

TITLE 35: ENVIRONMENTAL PROTECTION**SUBTITLE F: PUBLIC WATER SUPPLIES****CHAPTER II: ENVIRONMENTAL PROTECTION AGENCY****PART 654****RAW AND FINISHED WATER QUALITY AND QUANTITY****SUBPART A: RAW WATER QUALITY**

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AUTHORITY: Implementing and authorized by Section 14-19 of the Environmental Protection Act (Ill. Rev. Stat. 1983, ch 111 1/2, pars. 1014-1019).

SOURCE: Adopted December 30, 1974, amended at 2 Ill. Reg. 51, p. 219, effective December 17, 1978; rules repealed and new rules adopted and codified at 8 Ill. Reg. 8455, effective June 5, 1984..

SUBPART A: RAW WATER QUALITY**Section 654.101 Surface Water Quality**

Surface water shall be approved as a community water supply source only if treatment to produce a finished water which meets the standards of 35 Ill. Adm. Code 604 is provided.

- a) Sampling shall be performed to determine treatment requirements. Representative samples shall be collected at least once a month over 12 consecutive periods to determine raw water quality.
- b) More frequent sampling shall be required to obtain a true representation of raw water quality. Raw water characteristics shall be determined after heavy rainfall and runoff, low stream flow and at other times when unusual factors pertaining to physical and chemical quality, treatability, tastes, and odors exist.
- c) A 12 month running geometric mean shall be used to calculate raw water bacteriological quality.

- d) Complete treatment including coagulation, clarification, rapid-sand filtration or its equivalent, and continuous post-chlorination shall be provided for all surface waters.
- e) Auxiliary treatment shall be provided for waters containing coliform bacteria exceeding 5,000 per 100 milliliters in more than 20% of the samples examined during any one month. Examples of auxiliary treatment are presedimentation, prechlorination and storage of raw water for 30 days or more.

Section 654.102 Ground Water Quality

- a) Treatment equivalent to that described in Section 654.101 shall be provided for ground water sources subject to bacteriological contamination.
- b) Ground water which exceeds the standards in 35 Ill. Adm. Code 604 shall be treated to comply with those standards.

SUBPART B: RAW WATER QUANTITY**Section 654.201 Surface Water Quantity**

- a) Determination of surface water source adequacy shall be based on:
 - 1) catchment areas, stream flows and weather records;
 - 2) safe yield;
 - 3) maximum flood flows;
 - 4) required water releases; and
 - 5) evaporation, seepage and siltation losses.
- b) Calculations shall be based on the extreme drought of record, available records of rainfall, consumption maximums and include a surplus for reasonable growth.

Section 654.202 Ground Water Quantity

- a) Ground water source adequacy shall be determined by the amount of water produced by each well pumping within its calculated safe yield.
- b) Where multiple wells are used the combined delivery shall:
 - 1) exceed the record maximum daily demand; and
 - 2) equal or exceed the calculated average daily demand with the largest producing well out of service.
- c) Where only one well is provided the delivery shall:
 - 1) exceed the record maximum daily demand
 - 2) meet the requirements of 35 Ill. Adm. Code 653.109 or 653.110 if hydropneumatic storage is provided.

Section 654.203 Combination of Ground and Surface Water

- a) Water sources consisting of a combination of ground water and surface water shall be evaluated according to Section 654.201 and 654.202.
- b)
- c) The adequacy of each source shall be calculated. The combined delivery shall exceed the record maximum daily demand.

SUBPART B: BACTERIOLOGICAL SAMPLES**Section 654.301 Monthly Sampling Period**

- a) The term Amonthly@ refers to the designated sampling schedule which the Agency provides to each community water supply and does not necessarily correspond to a calendar month.
- b) Samples collected before the designated beginning date shall be counted in the previous time period. Samples collected after the designated ending date shall be counted in the following time period.
- c) Check samples, emergency samples and special purpose samples such as those taken to determine adequate disinfection after new construction or repair shall not be counted as part of the monthly total required by 35 Ill. Adm. Code 605.102.
- d) Samples which cannot be analyzed (too old, no collection date, or other similar reasons) shall be replaced during the scheduled sampling period and the replacement samples shall be counted as part of the monthly total required by 35 Ill. Adm. Code 605.102.

Section 654.302 Sampling Schedule

- a) A schedule for samples and sampling points shall be established jointly by the community water supply and the Agency. A minimum of 95% of the treated water samples shall be collected at representative points throughout all sections of the distribution system.

- b) Samples submitted to certified laboratories shall be analyzed within the established sampling schedule and results submitted to the Agency within ten days of the close of the sampling period.

