No 11, 40§)

Issued pursuant to
Section 12 paragraph 2
of the Law on Pollution and
Section 18 paragraph 2
of the Law on Environmental Protection

I General provisions

1. These Regulations define quality standards for surface water and groundwater.
2. The application of the measures taken pursuant to these Regulations may on no account lead, either directly or indirectly, to increased pollution of water, air or soil.

3. Where different water quality standards, laid down by these Regulations or other legislation, apply to a single water body or watercourse, the most stringent quality standards shall apply.

II Water quality standards for surface waters

4. Water quality standards that specify quality objectives for the most dangerous substances (Annex 1) and dangerous substances (Annex 2) in water, shall apply to all surface waters, including priority fish waters, bathing waters and surface waters used for the abstraction of drinking water.
5. Water quality standards set in Annex 1 and Annex 2 shall be applied, considering the planned use of the affected territory, as well as the necessity to eliminate water pollution by the substances listed in Annex 1 and to reduce water pollution by the substances listed in Annex 2.
6. The Ministry of Environmental Protection and Regional Development shall evaluate the information included in Annex 2 at least once in every 4 years and, where necessary, amend it on the basis of:
 - 6.1 data on the hazard to the aquatic environment and to human health caused by a specific substance or a

- group of substances;
 - 6.2 results of risk assessments;
 - 6.3 data on the imported, produced and consumed amounts of the substance concerned, and information on its use and storage patterns;
 - 6.4 well-founded proposals submitted by natural and legal persons and expert's opinions.
7. The Ministry of Environmental Protection and Regional Development shall inform general public and environmental and health authorities as well as other relevant institutions about the progress of the evaluation.

III Quality standards for priority fish waters

8. The Ministry of Environmental Protection and Regional Development shall designate priority fish waters - fresh waters needing protection or improvement in order to support fish life. The list of the priority fish waters shall be co-ordinated with the Ministry of Agriculture. The list shall be revised at least once in every 6 years.
9. The conditions of this section shall not apply to waters in natural or artificial fish ponds used for intensive fish farming.

10. Priority fish waters shall be divided into:
 - 10.1 salmonid waters - waters which support or become capable of supporting fish belonging to species such as salmon (*Salmo salar*), salmon trout and trout (*Salmo trutta*), grayling (*Thymallus thymallus*) and whitefish (*Coregonus*);
 - 10.2 cyprinid waters - waters which support or become capable of supporting fish belonging to the cyprinids (*Cyprinidae*), as well as species such as pike (*Esox lucius*), perch (*Perca fluviatilis*) and eel (*Anguilla anguilla*).

11. To control compliance of the priority fish waters quality with the requirements of these Regulations, water samples shall be taken at the frequency specified in Annex 3 at the same sampling point and over a period of 12 months. The priority fish water quality shall be deemed to conform to the requirements of these Regulations if:
 - 11.1 95% of the samples for the parameters: pH, BOD₅, non-ionised ammonia, total ammonium, nitrites, total residual chlorine, total zinc and dissolved copper, comply with the requirements of Annex 3. When the sampling frequency is lower than one sample per month, all samples shall comply with the above-mentioned requirements;
 - 11.2 the percentage of samples specified in Annex 3 for the parameters: temperature and dissolved

- oxygen, complies with the requirements;
- 11.3 the average concentration set for the parameter: suspended solids complies with the requirements of Annex 3 to these Regulations;
- 11.4 the concentrations of the most dangerous substances and dangerous substances do not exceed the quality standards set in Annex 1 and Annex 2;
- 11.5 there are no conditions that would be unfavourable to fish population.
12. Non-complying samples shall not be taken into consideration in the calculation of the percentages provided for in Paragraph 11 when they are result of floods or other natural disasters.
13. Non-compliance of the priority fish waters with the quality standards set in Annex 3 shall not be in breach of the requirements of these Regulations when it is due to the process where designated waters, without a human intervention, receives from the soil certain substances contained therein (hereinafter “natural enrichment”).

IV Quality standards for bathing waters

14. Bathing waters are waters in which bathing is explicitly authorised by legislation, as well as waters where bathing is not prohibited and is

traditionally practised, with the exception of waters intended for therapeutic purposes and water used in swimming pools.

15. The water quality standards for bathing waters are set in Annex 4. These standards shall not apply to the bathing areas listed in Annex 1 to the Cabinet of Ministers Regulations No 300 of 11 August 1998 "Regulations on the establishment and hygiene of the bathing sites".

16. To control compliance of the bathing waters with the requirements of these Regulations, water samples shall be taken at the frequency specified in Annex 4 at the same sampling point. The quality of bathing waters shall be deemed to comply with these Regulations if:

16.1 95% of samples comply with the limit values fixed in Annex 4;

16.2 90% of samples in all other cases comply with the guide values fixed in Annex 4, with the exception of the "total coliforms" and "faecal coliforms", where the percentage may be 80%;

16.3 the remaining samples which do not comply with the quality standards do not deviate from the parametric values in question by more than 50%, except for microbiological parameters, pH and dissolved oxygen;

- 16.4 consecutive water samples taken at statistically suitable intervals do not deviate from the relevant quality standards.
17. Non-complying samples shall not be taken into consideration in the calculation of the percentages provided for in Paragraph 16 when they are result of floods or other natural disasters or abnormal weather conditions.
18. Non-compliance of bathing waters with the quality standards set in Annex 4 shall not be in breach of the requirements of these Regulations if such non-compliance has been caused by natural enrichment and does not cause hazard to human health.

V Quality standards for surface waters used for the abstraction of drinking water

19. Surface fresh waters used or intended for the use in the abstraction of drinking water and supplied by distribution networks for public use (hereinafter “surface waters used for the abstraction of drinking water”) shall be divided into three categories, corresponding to the methods of treatment applied:
- 19.1 Category A1 corresponds to simple physical

treatment and disinfection;

19.2 Category A2 corresponds to normal physical treatment, chemical treatment and disinfection;

19.3 Category A3 corresponds to intensive physical and chemical treatment, extended treatment and disinfection.

20. Surface waters used for the abstraction of drinking water are indicated in Annex 5, including the appropriate category specified in accordance with Paragraph 19. The Ministry of Environmental Protection and Regional Development shall review the information included in Annex 5 at least once in every 4 years.

21. The water quality standards for surface waters used for the abstraction of drinking water are set in Annex 6. The quality standards shall apply before water is being sent for purification treatment according to the established category.

22. To control the compliance of surface waters used for the abstraction of drinking water with these Regulations, water samples shall be taken at the frequency specified in Annex 6 at the same sampling point. The quality of surface waters used for the abstraction of drinking water shall be deemed to comply with these Regulations if:

22.1 95% of the samples comply with the limit values fixed in Annex 6;

22.2 90% of the samples comply with all other requirements fixed in Annex 6 to these Regulations;

22.3 the remaining samples which do not comply with the quality requirements do not deviate from the parametric values by more than 50%, except for microbiological parameters, temperature, pH and dissolved oxygen, provided there can be no resultant danger to public health;

22.4. consecutive water samples taken at statistically suitable intervals do not deviate from the relevant quality standards.

23. Non-complying samples shall not be taken into consideration in the calculation of the percentages provided for in Paragraph 22 when they are result of floods or other natural disasters or abnormal weather conditions.

24. Non-compliance of surface waters used for the abstraction of drinking water with the quality standards set in Annex 6 shall not be in breach of the requirements of these Regulations if such non-compliance has been caused by flood, other natural disasters or natural enrichment and if this non-compliance does not endanger public health.

