7 MCAR 1

4-1-82

Department of Health

Environmental Health Division

Adopted Rules Relating to Public Water Supplies

Rules as Adopted

7 MCAR S 1.145 General information and definitions.

A. [Unchanged.]

B. Definitions. The following definitions apply to 7 MCAR SS 1.145-1.149, unless the context indicates otherwise.

1. Commissioner. "Commissioner" means the commissioner of health, or his or her authorized representative.

2. Disinfectant. "Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic micro-organisms.

3. Dose equivalent. "Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

4. Exemption. "Exemption" means a waiver which may be granted by the commissioner to a supply which is in operation on June 24, 1977:

a. When a maximum contaminant level or required treatment cannot be complied with because of economic or other compelling factors; and

b. If granting the waiver will not result in an unreasonable risk to health.

Such an exemption must be conditioned upon a schedule for compliance with these rules by the dates specified in 7 MCAR S 1.148 B.8. and 9.

5. Federal act. "Federal act" means the Safe Drinking

Water Act of 1974, P.L. 93-523, 42 U.S.C. 300 f, and amendments thereto.

6. Federal regulations. "Federal regulations" means regulations dealing with public water supplies and drinking water quality, promulgated by the Administrator of the United States Environmental Protection Agency pursuant to the federal act.

7. Gross alpha particle activity. "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

8. Gross beta particle activity. "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

9. Halogen. "Halogen" means one of the chemical elements chlorine, bromine, or iodine.

10. Man-made beta particle and photon emitters. "Man-made beta particle and photon emitters" means all radionuclides emitting beta particles or photons listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium-232, uranium-235 and uranium-238.

11. Maximum contaminant level. "Maximum contaminant level" means the maximum permissible level of a contaminant (any physical, chemical, biological, or radiological substance or matter) in water which is delivered to the free flowing outlet of the ultimate user of a public water supply; except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except for those resulting from corrosion of piping and plumbing caused by water quality are excluded from this definition.

12. Maximum total trihalomethane potential. "Maximum total trihalomethane potential" means the maximum concentration of total trihalomethanes produced in a given water containing a

disinfectant residual after seven days at a temperature of 25 degrees Celsius or above.

13. Person. "Person" means an individual, partnership, copartnership, cooperative, public or private association or corporation, public subdivision, agency of the state or federal government or any other legal entity or its legal representative, agent or assigns.

14. Picocurie. "Picocurie (pCi)" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

15. Public water supply. "Public water supply" or "supply" means a system providing piped water for human consumption, and either containing a minimum of 15 service connections or 15 living units, or serving at least 25 persons daily for 60 days of the year. Such term includes:

a. Any collection, treatment, storage, and distribution facilities under control of the operator of the supply and used primarily in connection with the supply; and

b. Any collection or pre-treatment storage facilities used primarily in connection with the supply but not under control of the operator. A public water supply is either a community or a non-community water supply.

(1) "Community water supply" means a public water supply or system which serves at least 15 service connections or living units used by year-round residents, or regularly serves at least 25 year-round residents.

(2) "Non-community water supply" means any public water supply that is not a community water supply. The following are given as examples of non-community water supplies and are in no way meant to be an exhaustive list: seasonal facilities such as children's camps, recreational camping areas, resorts, or year-round facilities which serve at least 25 persons who are not residents thereof, such as churches, entertainment facilities, factories, gasoline service stations, marinas, migrant labor camps, office buildings, parks, restaurants, schools.

16. Rem. "Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem (mrem)" is 1/1000 of a rem.

17. Sanitary survey. "Sanitary survey" means an on-site review of the water source, facilities, equipment, operation and maintenance of a public water supply for the purpose of evaluating the adequacy of the source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

18. Standard sample. "Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

19. Supplier. "Supplier" means any person who owns, manages, or operates a public water supply, whether or not he is an operator certified pursuant to Minn. Stat. SS 115.71-115.82.

20. Total trihalomethanes. "Total trihalomethanes" means the sum of the concentration in milligrams per liter of the trihalomethane compounds of trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform), rounded to two significant figures.