Section 654.303 Finished Water Bacteriological Quality

- a) Compliance with 35 Ill. Adm. Code 604.102 shall be determined using the following:
 - 1) Confirmed negative sample results (no coliform present) shall be counted as zero when computing the monthly average.
 - 2) Confirmed positive excessive growths shall be counted as 80 when computing the monthly average.
 - 3) Confirmed positives shall be counted as the number recorded by the laboratory.
- b) Certified laboratory results which show the presence of coliform and have been confirmed by check samples shall be reported to the Agency within 48 hours.

Section 654.304 Additional Required Samples

- a) Check samples are required to verify an analysis showing contamination.
- b) Check samples are required under the following conditions when the membrane filter technique is used:
 - 1) four or more confirmed colonies in a single sample;
 - 2) excessive growth (confluent growth or too numerous to count) confirmed either positive or negative for coliform; or
 - 3) one, two or three colonies of coliform in 25% or more of the samples analyzed.
- c) Samples shall be collected at the same location at 24 hour intervals until the results of two consecutive samples indicate less than one coliform per 100 milliliters of sample.
- d) Only one sample is required to check negative excessive growth.
- e) Check samples shall not be used to calculate the monthly average.
- f) Replacement samples are required when samples cannot be analyzed for any reason. This includes but is not limited to:
 - 1) samples more than 30 hours old when received;
 - 2) insufficient information on the sample sheet supplied by the sample collector (i.e. no date or time of collection recorded);
 - 3) samples frozen;
 - 4) sample bottles broken; or
 - 5) residual chlorine present in sample.
- g) Only one sample is required to replace a sample that has not been analyzed.
- h) Results of replacement samples shall be included in the monthly average calculation.

SUBPART D: CHEMICAL AND TURBIDITY SAMPLES

Section 654.401 Chemical Samples

- a) Chemical samples shall be submitted to an Agency laboratory within ten days following receipt of the sample containers. The Agency shall be notified and an agreement reached to establish a more appropriate sample time if submission within ten days is not possible.
- b) Chemical samples shall be collected during normal water plant operation. Finished water chemical samples shall be collected from a free-flowing tap at a representative point in the distribution system.
- c) A new sample will be required if analytical results do not balance chemically. This resample shall be indicated by an AR@ on the report sheet and must be submitted to the laboratory within ten days.
- d) Public notice shall be made in accordance with 35 Ill. Adm. Code Part 606: Subpart B if required samples are not submitted.
- e)
- f) Chemical sampling requirements, other than for trihalomethanes, shall not be required for satellite community water supplies, unless they provide additional treatment, other than chlorination.

Section 654.402 Turbidity Samples

- a) Owners and operators of community water supplies utilizing surface water sources shall sample at representative entry points to the distribution system at least once per day, and make immediate turbidity analysis of each sample.
 - 1) Samples shall be tested by a specific individual approved by the Agency to conduct turbidity analyses.
 - 2) A turbidity monitoring report shall be submitted to the Agency within ten days after the close of the month.
 - 3) Daily turbidity records shall be maintained in accordance with 35 Ill. Adm. Code 607.106.
- b) Approval to conduct turbidity analysis is granted after an applicant demonstrates the ability to correctly analyze turbidity samples using nephelometric equipment.

- 1) Agency Public Water Supply personnel can administer turbidity approval tests at the water supply facility.
- 2) Approval numbers are assigned and records on approved persons are maintained by the Agency.
- 3) Renewal is required every three years.

Section 654.403 Recommended Finished Water Contaminant Concentrations

It is recommended that concentrations of constituents listed in Table A not be exceeded in the finished water.

Table A - SECONDARY MAXIMUM CONTAMINANT LEVELS FOR FINISHED WATER

<u>Contaminant</u>	<u>Reported As</u>	<u>Level mg/l*</u>
Chloride	Cl	250.
Color	Color Units	15. C.U.
Copper	Cu	1.
Foaming Agents	MBAS	0.5
Hydrogen Sulfide	H ₂ S	0.05
Iron	Fe	0.3
Manganese	Mn	0.05
Odor	Threshold Odor Number	3. T.O.N.
Sulfate	SO ₄	250.
Total Dissolved Solids	TDS	500.
Zinc	Zn	5.

* Unless otherwise indicated

SUBPART E: RADIOLOGICAL SAMPLES

Section 654.501 Samples for New Sources and Supplies

Monitoring of the distribution system in accordance with 35 Ill. Adm. Code 604, Subpart C, shall begin one year after:

- a) a new community water supply is developed; or
- b) a community water supply begins using an additional source.