VI Quality standards for groundwater used for the abstraction of drinking water

25. The water quality standards set in Annex 9 shall apply to groundwater aquifers and groundwater bodies used for the abstraction of drinking water, where the average amount of the abstraction exceeds 10 m³ per day, as well as to those groundwater aquifers and groundwater bodies intended for future such use.
26. Where the quality standards for the parameters: chlorides, sulphates, conductivity, iron, or permanganate index, are exceeded due to natural processes, no direct or indirect emission or other activities shall be permitted, if such emission or activities may give rise to further increase of the respective parameters in the given aquifer or groundwater body.

VII Water quality monitoring

27. The Latvian Environmental Agency shall fix exact sampling points, the distance from them to the closest point where pollutants are emitted and the depth at which the samples are to be taken for

the monitoring of the most dangerous substances and dangerous substances and for priority fish water monitoring. The Public Health Agency shall fix sampling points for the monitoring of bathing waters.

28. All analyses necessary for implementation of these Regulations shall be performed in a certified laboratory. The laboratory may use other methods of analysis than those specified in Annexes 3, 4, 8 and 9, where relevant Latvian national standards or international standards adopted in Latvia foresee change of methods and where the results obtained thereby are comparable to the results obtained by the methods referred to in Annexes 3, 4, 8 and 9 and if equivalent limit of detection, precision and accuracy can be achieved by these other methods, where:

28.1 limit of detection means the smallest concentration of the substance determinable in the sample, which can not always be expressed as a certain value;

28.2 precision means the difference between the results of independent tests performed under fixed conditions (a random error);

28.3 accuracy means the difference between the average experimental value obtained during numerous repeated measurements and the accepted

reference value (a systematic error).

29. The operator who discharges the most dangerous or dangerous substances into surface or ground waters shall monitor their emissions. The monitoring and control shall be performed in accordance with the Cabinet of Ministers Regulations No 34 “Regulations on emissions of pollutants into water” of 22 January 2002.
30. For the needs of the state environmental monitoring, the Regional Environmental Board shall identify the territories affected by discharges of the most dangerous or dangerous substances. The Latvian Environmental Agency shall summarise the collected information and control water pollution by the most dangerous substances and dangerous substances in accordance with the Cabinet of Ministers Regulations No 34 “Regulations on emissions of pollutants into water” of 22 January 2002.
31. The Latvian Environmental Agency shall monitor priority fish waters according to the requirements of Annex 3.
32. If monitoring data indicate that the oxygen concentration falls below 6 mg/l in salmonid

waters and below 4 mg/l in cyprinid waters, the Latvian Environmental Agency and the Regional Environmental Boards shall identify the causes for the decrease of the oxygen concentration and shall take measures to prevent harm to the fish population.

33. Where the monitoring data indicates that the quality of priority fish waters is appreciably higher than that required by Annex 6, the Latvian Environmental Agency may reduce the sampling frequency. If the Latvian Environmental Agency concludes that there are no pollution or no risk of deterioration in the quality of the given priority fish waters, it may decide that no sampling is necessary for the period of two years.
34. The Public Health Agency shall monitor bathing waters according to the requirements of Annex 4. The State Sanitation Inspection shall control the bathing water quality.
35. The water user that prepares drinking water and supplies it to the consumers shall monitor surface waters used for the abstraction of drinking water according to the requirements of Annexes 6, 7 and 8.

36. The samples of surface waters used for the abstraction of drinking water shall be taken at the place where surface water is abstracted before being sent for purification treatment. The containers used for samples, the agents or methods used to preserve part of a sample, the transportation, storage and preservation of samples must not be such as to bring about any significant change in the results of the analysis. The samples shall be analysed after sieving through a wire mesh sieve, to remove any floating debris, including pieces of wood and plastic.

37. The frequencies of sampling and analysis of surface waters used for the abstraction of drinking water may not be below the minimum annual sampling frequencies specified in Annex 7. Sampling must be spread over the year so as to give a representative picture of the water quality.

38. Where the monitoring data indicate that the quality of surface waters used for the abstraction of drinking water for certain parameters is considerably superior to that specified in Annex 6, the Public Health Agency may permit the operator to reduce the sampling frequency below that required in Annex 7.

39. A water user who prepares drinking water and supplies it to the consumers shall monitor groundwater used for the abstraction of drinking water according to Annex 9 and according to the conditions of the water abstraction site licence.
40. The methods used for analysis of the parameters specified in Table 1 of Annex 9 shall ensure the same limit of detection, precision and accuracy as indicated in Table 2 of Annex 9. Regardless of the performance characteristics of the used method of analysis, the results shall be indicated with the same number of decimal fractions as in Table 1 of Annex 9.

VIII Pollution prevention measures

41. Where monitoring or other data indicate that the water quality standards for a certain water body are not achieved or are unlikely to be achieved within the set deadlines, the Ministry of Environmental Protection and Regional Development shall assign the environmental authorities to:
- 41.1 investigate the causes of failure;
 - 41.2 examine relevant conditions of the Category A or B permit for a polluting activity or of the water use permit, establishing more stringent emission standards;

41.3 review and adjust as appropriate the monitoring programmes;

41.4 take additional measures to prevent further deterioration of water quality and to facilitate its improvement.

42. The Ministry of Environmental Protection and Regional Development shall not assign the activities referred to in Article 41 where their cause is *force majeure*, including extreme floods and prolonged droughts.

43. In accordance with Article 17 of the Law on Pollution, the Ministry of Environmental Protection and Regional Development shall develop:

43.1 an action programme to reduce pollution of priority fish waters and to ensure their compliance with the quality requirements specified in Annex 3;

43.2 an action programme to reduce pollution of bathing waters and to ensure their compliance with the quality requirements specified in Annex 4.

IX Information

44. To inform the general public and public and municipal authorities about the protection of the aquatic environment, the Latvian Environmental

Agency shall:

- 44.1 every two years produce a report about the protection of surface and ground water, including therein the information about the application of Articles 13, 18 and 24 and the relevant measures taken;
- 44.2 include the results of the monitoring required under Articles 29, 30, 31, 34, 35 and 39 into annual Latvian State of the Environmental Report;
- 44.3 make available to the public the information submitted to the European Commission pursuant to Article 45.

45. To inform the European Commission, the Latvian Environmental Agency shall:

- 45.1 report on the amendments to Annex 1 and Annex 2 at least every four years;
- 45.2 report on the designation of the priority fish waters and bathing waters and on the amendments to their lists;
- 45.3 inform about the application of Articles 13, 18, 24 and 42 and the relevant measures taken;
- 45.4 report every three years on the protection of surface water and ground water and the implementation of these Regulations and once a year on the protection of bathing waters. The report on protection of surface and groundwater shall be sent within nine months after the end of the

calendar year in question whereas the report on protection of bathing water shall be sent before the end of the calendar year in question;

45.5 provide information about the action programmes referred to in Article 43:

45.5.1 for the first time: within 6 months after their publication;

45.5.2 updated information: every second year by 30 June;

45.6 provide information collected as a result of monitoring required under Section VII, within 6 months of the receipt of a relevant request;

45.7 provide information concerning the methods used for the monitoring of surface and groundwater.

46. Where priority fish waters cross or form national frontiers, the Ministry of Environmental Protection and Regional Development shall upon official request from the relevant state or upon its own initiative consult the states concerned in order to determine the waters where the quality requirements of Annex 3 shall apply and to determine the measures to be taken to comply with these requirements.

