

Regulations Concerning the Sanitary Quality of Drinking Water

(Unofficial Translation)*

**(As authorized by Section E1 of the Public Health Ordinance, 1940,
including all amendments up to 20 Feb., 1991)**

1. Definitions (Incl. 1990 amendment)

In these regulations, the following expressions mean :-

REGION "A":-The jurisdictions of the Dimona, Eilat and Tiberias Municipalities; of the Beit-Sh'an, Mitzpeh-Ramon and Yeroham Local Councils; and of the Beit-Sh'an Valley, Central Arava, Eilat Region, Jordan Valley, Ramat-Hanegev, and Tamar Regional Councils;

REGION "B":-Any area within the State of Israel not included in REGION "A";

EXAMINATION:-An examination of drinking-water performed in a recognized laboratory by a method fixed by the latest edition of "Standard Methods";

MICROBIAL EXAMINATION:-An examination to reveal microbial indicators of pollution or microbial pollutants;

COMPLETE MICROBIAL EXAMINATION:-A microbial examination to reveal coliform, fecal coliform and fecal streptococcus bacteria; and total plate count of bacteria;

STANDARD MICROBIAL EXAMINATION:-A microbial examination to reveal coliform bacteria, or coliform and fecal coliform bacteria;

MICROBIAL RE-EXAMINATION:-A microbial examination to reveal coliform and fecal coliform bacteria, of water taken from a given location - within 24 hours of receipt of the results of a standard microbial examination, of water taken from the same location - which indicated that the water at that location is unfit for drinking;

CHEMICAL EXAMINATION:-An examination to discover the concentration, or any other chemical, physical or organoleptic property;

COMPLETE CHEMICAL EXAMINATION:-A chemical examination to discover the concentrations of all the substances listed in Appendix A, B, and of these regulations and, in addition, of Sodium, Potassium, Ammonia, Nitrites, and Ultra-Violet ray absorption;

PARTIAL CHEMICAL EXAMINATION:-A chemical examination to discover the concentrations of the following: Sodium, Potassium, Iron, Calcium, Chlorides, Sulphates, Fluorides, Nitrates, Nitrites, Ammonia, Alkalinity, Hardness, Total Solids, Surface-Active Agents, pH, Color, and Turbidity;

LIMITED CHEMICAL EXAMINATION:-A chemical examination to discover the concentration of nitrites and chlorides;

POINT OF ENTRY INTO A WATER SUPPLY SYSTEM:-Includes a point on a water line which supplies water directly to a number of settlements whose total population does not exceed 5000 persons;

WATER SOURCE:-As defined in Paragraph 2 of the Water Law, but which supplies - or is intended to supply - drinking water; & including a

dual purpose(withdrawal and recharge) well;

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(Ref. :Regulations:-Doc. #885; Appendices:-Doc. #886)

TREATMENT FACILITY:-A facility or device which treats water mechanically, physically, or chemically (including disinfection and aeration) in order to improve its sanitary quality;

TREATED WATER:-Water which has undergone disinfection, or any other process designed to improve its sanitary quality;

SANITARY SURVEY:-An investigation to discover the cause of drinking water contamination or the cause for a possible contamination of drinking water;

A RECOGNIZED LABORATORY:-A stationary laboratory or a field laboratory which the Minister of Health has authorized to perform examinations of the sanitary quality of drinking water, or any person whom the Minister of Health has authorised to conduct a sanitary survey in accordance with these regulations;

STANDARD METHODS:-The latest available edition of "Standard Methods for the Examination of Water and Wastewater", APHA, a copy of which is posted in The Public Health Library of the Ministry of Health in Jerusalem for the perusal of all interested parties, during hours when the library is open to the public;

THE DIRECTOR:-The Director-General of the Ministry of Health, or any person whom he has authorized to represent him, with respect to any or all of these regulations.

