Notification of the Department of Health
On Criteria for Recommendation of Drinking Water Quality Surveillance,
B.E. 2563 (A.D. 2020)

Whereas it is expedient to revise the Criteria for Recommendation of Drinking Water Quality Surveillance, B.E. 2553 (A.D. 2010) with the current changing situation to set a standard and monitoring for drinking water quality as a standard for the implementation according to the mission of the Department of Health, which will protect the public health of people and support and promote the management of drinking water quality to be appropriate and safe.

By virtue of Section 32 of the State Administration Act, B.E. 2534 (A.D. 1991) the Director-General of the Department of Health hereby issues a notification as follows:

Clause 1. This Notification shall be referred to as "Notification of the Department of Health on Criteria for Recommendation of Drinking Water Quality Surveillance, B.E. 2563 (A.D. 2020).

Clause 2. The Notification of the Department of Health on Criteria for Recommendation of Drinking Water Quality Surveillance, B.E. 2553 (A.D. 2010) dated 13 October 2010 shall be repealed.

Clause 3. In this Notification,

“Drinking water” means hygienic tap water, surface water, shallow well, groundwater, and rainwater that is intended for drinking, cooking, washing face, brushing teeth, and rinsing mouth.

"Reasons which may affect the drinking water quality" means an unexpected event that may affect the drinking water quality in physical, chemical and biological, such as a disaster that has caused by human, accident or an epidemic with water as a medium, etc.

"Monitoring of drinking water quality" means examining various characteristics of drinking water in a continuous system to monitor situations related to health by setting and collecting important information for verification in order to know the management constraints and analyze water quality problems which lead to public health operations improvement. The improvement includes performing drinking water safety reviews, and quick and timely implementing health promotion and disease or hazard control.

Clause 4. Water quality for general areas shall comply with the drinking water quality criteria according to List Number 1 attached to this Notification and shall monitor the drinking water quality at least once a year.

In case of an event that an incident may affect the drinking water quality, the criteria shall be in accordance with List Number 2 attached to this Notification. Monitoring drinking water quality shall be referred to the characteristics or parameters that may pose a health risk according to the water source assessment criteria that may affect the drinking water quality of the relevant authorities.

Clause 5. The analysis, the collecting method and the preservation of drinking water quality samples according to Clause 4., paragraph one, shall comply with the methodology in Standard Methods for the Examination of Water and Wastewater Edition 23rd ed., 2017 APHA AWWA WEF. Also, the analysis, the collecting method and the preservation of drinking water quality samples according to Clause 4., paragraph two, shall be in accordance with List Number 2.

Announced on the 13th Day of July 2020

Panpimol Wipulakorn

Director-General of the Department of Health

List Number 1: Drinking water quality standards for general surveillance area

PARAMETER	Unit of measure	Standard	Analysis method
Physical			
Turbidity	NTU	less than 5	Nephelometry
Apparent color	Platinum-Cobalt	less than 15	Spectrophotometric-single-wavelength, visual comparison method
pH	-	6.5 – 8.5	Electrometric method
General chemistry			
Total dissolved solids	mg/l	less than 500	TDS dried at 180 degrees Celsius, Gravimetric, Electrometric method
Hardness	mg/l (as $CaCO_3$)	less than 300	EDTA titrimetric
Sulfate	mg/l	less than 250	Turbidimetry, ion chromatography
Chloride	mg/l	less than 250	Argentometry, ion chromatography
Nitrate	mg/l (as NO_3^-)	less than 50	Cadmium reduction, ion chromatography**,** spectrophotometry
Nitrite	mg/l (as NO_2^-)	less than 3	Cadmium reduction, ion chromatography**,** spectrophotometry
Fluoride	mg/l	less than 0.7	ion chromatography, SPADNS colorimetric method, ion-selective electrode
Chemical (heavy metal)			
Iron	mg/l	less than 0.3	AAS (flame), ICP, spectrophotometry
Manganese	mg/l	less than 0.3	AAS (flame), ICP, spectrophotometry
Copper	mg/l	less than 1	AAS (flame), ICP, spectrophotometry
Zinc	mg/l	less than 3	AAS (flame), ICP, spectrophotometry
Chemistry (toxic heavy metals)			
Lead	mg/l	less than 0.01	AAS (graphite furnace), ICP
Total chromium	mg/l	less than 0.05	AAS (graphite furnace), ICP
Cadmium	mg/l	less than 0.003	AAS (graphite furnace), ICP
Arsenic	mg/l	less than 0.01	AAS (vapor generation technique), ICP, graphite furnace
Mercury	mg/l	less than 0.001	AAS (vapor generation technique), ICP, Automatic direct mercury analyzer
Biological			
Total coliforms bacteria	/100 ml.	absent	Presence-Absence Test
	MPN / 100 ml.	less than 1.1	MPN method
Escherichia coli	/100 ml.	absent	Presence-Absence Test
	MPN / 100 ml.	less than 1.1	MPN method

Note: Choose one analysis method for each parameter.