47. Where the quality standards specified by these Regulations have not been achieved or will not be

achieved in transfrontier waters within the set deadlines, the Regional Environmental Board shall inform the State Environmental Impact Assessment Bureau, which in turn shall inform the states concerned.

X Transitional provisions

48. Chapter III and Articles 16, 30, 31, 32, 33 and 34 shall enter into force on 1 January 2003.
49. The Ministry of Environmental Protection and Regional Development shall develop the action programmes required under Article 43 and submit them to the Cabinet of Ministers for approval by 1 January 2004.
50. Paragraph 44.3 and 45 shall enter into force with special conditions.

Prime Minister
Bērziņš

A.

Minister of Environmental Protection
and Regional Development
V. Makarovs

Annex 1
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

**Limit values for the most dangerous substances in
surface waters**

No	CAS No	Substance	Limit value ⁽¹⁾ , µg/l	
			saltwater	fresh water
1.	107-06-2	1,2-dihchloroethane	10	10
2.	120-82-1	1,2,4-trichlorobenzene	0.4	0.4
3.	309-00-2	Aldrin	0.01	0.01
4.	50-29-3	DDT, DDD and DDE	0.002	0.002
5.	60-57-1	Dieldrin	0.01	0.01
6.	-	Mercury and its compounds	0.3 ⁽²⁾	1.0
7.	772-	Endrin	0.005	0.005

No	CAS No	Substance	Limit value ⁽¹⁾ , µg/l	
			saltwater	fresh water
	20-8			
8.	87-68-3	Hexachlorobutadiene	0.1	0.1
9.	118-74-1	Hexachlorobenzene	0.03	0.03
10.	608-73-1	Hexachlorocyclohexane (all isomers)	0.01	0.01
11.	67-66-3	Chloroform	12	12
12.	465-73-6	Isodrin	0.005	0.005
13.	-	Cadmium and its compounds	2.5	5
14.	127-18-4	Perchloroethylene or tetrachloroethylene (PER)	10	10
15.	87-86-5	Pentachlorophenol	2	2
16.	56-23-5	Carbon tetrachloride	12	12

No	CAS No	Substance	Limit value ⁽¹⁾ , µg/l	
			saltwater	fresh water
17.	79-01-6	Trichloroethylene (TRI)	10	10
18.	-	Trichlorobenzene, technical mixture	0.4	0.4

Notes

(1) The table indicates the average yearly maximum permissible concentration.

(2) The limit value for transitional waters is 0.5 µg/l. Concentration of metals means concentration of their ions in water.

Minister of Environmental
Protection and Regional
Development
V.Makarovs

Annex 2
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

Limit values for dangerous substances in surface waters

No	CAS No	Substance	Limit value ⁽¹⁾ , µg/l	
			saltwater	freshwater
1	2	3	4	5
I Metals and other substances				
1.	-	Arsenic and its compounds	36	150
2.	-	Zinc and its compounds	81	120
3.	-	Chromium and its compounds	50	11
4.	-	Nickel and its compounds	8.2	52
5.	-	Lead and its compounds	8.1	2.5

No	CAS No	Substance	Limit value ⁽¹⁾ , µg/l	
			saltwater	freshwater
1	2	3	4	5
6.	-	Copper and its compounds	3.1	9.0
II Organic substances				
7.	75-35-4	1,1-dichlorethylene	100	100
8.	94-75-7	2,4-D	10	10
9.	107-05-1	3-chloropropene	100	100
10.	107-13-1	Acrylonitrile	8	8
11.	1912-224-9	Atrazine	1	1
12.	109-89-7	Diethylamine	100	100
13.	95-50-1 541-73-1 106-	Dichlorobenzene (1,2-; 1,3-; 1,4-;)	10	10

No	CAS No	Substance	Limit value ⁽¹⁾ , µg/l	
			saltwater	freshwater
1	2	3	4	5
	46-7			
14.	75-09-2	Dichloromethane	10	10
15.	124-40-3	Dimethylamine	10	10
16.	60-51-5	Dimethoate	1	1
17.	106-89-8	Epichlorohydrin	100	100
18.	122-14-5	Fenitrothion	0.01	0.01
19.	-	Phenols (phenol index)	300	300
20.	50-00-0	Formaldehyde	95,000	95,000
21.	67-72-1	Hexachloroethane	10	10

22 .	95-51- 2 108- 42-9 106- 47-8	Chloroanilyne (2- ; 3- and 4-)	10	10
23 .	108- 90-7	Chlorobenzene	1	1
24 .	—	Chloronaphtalene s, technical mixture	0.01	0.01
25 .	330- 55-2	Linuron	1	1
26 .	121- 75-5	Malathion	0.01	0.01
27 .	91-20- 3	Naphtalene	1.2	1.2
28 .	-	Organotin compounds (expressed as tin)	0.01	0.01
29 .	-	Polychlorinated biphenyls (PHB)	0.01	0.01
30 .	122- 34-9	Simazine	1	1
31	126-	Tributylphosphat	100	100

29	-	Polychlorinated biphenyls (PHB)	0.01	0.01
.	73-8	e		
32	1582-09-8	Trifluralin	0.1	0.1
.	71-55-6 79-00-5	Trichloroethane (1,1,1- and 1,1,2-)	100	100
34	95-95-4 933-78-8 88-06-2	Trichlorophenols (2,4,5-; 2,3,5- and 2,4,6-)		
.				
III Petroleum products				
35	-	Monoaromatic hydrocarbons (benzene, toluene, ethyl benzene, xylenes) with the total indicator BTEX	10	10
.				
36	-	Non-cyclic petroleum hydrocarbons	100	100
.				

29 .	-	Polychlorinated biphenyls (PHB)	0.01	0.01
37 .	-	Polycyclic aromatic hydrocarbons (PAH)	0.001	0.001

Note.

(1) The table indicates the average yearly maximum permissible concentration.

Concentration of metals means concentration of their ions in water.

Minister of Environmental
Protection and Regional
Development
V.Makarovs

Annex 3
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

Water quality standards for priority fish waters

N o	Parame ter/ unit	Salmonid waters		Cyprinid waters		Method of analysis	Minimum sampling frequency
		Guide value	Limit value	Guide value	Limit value		
1	2	3	4	5	6	7	8
1.	Ammoni um (mg/l NH ₄ ⁺)	≤ 0.03	≤ 0.78 ⁽¹⁾	≤ 0.16	≤ 0.78 ⁽¹⁾	- Molecular absorption spectropho metry - Distillation	

						and titration - Flow analysis	
2.	Biological oxygen demand BOD ₅ (mg/l O ₂)	≤ 2		≤ 4		Five days incubation method LVS EN 1899- 1,2:1998 (oxygen by Winkler's method or electrochemi- cally)	
3.	Zinc (mg/l Zn)		≤ 0.3		≤ 1.0	Atomic absorption spectropho- metry	Monthly