2. Water Unfit for Drinking(Incl. 1990 amendment)

Water shall be deemed unfit for drinking if any one of the following conditions exists:-

(1)A single fecal coliform bacterium has been found, or more than 3 coliform bacteria have been found, in 100 ml. of water, in the course of a standard microbial examination or a microbial re-examination;

(2)(Deleted)

(3)A chemical examination has shown that a substance listed in Appendix A, Column 1, is present in the water at a concentration greater than that listed in Column 2;

(4)A chemical examination has shown that a characteristic or a substance, listed in Appendix B, Column 1, is present in the water at a concentration beyond that listed in Column 3;

(5)A chemical examination has shown that the concentration of fluorides in the water, within the Region indicated in Appendix C, Column 1, is greater than that listed in Column 4;

(6)A sanitary survey has been performed which indicates, in the

opinion of a Health Authority, that this water, if used as drinking water, might harm public health.

2A.Exception(Incl.1988 amendment)

Notwithstanding Regulation 2(1), if a microbial re-examination, which has been performed within 24 hours of the completion of a standard microbial examination, has not indicated the presence of a single fecal coliform bacterium, nor of more than 3 coliform bacteria, in 100 ml. of water, the water will not be considered unfit for use as drinking water.

3.Additional Examination(Incl.1988 amendment)

If a microbial examination has indicated the presence of between 1 and 3 coliform bacteria in 100 ml. of water, the laboratory which performed the examination shall determine if these bacteria are fecal coliforms.

4.Water not Meeting Maximum Desirable Limits(Incl. 1977 amendment)

If a chemical examination has shown that a characteristic or a substance, listed in Appendix B, Column 1, is present at a concentration beyond that listed in Column 2, then the water supplier shall:

- (1)Inform the Health Authority of this fact, without delay;
- (2)Perform a sanitary survey, and/or any other activity fixed by the Health Authority, in order to determine the cause of the outlying concentration;
- (3)Carry out the instructions of the Health Authority in order to eliminate the cause of the outlying concentration.

4A.The Sanitary Survey(Incl.1988 amendment)

(a)A Health Authority may, with the approval of the Chief Engineer for Environmental Health, instruct a water supplier to perform a sanitary survey, if it finds that the results of examinations indicate a suspicion that the water may be contaminated.

(b)A recognized laboratory, as defined in Regulation 1, shall perform the aforesaid sanitary survey upon notification from the Health Authority as to what is to be included in the survey.

(c)A sanitary survey performed because of microbial pollution shall include, at the least, examinations to reveal the concentrations of nitrates, ammonia, surface-active agents, ultra-violet ray absorption and permanganate demand.

(d)At the completion of the sanitary survey, the laboratory shall transmit its results to the relevant Health Authority and Local Authority.

5.The Concentration of Fluorides in the Water(Incl.1988 amendment)

If a chemical examination shows that the concentration of fluorides in the water in a region listed in Appendix C, Column 1 is lower than that listed in Column 2, then the water supplier may add fluorides to the water in order to bring them to the concentration listed in Column 3, if the following conditions exist:

(1a)The Health Authority is satisfied that proper arrangements have been made, in the fluoridation system design, which guarantee that the concentration of fluorides will not exceed that listed in Appendix C, Column 4;

(1b)The Health Authority has approved the plan of operation of the fluoridation system, including the surveillance and testing plans;

(2) The fluoridation system is operated in such a manner as to ensure that the concentration of fluoride in the water does not exceed the concentration listed in Column 4 of Appendix C;

(3) The concentration of fluoride in the water is tested daily, and the results are recorded in a notebook (below:"the notebook");

5.(continued)

(4) The notebook shall be kept for a period of one year from the date of the last entry recorded in it, and shall be available at any reasonable time for the inspection of a Health Authority, a Government Doctor, or any person authorized by the Minister of Health.

5A.Transfer of Test Results (Incl. 1978 amendment)

(a)If one of the conditions described in Regulation 2 has been found to exist in drinking water, the laboratory shall transfer the results of the relevant tests without delay to the Health Authority in whose purvey the water was sampled.

(b)Once a month, the supplier shall transfer the results, of all the tests performed on drinking water he supplies, to the Health Authority in whose purvey the water was sampled.