List Number 2: Drinking water quality standards in case of event that an incident may affect the drinking water quality

PARAMETER	Unit of measure	Standard	Analysis method
Industrial area			
Other toxins			
Linear Alkyl Benzene Sulfonate	mg/l	0.2	APHA,AWWA,WEF, 23rd ed., 2017
Aluminum	mg/l	0.2	ICP-MS, spectrophotometry, AAS, ICP
Barium	mg/l	0.7	AAS (Graphite Furnace), ICP, ICP-MS
Beryllium	mg/l	0.004	ICP-MS
Boron	mg/l	2.4	ICP-MS, Electrothermal atomic absorption
Cyanide	mg/l	0.07	Ion-Selective Electrode, continuous flow injection method, spectrophotometry, cyanide chromatography
Nickel	mg/l	0.07	ICP-MS
Selenium	mg/l	0.01	AAS (Vapor Generation Technique), ICP-MS
Styrene	mg/l	0.02	GC-MS
Vinyl chloride	mg/l	0.0003	HPLC, GC
Volatile organic compounds in the group BTEX			
Benzene	mg/l	0.01	GC-MS, GC/PID
Toluene	mg/l	0.7	GC-MS, GC/FID
Ethylbenzene	mg/l	0.3	GC-MS, GC/PID
Total Xylenes	mg/l	0.5	GC-MS, GC/FID
Volatile organic compounds (VOCs)			
Carbon tetrachloride	mg/l	0.004	GC-MS, GC/PID, GC/ELCD
1,2-Dichloroethane	mg/l	0.03	GC-MS, GC/PID, GC/ELCD
1,2-Dichloroethene	mg/l	0.05	GC-MS, GC/PID, GC/ELCD
Dichloromethane	mg/l	0.02	GC-MS, GC/PID, GC/ELCD
Tetrachloroethene	mg/l	0.04	GC-MS, GC/PID, GC/ELCD
Trichloroethene	mg/l	0.07	GC-MS, GC/PID, GC/ELCD
1.1.1-trichloroethane	mg/l	2	GC-MS, GC/PID, GC/ELCD
Trihalomethane			
Chloroform	mg/l	0.3	GC
Bromo dichloromethane	mg/l	0.06	GC
Di bromochloromethane	mg/l	0.1	GC
Bromoform	mg/l	0.1	GC
Epidemic situation			
Biological			
Clostridium perfringens	per 100 ml.	absent	EA 2010, FDA BAM online
Pseudomonas aeruginosa	per 250 ml.	absent	ISO 16266
Staphylococcus aureus	per 100 ml.	absent	APHA,AWWA,WEF, 23rd ed. ,2017, FDA BAM online
Salmonella spp.	per 100 ml.	absent	ISO 19250, APHA,AWWA,WEF, 23rd ed. ,2017
Shigella spp.	per 100 ml.	absent	ISO 21567
Vibrio cholerae	per 100 ml.	absent	APHA,AWWA,WEF, 23rd ed. ,2017, FDA BAM online
Hepatitis A virus	per 100 ml.	absent	Real time PCR, PCR, IgM
Norovirus	per 100 ml.	absent	Real time PCR, PCR, ELISA
Rotavirus	per 100 ml.	absent	Real time PCR, PCR
Cryptosporidium hominis/parvum	per 10 L.	absent	Special staining: Trichrome, Acid-fast stain PCR, Real-time PCR
Giardia intestinalis	per 10 L.	absent	wet mount microscopy, concentration method (centrifugation with Formalin and Ethyl acetate.), Normal and confirmed with Iodine
Cyclospora spp.	per 10 L.	absent	Special staining: Trichrome, Acid-fast stain PCR, Real-time PCR
Agricultural area			
Pesticide			
Atrazine	µg/l	2	GC-MS, HPLC
Carbofuran	µg/l	7	GC with nitrogen-phosphorus detector, reverse-phase HPLC with fluorescence detector
Chlorpyrifos	µg/l	30	GC, HPLC
DDT & metabolites	µg/l	1	GC/ECD, GC-MS
2,4-D	µg/l	30	GC, HPLC
Glyphosate – isopropyl ammonium	µg/l	900	GC, HPLC
Paraquat dichloride	µg/l	10	GC, HPLC

Note: Choose one analysis method for each parameter.