4.	Phenolic compounds (phenol index) (mg/l C ₆ H ₅ OH)		0.005		0.005	- Molecular absorption spectrophotometry - Flow analysis	
5.	Dissolved oxygen (mg/l O ₂)	50 % ≥ 9 100 % ≥ 7	50 % ≥ 9	50 % ≥ 8 100 % ≥ 5	50 % ≥ 7	- Winkler's method - Electrochemical method	Monthly at least 1 sample indicating the lowest daily O ₂ concentration (taken

							before 12.00 AM). If major daily variations are suspected, at least 2 samples per day shall be taken.
6.	Total residual chlorine (mg/l HOCl)		$\leq 0.005^{(2)}$		$\leq 0.005^{(2)}$	DPD method (diethyl- <i>p</i> -phenylendia mene)	Monthly
7.	Total phospho	≤ 0.065		≤ 0.100		- Molecular absorption	

	rus (mg/l P)					spectrophotometry - Flow analysis	
8.	Petroleum hydrocarbons		(3)		(3)	- Visual - Gas chromatography - Infrared spectrophotometry	Monthly ⁽⁴⁾
9.	Non-ionised ammonia (mg/l NH ₃)	≤ 0.005	≤ 0.025 ⁽⁵⁾	≤ 0.005	≤ 0.025 ⁽⁵⁾	Calculation based on concentrations of ammonium ions,	Monthly

						considering pH level and temperature	
1 0.	Nitrites (mg/l NO ₂ ⁻)	≤ 0.01		≤ 0.03		- Molecular absorption spectropho metry - Liquid chromatogra phy - Flow analysis	
11 .	pH (pH units)		6 - 9 ⁽⁰⁾ , (6)		6 - 9 ⁽⁰⁾ , (6)	Electrochem ical method using pH- meter	Monthly
12	Suspend	≤ 25 ⁽⁰⁾ ,		≤ 25 ⁽⁰⁾ , (7)		Filtration	

.	ed solids (mg/l)	(7)				through glass fibre filter, LVS EN 872:1996	
13	Temper ature (°C)		(8)		(8)	Thermometr y	Weekly, before 12.00 AM
14	Copper (mg/l Cu)	≤ 0.04		≤ 0.04		Atomic absorption spectrophoto metry	

Notes

Concentration of metals means concentration of their ions in water.

(0) This value may be exceeded due to exceptional hydrological or weather conditions.

(1) The concentration exceeding this limit value shall not be in breach of these Regulations where it is caused by exceptional hydrological or weather conditions, low

water temperatures or reduced nitrification, or if the Regional Environmental Board has received an opinion from the Latvian Fisheries Research Institute stating that such concentrations do not have a deleterious effect on the fish population.

(2) Such concentrations are acceptable if the water pH value is 6. Higher concentration of total residual chlorine can be accepted if the pH value is higher.

(3) Oil products may be present in water in such quantities only that they:

1) Do not form a visible film on the water surface or coating on the beds of the watercourses and lakes;

2) Do not impart a detectable "hydrocarbon" taste to fish;

3) Do not have a deleterious effect on the fish population.

(4) The control shall include visual inspection to identify the presence of the film of oil products on the water surface and taking of soil samples from the river or lake bed, to identify the presence of oil product coating. Such inspections shall be performed on monthly basis. Examination by taste shall be made only where priority fish water pollution by oil products is presumed.

(5) Values may be exceeded in the form of minor peaks in the daytime.

(6) Artificial pH variations with respect to the unaffected values shall not exceed ± 0.5 pH units, within the limits falling between pH 6 and pH 9 if these variations do not

increase the harmfulness of other substances present in water.

(7) This average concentration of suspended solids shall not be applied if suspended solids contain harmful substances. Particularly high concentrations of suspended solids during floods are acceptable.

(8) Temperature requirements for the priority fish waters shall be established on the basis of the following conditions:

1) temperature of priority fish waters measured downstream of the point of thermal discharge (at the edge of the mixing zone) shall not exceed the temperature of unaffected waters by more than:

1.5 °C – in salmonid waters;

3 °C – in cyprinid waters.

Thermal discharges creating a higher temperature increase are acceptable if the Latvian Fisheries Research Institute has concluded that such increased water temperature does not have a deleterious effect on the fish population;

2) temperature of priority fish waters downstream of the point of thermal discharge (at the edge of mixing zone) shall not exceed the following values:

(0) 21.5 °C – in salmonid waters;

(0) 28 °C - in cyprinid waters;

3) if priority fish waters are inhabited by fish species which need cold water for reproduction, the temperature of such waters in the spawning periods due to thermal discharge shall not exceed the following values:

⁽⁰⁾ 10 °C – in salmonid waters;

⁽⁰⁾ 10 °C – in cyprinid waters;

4) the established temperature limits may be exceeded in maximum 2% of the total number of measurements.

Minister of Environmental
Protection and Regional Development
V.Makarovs

Annex 4
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

Water quality standards for bathing waters

No	Parameter/ unit	Guide value	Limit value	Method of analysis	Minimum sampling frequency
1	2	3	4	5	6
I Microbiological parameters					
1.	Enteroviruses (PFU in 10 litres)		0	Indication of viruses in at least 3 different tissue cultures	(2)
2.	Faecal coliforms (<i>E. coli</i>) (in 100 ml)	100	2000	Fermentation on multi-stage solution tubes. Subculturing of the positive tubes on a	Fortnightly ⁽¹⁾

				<p>culture media. Count according to MPN or membrane filtration and cultivation on appropriate medium. Subcultivation and identification of suspicious colonies. Incubation t° is variable for total coliforms and faecal coliforms. LVS EN ISO 9308-1:2001 LVS ISO 9308-2:1990</p>	
3.	Intestine enterococcus (in 100 ml)	100		<p>Count according to MPN or membrane filtration. Cultivation on suitable medium.</p>	(2)

				LVS EN ISO 7899-1:1998 LVS EN ISO 7899-2:2001	
4.	Total coliforms (in 100 ml)	500	10,00 0	Same as for faecal coliforms	Fortnightly ⁽¹⁾

5.	Salmone lla (in 1000 ml)		0	Concentration by membrane filtration. Inoculation on a standard medium. Proliferation – subculturing on isolating agar – identification. LVS ISO 6340:1995	(2)
II Physical and chemical parameters					
6.	Ammoni a (mg/l NH ₄ ⁺)			Absorption spectrophotomet ry, Nesler's or indophenol blue method	(3)
7.	Transpar ency (m)	2	1 ⁽⁰⁾	Secchi disc	Fortnig htly (1)
8.	Cyanide s (mg/l)			Absorption spectrophotomet ry using specific	(2)

	CN ⁻)			reagents	
9.	Phenols (phenol index) (mg/l C ₆ H ₅ OH)	\leq 0.005	No specif ic odour \leq 0.005	Control of the presence of the specific phenol odour or absorption spectrophotomet ry with 4- aminoantipyrene (4 AAP)	Fortnig htly (1), (2)
1 0.	Dissolve d oxygen (saturatio n % O ₂)	80- 120		Winkler's method or electrometric method (oxygen meter)	(2)
1 1.	Nitrogen Kjeldahl (mg/l N)			Kjeldahl's method	(3)
1 2.	Colour (Pt/Co scale)		No abnor mal chang es ⁽⁰⁾	Visual inspection or photometry with standards on the Pt/Co scale	Fortnig htly (1), (2)
1 3.	Mineral oils (mg/l)	\leq 0.3	No odour and	Visual inspection or extraction, using	Fortnig htly (1), (2)

			no floati ng film	an adequate volume and weighing the dry weight. Extraction by an appropriate solvent and identification by infrared spectrophotomet er or gas chromatograph.	
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1 4.	Nitrates and phosphat es (mg/l NO ₃ ⁻ mg/l PO ₄ ³⁻)			Atomic absorption spectrophotomet ry, using a specific reagents	(3)
1 5.	Floating materials (e.g. wood, plastic, rubber, bottles, tar, wood chips, rubbish)	Abse nce		Visual inspection	Fortnig htly (1)
1 6.	pH (pH units)		6 - 9 ⁽⁰⁾	Electrometry with calibration at pH 7 and 9	(2)
1 7.	Pesticide s ⁽⁴⁾ (mg/l)			Extraction with appropriate solvents and chromatographic	(2)

				determination	
1 8.	Heavy metals: Arsenic (As), Cadmium (Cd), Chromium (Cr (VI)), Lead (Pb), Mercury (Hg) (mg/l)			Atomic absorption (possibly after extraction concentration)	(2)
1 9.	Surface active substances reacting with methylene blue (mg/l) (Na dodecylbenzosul	≤ 0.3	No lasting foam	Visual inspection or absorption spectrophotometry with methylene blue	Fortnightly (1), (2)

	phonate))				
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Notes

Concentration of metals means concentration of their ions in water.