6.Water Unfit Because of Danger to Public Health (Incl. 1989 Amend.)

(a)If a Health Authority or a supplier suspects that, because of its appearance or sanitary quality, the supply of certain drinking water might endanger public health, that water is deemed unfit for drinking.

(b)If, in the opinion of a Health Authority or a supplier, a chemical test shows that certain drinking water contains toxic substances which are not listed in Appendix A, at a concentration which might endanger public health, that water is deemed unfit for drinking.

(c)A supplier of drinking water - which is deemed unfit for drinking in accordance with this regulation - must:-

- (1) Cease the supply of that water immediately;
- (2) Inform the Health Authority without delay;
- (3) Not resume supply of that water until receiving approval for such action by the Health Authority, and until fulfilling the conditions set by them.

6A. Water Disinfection (1990 amendment)

Drinking water suppliers shall assure that the drinking water which they supply shall contain, on a permanent and continuous basis, not more than 0.5, nor less than 0.1, mg. per liter residual chlorine, or an equivalent concentration of an equivalent disinfectant, as approved by the director.

Exception:- If a supplier installs at least 6 disinfection installations between 1-1-90 & 31-8-90, and submits plans and installation dates for the installation of the full number of disinfection installations he must install, then the Director-General of the Ministry of Health may extend the application of this regulation to a date not after 31-12-91.

7. Drinking Water Source (Incl. 1989 Amendment)

- (a) A supplier shall not supply drinking water from a water source (below: "a drinking water source") unless a Health Authority has approved that source as a drinking water source.
- (b) A Health Authority shall not approve a drinking water source if one of the following exists:-
 - (1) The water has been deemed unfit for drinking;
 - (2) In a complete microbial examination, a fecal coliform bacterium or a fecal streptococcus bacterium has been found in 100 ml. of water, or more than 1000 bacteria have been found in one ml. of water in a total plate count of bacteria.
 - (3) The Health Authority deems the results of the chemical examinations to be unsatisfactory.
- (c) A request for approval of a drinking water source shall be presented to a Health Authority by a supplier; the request shall be accompanied by:-
 - (1) Test results of the characteristics listed in Appendices A, B, & C of these regulations; and the results of any other tests which the Health Authority has required;
 - (2) Results of a complete microbial examination.
- (d) A supplier shall perform a complete microbial examination and a limited chemical examination in a drinking water source every three months and, in addition, before resuming water supply from a source which did not supply water for a period exceeding one month.
- (e) A supplier shall perform a complete chemical examination of the water of a drinking water source every 10 years, and a partial chemical examination every 5 years. The results of the

examination shall be transferred to the Health Authority.

(f) If the concentration of any property mentioned in this regulation is found to be greater than 80% of the maximum permitted according to Appendices A & B of these regulations, the supplier shall test that property at a frequency required by the Health Authority.

8. Flushing & Disinfection of Water Systems (Incl. 1978 amendment)

Before the supply of water from a water system, whether new or having undergone repair or revision, the supplier must:-

- (1) Inform the Health Authority of the repair or revision;
- (2) Flush & disinfect the system according to the instructions of the Health Authority;
- (3) Bring a sample of the water from the system to a recognized laboratory for a microbial test, and for any other test which the Health Authority may require.

9. Water Standing in a Reservoir (Incl. 1989 amendment)

Water which has been standing in a reservoir for a period greater than one month may not be supplied as drinking water unless it contains residual disinfectant, or it has been found fit for drinking by a standard microbial examination.

10. Treated Water Examinations (Incl. 1989 amendment)

(a) Water undergoing treatment shall be examined by a microbial examination before and after treatment at a frequency as shown in Table No. 2 of Appendix D, or at a greater frequency which the Health Authority may require.

(b) The disinfectant concentration in treated water shall be:-

- (1) That which the director has approved;
- (2) Tested at least daily.

(c) The director may require more frequent disinfectant concentration testing, or may require installation & operation of an instrument for continuous measurement of the disinfectant concentration.