⁽⁰⁾ Under abnormal hydrological and weather conditions the Public Health Agency may permit deviations from these values if such deviations do not create hazard for public health.

⁽¹⁾ When the monitoring results for the previous years indicate that water quality is appreciably higher than the requirements of this Annex and when no new factor likely to lower water quality has appeared, the Public Health Agency may reduce the sampling frequency by a factor of 2.

⁽²⁾ The Public Health Agency shall control this parameter if this substance may be present in water or in the case of deterioration of the bathing water quality.

⁽³⁾ The Public Health Agency shall control the concentration of this substance in the case of actual or eventual eutrophication of waters.

⁽⁴⁾ "Total pesticides" means the sum of pesticides identified and measured during the monitoring process. Pesticides include organic insecticides, organic herbicides, organic fungicides, organic

nematocides, organic agricides, organic rhodenticides, organic slimicides, related products (including growth regulators), as well as their most important metabolites and degradation and reaction products. Only those pesticides, which are likely to be present in the respective water body, shall be controlled.

Minister of Environmental
Protection and Regional
Development
V.Makarovs

Annex 5
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

**Surface waters used for the abstraction of
drinking water and their categories**

No	Name	Samplin g point	Treatment methods	Categ ory
1.	Daugava, Water treatment station "Daugava "	Water treatmen t station "Daugav a", samplin g room	Ozonation (twice), coagulation/flocc ulation/ sedimentation, pH-adjustment (twice), filtration (twice), disinfection	A3
2.	Lakes: Mazais Baltezers	Water samplin g	Artificial ground water recharge by natural water	A1

	, Sudrabez ers, Venču lake, Sekšu lake, Water pumping station "Baltezer s"	platform before infiltrati on water pumping station	infiltration and disinfection	
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Minister of Environmental
Protection and Regional
Development
V.Makarovs

Annex 6
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

**Water quality standards for surface waters used
for the abstraction of
drinking water**

N o	Paramete r/unit	A1		A2		A3	
		Gui de valu e	Li mit valu e	Gui de valu e	Lim it valu e	Gui de valu e	Lim it valu e
1	2	3	4	5	6	7	8
1.	Adsorbabl e organic halogens (AOX) (µg/l)		(1)		(1)		(1)
2.	Aluminiu m (mg/l Al)		0.2		0.5		0.5
3.	Ammonia (mg/l NH ₄ ⁺)	0.0 5	0.5	1	1.5	2	4 ⁽⁰⁾

N o	Paramete r/unit	A1		A2		A3	
		Gui de valu e	Li mit valu e	Gui de valu e	Lim it valu e	Gui de valu e	Lim it valu e
4.	Antimony (mg/l Sb)		0.0 05		0.0 05		0.0 05
5.	Arsenic (mg/l As)		0.0 1		0.0 5	0.0 5	0,1
6.	Barium (mg/l Ba)		0.1		1		1
7.	Benzene (mg/l C ₆ H ₆)		0.0 01		0.0 01		0.0 02
8.	Biochemi cal oxygen demand (BOD ₅) (at 20 °C, without nitrificatio n) (mg/l O ₂)	< 3		< 5		< 7	
9.	Boron (mg/l B)	1	1	1		1	
1	Cyanides		0.0		0.0		0.0

N o	Paramete r/unit	A1		A2		A3	
		Gui de valu e	Li mit valu e	Gui de valu e	Lim it valu e	Gui de valu e	Lim it valu e
0.	(mg/l CN ⁻)		5		5		5
1 1.	Zinc (mg/l Zn)	0.5	3	1	5	1	5
1 2.	Iron (mg/l Fe)	0.1	0.2	1	2	1	
1 3.	Mercury (mg/l Hg)	0.0 005	0.0 01	0.0 005	0.0 01	0.0 005	0.0 01
1 4.	Conductiv ity (μS/cm)	100 0		100 0		100 0	

15.	Faecal coliforms (in 100 ml)	20		2000		2000	
16.	Intestine enterococcus (in 100 ml)	20		1000		1000	
17.	Phenols (phenol index) (mg/l)		0.001	0.001	0.005	0.001	0.1
18.	Fluorides ⁽²⁾ (mg/l F ⁻)	0.7-1	1.5	0.7-1.7		0.7-1.7	
19.	Phosphates (mg/l P ₂ O ₅)	0.18		0.3		0.3	
20.	Chlorides (mg/l Cl ⁻)	200	250	200		200	
21.	Dissolved oxygen, rate of saturation (% O ₂)	>70		>50		>30	
22.	Cadmium	0.0	0.0	0.0	0.0	0.0	0.0

2.	(mg/l Cd)	01	05	01	05	01	05
2 3.	Total chromium (mg/l Cr)		0.0 5		0.0 5		0.0 5
2 4.	Total coliforms at 37 °C (in 100 ml)	50		500 0		500 00	
2 5.	Total organic carbon (TOC) (mg/l C)	(1)					
2 6.	Total pesticides (3) (mg/l)		0.0 05		0.0 05		0.0 05
2 7.	Total suspended solids (mg/l)	25					
2 8.	Coloration (after simple filtration) (Pt/Co scale)	10	20 ⁽⁰⁾)	50	10 0 ⁽⁰⁾	50	200 (0)

2 9.	Chemical oxygen demand (COD) (mg/l O ₂)					30	
3 0.	Manganese (mg/l Mn)	0.0 5	0.0 5	0.1		1	
3 1.	Petroleum hydrocarbons (mg/l)		0.0 5		0.2	0.5	1
3 2.	Sodium (mg/l Na)		200		20 0		200
3 3.	Nickel (mg/l Ni)		0.0 2		0.0 2		0.0 2
3 4.	Nitrates (mg/l NO ₃ ⁻)	25	50 ⁽⁰⁾		50 ⁽⁰⁾		50 ⁽⁰⁾
3 5.	Nitrites (mg/l NO ₂ ⁻)		0.5		0.5		0.5
3 6.	Permanganate index (mg/l O ₂)		5.0		10		20
3	Total		0.0		0.0		0.0

7.	pesticides (³), (⁴) (mg/l)		01		01		01
3 8.	pH (pH units)	6.5- 8.5		5.5- 9		5.5- 9	
3 9.	Polycyclic aromatic hydrocarbo ns (PAH) ⁽⁵⁾ (mg/l)		0.0 001		0.0 002		0.0 01
4 0.	Salmonell a (in 1000 ml and 5000 ml)	0		0			
4 1.	Selenium (mg/l Se)		0.0 1		0.0 1		0.0 1
4 2.	Nitrogen, by Kjeldahl's method, except NO ₃ ⁻ (mg/l N)	1		2		3	
4 3.	Odour (dilution factor at 25 °C)	3		10		20	

4 4.	Sulphates (mg/l SO ₄ ²⁻)	150	250	150	25 0 ⁽⁰⁾	150	250 (0)
4 5.	Lead (mg/l Pb)		0.0 1		0.0 5		0.0 5
4 6.	Temperatu re (°C)	22	25 ⁽⁰⁾)	22	25 ⁽ 0)	22	25 ⁽⁰⁾)
4 7.	Tetrachlor oethylene (tetrachlor oethene) and trichloroet hylene (trichloroet hene) ⁽⁶⁾ (mg/l)		0.0 01		0.0 01		0.0 01
4 8.	Copper (mg/l Cu)	0.0 2	0.0 5 ⁽⁰⁾	0.0 5		1	
4 9.	Surface act ive substances reacting with methylene blue (mg/l (Na	0.2		0.2		0.5	

	dodecil- benzosulph onate))						
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Notes

Concentration of metals means concentration of their ions in water.

(0) The value may be waived under exceptional hydrological or weather conditions.

(1) No abnormal changes.

(2) Highest acceptable concentration of fluorides at high and low average yearly temperature.

(3) "Total pesticides" means the sum of pesticides identified and measured during the monitoring process. Pesticides include organic insecticides, organic herbicides, organic fungicides, organic nematocides, organic agricides, organic rhodenticides, organic slimicides, related products (including growth regulators), as well as their most important metabolites and degradation and reaction products. Only those pesticides, which are likely to be present in the respective water body, shall be controlled.

(4) This limit value applies to each individual pesticide. The limit value for aldrin, dieldrin, heptachlor and heptachlor epoxide is 0.030 µg/l (for

all waters).

(5) The sum of concentrations of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g, h, i)perylene, indeno(1, 2, 3-c, d)pyrene.

(6) The limit values apply to the sum of concentrations of the both specified compounds.

Minister of Environmental
Protection and Regional Development
V.Makarovs

Annex 7
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

**Groups of parameters and sampling frequencies
for surface waters used for the abstraction of
drinking water**

**I Groups of parameters for which sampling
frequencies are specified in Table 2**

Table 1

Group I	Group II	Group III
Ammonium	Aluminium	Adsorbable organic halogenides
Biochemical oxygen demand (BOD ₅)	Zinc	Arsenic
Conductivity	Iron	Barium
Phosphates	Faecal coliforms	Benzene
Chlorides	Phenols	Boron

Dissolved oxygen saturation rate	Total coliforms	Cyanides
Total suspended solids	Manganese	Mercury
Coloration	Nitrogen by Kjeldahl's method	Intestine enterococcus
Chemical oxygen demand (COD)	Sulphates	Fluorides
Sodium	Copper	Cadmium
Nitrates	Surface active substances	Total chromium
Nitrites		Petroleum hydrocarbons
Permanganate index		Nickel
pH		Pesticides
Odour		Polycyclic aromatic hydrocarbons (PAO)
Temperature		Salmonella
		Selenium

		Lead
		Tetrachloroethylene and trichloroethylene

II Minimum annual sampling frequency

Table 2

Population served	Surface water, category A1			Surface water, category A2			Surface water, category A3		
	Group I (GI)	G II	G III	G I	G II	G III	G I	G II	G III
≤ 10,000	(*)	(*)	(*)	(*)	(*)	(*)	2	1	1
> 10,000 ≤ 30,000	1	1	(*)	2	1	(*)	3	1	1
> 30,000 ≤ 100,000	2	1	(*)	4	2	1	6	2	1

> 100,00 0	3	2	(*)	8	4	1	1 2	4	1
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Note

(*) Sampling frequency for each sampling point shall be established by the institution that issues a Category A or B permit for polluting activity or a water use permit.

Minister of Environmental
Protection and Regional Development
V.Makarovs

Annex 8
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

Reference methods of analysis for surface waters used for the abstraction of drinking water

No	Parameter/ unit	Limit of detection	Precision	Accuracy	Method of analysis	Materials recommended for the container
1	2	3	4	5	6	7
1.	Aluminium	0.02	10 %	10 %	- Atomic absorption spectrophotometry	

No	Parameter/ unit	Limit of detection	Precision	Accuracy	Method of analysis	Materials recommended for the container
	(mg/l Al)				- Molecular absorption spectrophotometry	
2.	Ammonium (mg/l NH ₄ ⁺)	0.01 ⁽¹⁾ 0.1 ⁽²⁾	0.03 ⁽¹⁾ 10% ⁽²⁾	0.03 ⁽¹⁾ 10% ⁽²⁾	- Molecular absorption spectrophotometry with flow analysis - Molecular absorption spectrophotometry	
3.	Antimony (mg/l Sb)	0.0005	25%	25%	- Atomic absorption spectrophotometry	
4.	Arsenic ⁽³⁾	0.002 ⁽¹⁾	10%	10%	- Atomic absorption spectrophotometry	

No	Parameter/ unit	Limit of detection	Precision	Accuracy	Method of analysis	Materials recommended for the container
	(mg/l As)					
		0.01 ⁽⁴⁾)			- Atomic absorption spectrophotometry - Molecular absorption spectrophotometry	
5.	Barium ⁽³⁾ (mg/l Ba)	0.02	15 %	30 %	- Atomic absorption spectrophotometry	
6.	Benzene (mg/l C ₆ H ₆)	0.0001	25 %	25 %	- Gas chromatography	

No	Parameter/ unit	Limit of detection	Precision	Accuracy	Method of analysis	Materials recommended for the container
7.	Biochemical oxygen demand (BOD ₅) at 20 °C, without nitrification (mg/l O ₂)	2	1,5	2	- Determination of the oxygen demand before and after five days incubation LVS EN 1899-1,2:1998	
8.	Boron ⁽³⁾ (mg/l B)	0.1	10 %	10 %	- Atomic absorption spectrophotometry	Materials that do not contain

No	Parameter/ unit	Limit of detection	Precision	Accuracy	Method of analysis	Materials recommended for the container
					- Molecular absorption spectrophotometry	significant amounts of boron
9.	Cyanide ⁽⁵⁾ (mg/l CN ⁻)	0.01	20 %	30 %	- Molecular absorption spectrophotometry	
10.	Zinc ⁽³⁾ (mg/l Zn)	0.01 ⁽¹⁾	10 %	20 %	- Atomic absorption spectrophotometry	
		0.02	10	20 %	- Atomic absorption	

			%		spectrophotometry - Molecular absorption spectrophotometry	
1 1.	Iron (mg/l Fe)	0.02	10 %	10 %	- Atomic absorption spectrophotometry - Molecular absorption spectrophotometry	
1 2.	Mercury ⁽³⁾ (mg/l Hg)	0.000 1 0.000 2 ⁽⁴⁾	20 %	20 %	- Atomic absorption spectrophotometry (cold vaporization)	
1 3.	Conductivity at 20 °C (µS/cm)	—	5 %	10 %	- Conductometry	
1 4.	Faecal coliforms (<i>E.coli</i>)	2 ⁽¹⁾ 200 ⁽⁶⁾			- General guidelines for counting of cultivated micro organisms LVS	Sterilised glass, plastic

	(in 100 ml)				ISO 8199:1988 - Membrane filtration LVS EN ISO 9308-1:2001 - Multiple solution (MPN) method LVS ISO 9308- 2:1990 - Micro method LVS EN ISO 9308-3:1998	
1 5.	Intestine enterococcus (in 100 ml)	2 ⁽¹⁾ 200 ⁽⁶⁾			- Membrane filtration LVS EN ISO 7899-2:2001	Sterilised glass, plastic
1 6.	Phenols (phenol index) (mg/l C ₆ H ₅ OH	0.000 5 0.001 ⁽⁷⁾	0.0 005 30 %	0.000 5 50 %	- Spectrophotometry with flow analysis - Molecular absorption spectrophotometry	Glass