(d) The results of the disinfectant concentration tests shall be reported to the examining laboratory & recorded in a notebook; the records shall be kept for a year from the record date.

11. Examination of Water in Water Supply Systems (Incl. 1989 amend.)

(a) The interval between successive sampling occasions (Column B), and the number of samples taken on each sampling occasion (Column C), for the microbial examination of drinking water within a water supply system shall depend upon the population (Column A) served by the system, as indicated in Table 1 of Appendix D to these regulations.

(b) Upon each occasion of water sampling, as indicated in Section 11(a), the presence of disinfectant and its concentration shall be ascertained & reported to the examining laboratory.

12. Examination of Water at Entry Points to Water Supply Systems (Incl. 1989 amendment)

The interval between successive sampling occasions (Column B), for the microbial examination of drinking water at entry points to water supply systems shall depend upon the population (Column A) served by the entry point, as indicated in Table 2 of Appendix D to these regulations.

13. Augmented Testing

If a Health Authority deems that the danger of an epidemic exists, or that a water source is suspected of being polluted, examinations of drinking water shall be carried out of a type and at a frequency fixed by the Health Authority.

13A. Alternate Testing Methods

A Health Authority may issue instructions with respect to testing methods alternate to those fixed in "Standard Methods" if it deems that the circumstances require it on a specific occasion. If a Health Authority so instructs, these alternate testing methods shall be followed in place of those fixed in "Standard Methods", as long as the occasion engendering those instructions continues to exist.

14. Drinking Water from Dual-Purpose Recharge Wells (Incl. 1978 amend.)

(a) Drinking water drawn at any time from a well - into which drinking water is recharged at another time - (below: - a dual-purpose well) shall be deemed suitable for use as drinking water if the following criteria obtain:-

(1) The well has been approved as a drinking water source by a Health Authority as stipulated in Regulation 7 (above);

(2) The water has been disinfected;

(3) A complete microbial examination, performed on a sample taken from a point before disinfection, has shown neither the presence of a fecal streptococcus - nor of a fecal coliform - bacterium in 100 ml. of water;

(4) A microbial examination, performed on disinfected water, has not shown the presence of more than 3 coliform bacteria in 100 ml. of water;

(5) If a Health Authority has required a chemical test, the results satisfy the requirements of these regulations.

(b) The supplier shall notify the Health Authority, in writing, of the projected date of renewal of pumping, after which the

supplier intends to reconnect the dual-purpose well to the water supply system.

15. Sampling (Including 1978 amendment)

(a) A person sampling drinking water for testing according to these regulations (below:- a sampler) must be qualified to do so, as approved by a Health Authority.

(b) The sampling of drinking water for testing by a microbial examination shall be performed according to Section 1 of Appendix E to these regulations.

(c) The sampling of drinking water for testing by a chemical examination shall be performed according to Section 2 of Appendix E.

16. The Sample until Initiation of Testing (Incl. 1978 amendment)

(a) Drinking water sampled for a microbial examination, a microbial re-examination, or a complete microbial examination, shall be maintained at a temperature between 4 & 10 degrees C.

(b) The tests listed in Subsection 16(a) shall be initiated not later than six hours from the moment of sampling.

(c) A health authority, in unusual circumstances, and upon the request of a supplier or a recognized laboratory, may waive the six-hour requirement, provided the test is initiated within 24 hours of sampling.

17. Noting of Details with Respect to the Sample (Incl. 1989 Amend.)

(a) The sampler shall complete the form shown in Appendix 6, including all the required details.

(b) The form and the vessel containing the sample shall bear identical symbols.