)					
1 7.	Fluoride s (mg/l F ⁻)	0,05	10 %	10 %	-Molecular absorption spectrophotometry, if necessary, after distillation - Ion selective electrodes - Liquid chromatography	
1 8.	Phospha tes (mg/l PO ₄ ³⁻)	0.02	10 %	20 %	- Molecular absorption spectrophotometry - Liquid chromatography	

1 9.	Chlorides (mg/l Cl ⁻)	10	10 %	10 %	- Titration (Mohr's method) - Liquid chromatography - Molecular absorption spectrophotometry	
2 0.	Dissolved oxygen, saturation (% O ₂)	5	10 %	10 %	- Winkler's method - Electrometric method	Glass
2 1.	Cadmium ⁽³⁾ (mg/l Cd)	0.000 2 0.001 ⁽⁴⁾	10 %	10 %	- Atomic absorption spectrophotometry - Polarography	
2	Total	0.01	10	10 %	- Atomic absorption	

2.	chromium ⁽³⁾ (mg/l Cr)		%		spectrophotometry - Molecular absorption spectrophotometry	
2 3.	Total coliforms (in 100 ml)	5 ⁽¹⁾ 500 ⁽⁶⁾			- Membrane filtration LVS EN ISO 9308-1:2001 - General guidelines for counting of cultivated micro organisms LVS ISO 8199:1988 - Multiple solution (MPN) method LVS ISO 9308- 2:1990	Sterilised glass, plastic
2 4.	Total organic carbon (TOC)				- Oxidation of organic carbon by combustion, determination of CO ₂ by IR	Materials not containing reference components and

	(mg/l C)				spectrophotometry, conductivity, thermal conductivity, CO ₂ sensors	not reducing their concentration in the sample
2 5.	Total pesticide s ^(3, 8, 9) (mg/l)	0.000 125	25 %	25 %	- Gas chromatography - Liquid chromatography	Glass
2 6.	Total suspended solids (mg/l)	—	5 %	10 %	- Gravimetric analysis LVS EN 872:1996	
2 7.	Coloration (after simple filtration) (Pt/Co	5	10 %	20 %	- Filtration through glass fibre membrane and photometric method using Pt/Co scale - Visual method	

	scale)					
2 8.	Chemical oxygen demand (COD) (mg/l O ₂)	15	20 %	20 %	- Potassium dichromate method - Titration - Electrochemical method	
2 9.	Manganese (mg/l Mn)	0.005 0.01 ⁽¹⁾	10 % 10 %	10 % 20 %	- Atomic absorption spectrophotometry	
		0.02 ⁽²⁾	10 %	20 %	- Atomic absorption spectrophotometry - Molecular absorption spectrophotometry	
3 0.	Petroleum hydrocarbons	0.01 0.04 ⁽²⁾	20 %	30 %	- Gas chromatography - Infrared spectrophotometry	Glass

	bons (mg/l)					
3 1.	Sodium (mg/l Na)	20	10 %	10 %	- Flame emission spectrophotometry	
3 2.	Nickel (mg/l Ni)	0.002	10 %	10 %	- Atomic absorption spectrophotometry	
3 3.	Nitrates (mg/l NO ₃ ⁻)	2	10 %	10 %	- Reduction in Cd column and spectrophotometric detection - Molecular absorption spectrophotometry - Liquid chromatography	
3 4.	Nitrites (mg/l)	0.000 05	10 %	10 %	- Molecular absorption spectrophotometry	

	NO ₂ ⁻)					
3 5.	Perman ganate index ⁽¹⁰⁾ (mg/l O ₂)	0,5	25 %	25 %	- Titration with KMnO ₄	
3 6.	Total pesticide s ⁽⁹⁾ (mg/l)	0.000 025 0.000 0075 (11)	25 %	25 %	- Gas chromatography - Liquid chromatography	Glass
3 7.	pH (pH units)	-	0,1	0,2	- Electrometry	

38.	Polycyclic aromatic hydrocarbons ^(3, 12) (PAO) (mg/l)	0.000 025	50 %	50 %	- Gas chromatography - Liquid chromatography	Glass or aluminium
39.	Salmonella ⁽¹³⁾ (in 5000 ml and in 1000 ml)				- LVS ISO 6340:1995 - Concentration by filtration of large samples (1.0 - 5.0 l) through a membrane filter (0.45mm). The cultivation of the concentrated sample in liquid and/or solid selective medium,	Sterilised glass, plastic

					isolation of typical colonies and introduction into different media, identification by biochemical and serological tests.	
40.	Selenium ⁽³⁾ (mg/l Se)	0.001	10 %	10 %	- Atomic absorption spectrophotometry	
41.	Nitrogen by Kjeldahl's method, except for NO ₂	0.3	0.5	0.5	- Mineralisation, distillation by Kjeldahl's method and ammonium determination by means of molecular absorption spectrophotometry or	

	and NO ₃ (mg/l N)				titration - By calculation, identifying total nitrogen and specific forms of nitrogen	
4 2.	Odour (Dilution factor at 25 °C)	—	—	—	- By successive dilutions	Glass
4 3.	Sulphate s (mg/l SO ₄ ²⁻)	10	10 %	10 %	- Gravimetry - Liquid chromatography	
4 4.	Lead ⁽³⁾ (mg/l Pb)	0.00 1	10 %	10 %	- Atomic absorption spectrophotometry - Polarography	
4	Tempera	—	0.5	1	- Thermometry	

5.	ture (°C)				(Measured <i>in situ</i> at the time of sampling without previous processing)	
4 6.	Tetrachl oro- ethylene (tetrachlo ro- ethene) and trichloro- ethylene (trichloroet hene) (mg/l)	0.00 05	25 % ⁽¹⁴⁾	25 % ⁽¹⁴⁾	- Gas chromatography	
4 7.	Copper (³)	0.00 5	10 %	20%	- Atomic absorption spectrophotometry	

	(mg/l Cu)				- Polarography	
		0.02 ⁽¹⁵⁾	10 %	20 %	- Atomic absorption spectrophotometry - Molecular absorption spectrophotometry - Polarography	
4 8.	Surface active substances reacting with methylene blue (mg/l Na dodecylbenzenesulphonate)				- Molecular absorption spectrophotometry LVS ISO 7875- 1:1996 LVS ISO 7875- 2:1984	

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Notes

- (1) For Category A1 waters (guide value).
- (2) For Category A2 and A3 waters.
- (3) If the samples contain so much suspended matter as to require special prior treatment, the accuracy values specified in this table may be exceeded in such exceptional cases. In such cases, the values shall be considered as targets. These samples shall be treated in a way so as to ensure that the analysis covers the largest possible quantity of the monitored substances.
- (4) For Category A1, A2 and A3 waters (limit value).
- (5) Reference method for identification of all cyanides in all possible forms.
- (6) For Category A2 and A3 waters (guide value).
- (7) For Category A2 waters (limit value) and for Category A3 waters.
- (8) "Total pesticides" means the sum of pesticides identified and measured during the monitoring process. Pesticides include organic insecticides, organic herbicides, organic fungicides, organic nematocides, organic agricides, organic

rhodenticides, organic slimicides, related products (including growth regulators), as well as their most important metabolites and degradation and reaction products. Only those pesticides, which are likely to be present in the respective water body, shall be controlled.

(9) Accuracy, precision and limit of detection of the reference method shall apply to each individual pesticide and depends on the properties of the pesticide concerned.

(10) Oxidation shall be carried out for 10 minutes at 100 °C temperature under acid conditions using permanganate.

(11) The limit of detection for aldrin, dieldrin, heptachlor and heptachlor epoxide is 0.0000075 mg/l.

(12) The sum of concentrations of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g, h, i)perylene, indeno(1, 2, 3-c, d)pyrene.

(13) Absence in 5000 ml (guide value for Category A1 waters) and absence in 1000 ml (guide value for Category A2 waters).

(14) Accuracy, precision and limit of detection of the method shall apply to the individual substances specified at 50 % of the value specified in Annex 6.

(15) For Category A3 waters.

Minister of Environmental
Protection and Regional Development
V.Makarovs

Annex 9
to the Cabinet of Ministers
Regulations No 118
of March 12, 2002

**Water quality standards for groundwater used for
the abstraction of drinking waters and
requirements for monitoring of such waters**

**I Water quality standards for groundwater used
for the abstraction of drinking water**

Table 1

No	Parameter	Unit	Limit value	Principle of the method of measurement
1	2	3	4	5
1.	Ammonium	mg/l NH ₄ ⁺	0.50	- Spectrophotometry with flow analysis - Molecular absorption spectrophotometry

No	Parameter	Unit	Limit value	Principle of the method of measurement
				try
2.	Antimony	µg/l Sb	5.0	Atomic absorption spectrophotometry
3.	Arsenic	µg/l As	10	Atomic absorption spectrophotometry
4.	Benzo (a) pyrene	µg/l	0.010	Chromatography
5.	Benzene	µg/l C ₆ H ₆	1.0	Chromatography
6.	Boron	mg/l B	1.0	- Atomic absorption spectrophotometry - Molecular absorption spectrophotometry
7.	Cyanides	µg/l CN ⁻	50	Molecular absorption spectrophotometry

No	Parameter	Unit	Limit value	Principle of the method of measurement
				try
8.	Iron	$\mu\text{g/l}$ Fe	200	<ul style="list-style-type: none"> - Molecular absorption spectrophotometry - Atomic absorption spectrophotometry
9.	Mercury	$\mu\text{g/l}$ Hg	1.0	Atomic absorption spectrophotometry
10	Conductivity	$\mu\text{S/cm}$ at 20 °C	2500	Electrometric analysis

11 .	Fluorides	mg/l F ⁻	1.5	- Molecular absorption spectrophotometry -Liquid chromatography
12 .	Chlorides ⁽¹⁾	mg/l Cl ⁻	250	- Titration - Molecular absorption spectrophotometry - Liquid chromatography
13 .	Chlorinated solvents ⁽²⁾	µg/l	10	Chromatography
14 .	Chromium	µg/l Cr	50	Atomic absorption spectrophotometry
15 .	Manganese	µg/l Mn	50	- Atomic absorption spectrophotometry - Molecular absorption

				spectrophotometry
16 .	Cadmium	$\mu\text{g/l}$ Cd	5.0	Atomic absorption spectrophotometry
17 .	Sodium	mg/l Na	200	Flame emission spectrophotometry
18 .	Nickel	$\mu\text{g/l}$ Ni	20	Atomic absorption spectrophotometry
19 .	Nitrates ⁽³⁾	mg/l NO_3^-	50	- Spectrophotometry with flow analysis - Molecular absorption spectrophotometry
20 .	Nitrites	mg/l NO_2^-	0.50	- Spectrophotometry with flow analysis - Molecular absorption

				spectrophotometry
21	Permanganate index	mg O ₂ /l	5.0	Titration
22	Pesticides ⁽⁴⁾	µg/l	0.10	Chromatography
23	Pesticides (total) ⁽⁵⁾	µg/l	0.50	Chromatography
24	pH	pH units	≥ 6,5 and ≤ 9.5	Potentiometry
25	Polycyclic aromatic hydrocarbons (PAH) ⁽⁶⁾	µg/l	0.10	Chromatography
26	Selenium	µg/l Se	10	Atomic absorption spectrophotometry
27	Sulphates	mg/l SO ₄ ²⁻	250	- Liquid chromatography - Gravimetric analysis - turbidimetric analysis

28 .	Lead	$\mu\text{g/l}$ Pb	10	Atomic absorption spectrophotome try
29 .	Copper	mg/l Cu	2.0	Atomic absorption spectrophotome try

Notes

Concentration of metals means concentration of their ions in water.

- (1) Water shall not have corroding impact.
- (2) Chlorinated solvents are tetrachloroethylene (tetrachloroethene) and trichloroethylene (trichloroethene). The limit value shall apply to sum of concentrations of both individual substances.
- (3) The following conditions shall be met: [(nitrates (NO_3^-) concentration in mg/l]/50 + [nitrites (NO_2^-) concentration in mg/l]/3 \leq 1. The concentration of nitrites after water treatment shall not exceed 0.1 mg/l .
- (4) The limit value shall apply to each individual pesticide. The limit value for aldrin, dieldrin, heptachlor and heptachlor epoxide is 0.030 $\mu\text{g/l}$.
- (5) "Total pesticides" means the sum of pesticides

identified and measured during the monitoring process. Pesticides include organic insecticides, organic herbicides, organic fungicides, organic nematocides, organic agricides, organic rhodenticides, organic slimicides, related products (including growth regulators), as well as their most important metabolites and degradation and reaction products.

⁽⁶⁾ The sum of concentrations of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g, h, i)perylene, indeno(1, 2, 3-c, d)pyrene.

II Accuracy, precision and limit of detection of the methods of analysis

Table 2

No	Parameter	Accuracy, % of limit value	Precision, % of limit value	Limit of detection, % of limit value
1.	Ammonium	10	10	10
2.	Antimony	25	25	25

3.	Arsenic	10	10	10
4.	Benzo (a) pyrene	25	25	25
5.	Benzene	25	25	25
6.	Boron	10	10	10
7.	Cyanides ⁽¹⁾	10	10	10
8.	Iron	10	10	10
9.	Mercury	20	10	20
10.	Conductivity	10	10	10
11.	Fluorides	10	10	10
12.	Chlorides	10	10	10
13.	Chlorinated solvents ⁽²⁾	25	25	10
14.	Chromium	10	10	10
15.	Cadmium	10	10	10

16 .	Manganese	10	10	10
17 .	Sodium	10	10	10
18 .	Nickel	10	10	10
19 .	Nitrates	10	10	10
20 .	Nitrites	10	10	10
21 .	Permanganate index ⁽³⁾	25	25	10
22 .	Pesticides ⁽⁴⁾	25	25	25
23 .	Pesticides (total)	25	25	25
24 .	pH	(5)	(5)	
25 .	Polycyclic aromatic hydrocarbons ⁽⁶⁾	25	25	25
26 .	Selenium	10	10	10
27 .	Sulphates	10	10	10

28	Lead	10	10	10
29	Copper	10	10	10

Notes

- (1) Identification of all cyanides in all possible forms.
- (2) Precision, accuracy and limit of detection shall apply to each of chlorinated solvents at 50% concentration of the value specified in Table 1.
- (3) Oxidation shall be carried out for 10 minutes at 100 °C temperature under acid conditions using permanganate.
- (4) Accuracy, precision and limit of detection of the reference method shall apply to each individual pesticide and depends on the properties of the pesticide concerned.
- (5) pH shall be measured by equipment that ensures accuracy of 0.2 pH units and precision of 0.2 pH units.
- (6) Precision, accuracy and limit of detection shall apply to each individual substance at 25% concentration of the value indicated in Table 1.

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