(Ref.: Regulations-Doc.#885; Appendices-Doc.#886)

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Appendix A -Toxic Substances

Column 1 Column 2

Maximum Allowable Concentration

Substances (Micrograms per liter)

Mercury 1

Cadmium, Selenium 10

Arsenic, Chromium, Cyanide, Lead 50

Barium 1000

Appendix B -Substances & Characteristics of Sanitary Significance

Column 1	Column 2	Column 3	Column 4
Maximum	Maximum	Desirable	Allowable
Substance or	Characteristic	Concentration	Concentration
		Units	Units

 Part 1:-Substances Expressed in Micrograms per liter

Phenol	1	2	(1)	Micrograms per liter
Trihalomethanes	(2)	(3)	100	" " "
Mineral Oil	10	300	" " "	
Manganese	50	500	" " "	
Iron	100	1000	" " "	
Surfactants	200	1000	" " "	
Copper	50	1400	" " "	

 Part 2:-Substances Expressed in Milligrams per liter

Zinc	5	15	Milligrams per liter	
Nitrates(as Nitrate)	45	90	" " "	
Magnesium	50	150	" " "	
Sulphate	250	(4)	" " "	
Chloride	250	600	" " "	
Tot. Dissolved Sol.	800	1500	" " "	
Calcium	80	(5)	" " "	
Hardness	200	(6)	(5)	" " "

 Part 3:-Characteristics Expressed in Various Units

Turbidity	1	(7)	Nephelometric Units
Color	5	15	Platinum-Cobalt Un.
pH	7.0-8.5	6.5--9.5	pH Units
Taste & Odor	1	Unobjectionable	Threshold Odor No.
Total Alpha Activity	(3)	0.1	Becquerels per liter
Total Beta Activity	(3)	1.1	" " "

 References

- (1) In the presence of a characteristic objectionable odor.
- (2) Chloroform, bromodichloromethane, chlorodibromomethane, & bromoform
- (3) No requirement for Maximum Desirable Concentration.
- (4) MAC (Max. Allowable Conc.) of SO₄ (Sulphate) depends upon, and is computed from, Mg (Magnesium) conc. in the water, as follows:
 MAC of SO₄(in mg./L)= 437.5 minus (1.25 times Mg conc. in mg./L)
- (5) No requirement for Maximum Allowable Concentration.
- (6) Hardness expressed in milligrams per liter as calcium carbonate.
- (7) Up to 31.12.92:- 5 N.U. (Nephelometric Units)
 From 1.1.93 to 30.06.94:- 4 N.U.
 From 1.7.94 to 31.12.95:- 3 N.U.
 From 1.1.96 & thereafter:- 1 N.U.

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Appendix C
 Fluoride Concentrations according to Climatic Zones
 (milligrams per liter)

Column 1	Column 2	Column 3	Column 4
Minimum Allowable	Maximum Operational	Maximum Allowable	Maximum Allowable
Region	Concentration	Concentration	Concentration
Region "A"	0.6	0.8	1.4
Region "B"	0.7	1.0	1.7

Appendix D
 Frequency of Sampling for Microbial Testing

Table #1:-Frequency of Sampling & Number of Samples to be Taken of Water within the Distribution System, according to Population Served

Column 1	Column 2	Column 3	Column 4
No. of Samples On each Sampling	No. of Samples Over 4-Week	Sampling Frequency	Occasion Period
Population Served			
Up to 1,000	Once every 4 Weeks	2	2
1,001 to 5,000 "	4	4	
5,001 to 10,000 "	6	6	
10,001 to 20,000 "	8	8	
20,001 to 30,000	Once every 2 Weeks	5	10
30,001 to 40,000 "	6	12	
40,001 to 50,000 "	7	14	
50,001 to 70,000	Once every Week	4	16
70,001 to 90,000 "	6	20	
90,001 to 110,000	Twice per week	4	32
110,001 to 140,000 "	5	40	
140,001 to 170,000	3 Times per week	4	48
170,001 to 200,000 "	5	60	
200,001 to 250,000	5 Times per week	4	80
250,001 to 300,000 "	5	100	
300,001 to 400,000 "	6	120	
400,001 to 500,000 "	7	140	
More than 500,000 "	8	160	

Table #2:-Frequency of Sampling
 (1)of Water at the Entrance to a Distribution System
 (2)of Treated Water

Column 1	Column 2
Population Served	Sampling Frequency
Up to 20,000	Once every 4 Weeks
20,001 to 50,000	Once every 2 Weeks
50,001 to 100,000	Twice per Week
More than 100,000	Daily

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Appendix E Sampling

Section 1:-Sampling for Microbial Testing

1. Sample Volume - Sample volume shall be at least 100 ml.

2. Sampling Container - The sampling container shall:
 - a.-be clean, sterilized, and stoppered when given to the sampler.
 - b.-be made of transparent glass, or other transparent material which will not affect the quality of the water sample, and which is impervious to sterilization.
 - c.-be provided with a stopper which seals the mouth of the container, and is made of material which will not affect the quality of the water sample. After stoppering, the stopper shall be wrapped in parchment paper or aluminum foil.
 - d.-contain a 2% solution of sodium thiosulphate, of a quantity equal to 0.1 ml. for every 100 ml. of container volume.
3. Assuring that the water sample represents the water in the pipe
 - a.The water sample must characterize the water in the pipe rather than the water in the tap.
 - b.When sampling water from a tap adjacent to a well which has not supplied water for 24 hours or more, water shall flow from the tap at least one-half hour (or longer, at the discretion of the sampler) before sampling.
 - c.When sampling water from a tap not adjacent to a well, or when sampling water from a tap adjacent to a well which is supplying water - or if the well is not supplying water, but less than 24 hours have elapsed since it last supplied water - water shall flow from the tap at least 2 minutes (or longer, at the discretion of the sampler) before sampling.

4. Prevention of sample pollution from tap outlet

Before sampling, the outlet of the tap shall be rinsed and cleaned. The valve shall then be shut, and the outlet disinfected by heat, by use of a burner.

5. Sampling Procedures

a. Hold lower part of sampling container.

b. Remove stopper while touching wrapper only, without touching mouth or neck of container.

c. In filling container, leave a two-centimeter air gap at the top, to permit shaking in the laboratory.

d. In sampling from a stream, spring, lake or reservoir, in cases where sampling depth is not greater than 50 centimeters, the following additional procedures shall be followed:-

(1) Upend container. Immerse it, upside down, into water to be sampled.

(2) Turn container so that its mouth points upstream, and fill by tilting mouth slightly upward. If there is no current, fill by moving container gently in water.

(3) If sampling from a boat, sample from upstream side.

(4) In no case shall the sampler touch the bank or bottom of a stream or reservoir.

e. In sampling from a point whose depth exceeds 50 centimeters, follow directions of the Health Authority.

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Appendix E

(continued)

Section 2:-Sampling for Chemical Testing

1. The sample - Sampling shall be carried out according to the instructions of the examining laboratory.

2. The sampling container

a. The container and stopper shall be of material which is easily cleaned, and which will not affect the quality of the water sample.

b. The container shall be clean and stoppered when given to the sampler.

3. Preliminary steps

a. Before sampling, fill the container half-full with the water to be sampled, stopper the container, shake vigorously, and waste the contents of the container. Repeat this procedure three times.

b. Assuring that the water sample represents the water in the pipe

(1) The water sample must characterize the water in the pipe rather than the water in the tap.

(2) When sampling water from a tap adjacent to a well which has not

supplied water 24 hours or more, water shall flow from the tap at least 24 hours before sampling.

(3)When sampling water from a tap not adjacent to a well, or when sampling water from a tap adjacent to a well which is supplying water - or if the well is not supplying water, but less than 24 hours have elapsed since it last supplied water - water shall flow from the tap at least 2 minutes (or longer, at the discretion of the sampler) before sampling.

4.In sampling from a stream, spring, pond, or reservoir - proceed as directed in Section 1, Paragraphs 5d & 5e.

Appendix F

(Reg. 17 - incl. 1989 amend.)

The following details shall be noted on the sampling form:-

Person & name of organization ordering the test.

Name of sampler.

Sampling location.

Date & time of sampling.

Type of test(Routine, standard, microbial, other)

Chlorine concentration in water at time of sampling.

Signature of sampler.