21. Trihalomethane. "Trihalomethane" means one of the family of organic compounds named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

22. Turbidity unit. "Turbidity unit" means an amount of turbidity equivalent to that in a solution composed of .000125 percent hydrazine sulfate and .00125 percent hexamethylenetetramine in distilled and filtered (100 mμ pore size membrane) water, as measured by a nephelometric turbidimeter.

23. Variance. "Variance" means a waiver which may be granted by the commissioner to a supply:

a. Which, due to the raw water quality reasonably available, cannot comply with a maximum contaminant level, despite application of the best known and available technology for treatment or other means; and

b. If granting the waiver will not result in an unreasonable risk to health.

Such a variance must be conditioned upon a schedule for implementation of control measures, and may specify an indefinite time period for compliance with the maximum contaminant level or required treatment.

24. Year-round resident. "Year-round resident" means a person who resides in the area served by the public water supply for more than six months of the year.

C. Scope and coverage.

1. These rules prescribe standards for water supply siting and construction, set maximum contaminant levels for turbidity, microbiological constituents, organic and inorganic chemicals, and radioactivity, prescribe a frequency for monitoring the levels of these constituents and sodium and corrosivity, and prescribe the procedures for reporting results, notifying the public and for maintaining records.

2. The standards and procedures adopted in 7 MCAR SS 1.145-1.149 inclusive shall apply to all public drinking water supplies, pursuant to authority granted by existing statutes and amendments thereto, notwithstanding any other water quality standards or regulations.

3. [Unchanged.]

7 MCAR S 1.146 Maximum contaminant levels. The following levels shall be the enforceable maximum contaminant levels for all public water supplies in the state.

A. Microbiological. The maximum contaminant levels for coliform bacteria, applicable to both community and non-community water supplies, are as follows:

1. When the membrane filter technique pursuant to 7 MCAR S 1.147 B.1.a. is used, the number of coliform bacteria shall not exceed any of the following:

a. One per 100 milliliters as the arithmetic mean of all samples examined per compliance period pursuant to 7 MCAR S 1.147 B.2. or 7 MCAR S 1.147 B.3., except that systems required to take ten or fewer samples per month may exclude one positive

routine sample per month from the monthly calculation if:

(1) The commissioner determines and indicates in writing to the public water supply that no unreasonable risk to health existed, after having considered the following factors:

(a) The system provided and had maintained an active disinfectant residual in the distribution system;

(b) The potential for contamination as indicated by a sanitary survey; and

(c) The history of the water quality at the public water supply;

(2) The supplier initiates a check sample on each of two consecutive days from the same sampling point within 24 hours after notification that the routine sample is positive, and each of these check samples is negative; and

(3) The original positive routine sample is reported and recorded by the supplier pursuant to 7 MCAR S 1.149 A. and B.

The supplier shall report to the commissioner its compliance with the conditions specified in 1.a. and a summary of the corrective action taken to resolve the prior positive sample result. If a positive routine sample is not used for the monthly calculation, another routine sample must be analyzed for compliance purposes. This provision may be used only once during two consecutive compliance periods.

b. [Unchanged.]

c. [Unchanged.]

2. a. When the fermentation tube method and 10 milliliter standard portions pursuant to 7 MCAR S 1.147 B.1.b. are used, coliform bacteria shall not be present in any of the following:

(1) More than 10 percent of the portions in any month pursuant to 7 MCAR S 1.147 B.2. or 7 MCAR S 1.147 B.3., except that systems required to take ten or fewer samples per month may exclude one positive routine sample resulting in one or more positive tubes per month from the monthly calculation if:

(a) The commissioner determines that the supply maintains an active disinfectant residual in the distribution system, or the commissioner determines in writing to the public

water system that no unreasonable risk to health existed under the circumstances;

(b) The supplier initiates a check sample on each of two consecutive days from the sampling point within 24 hours after notification that the routine sample is positive, and each of these check samples is negative; and

(c) The original positive routine sample is reported and recorded by the supplier pursuant to 7 MCAR S 1.149 A. and B.

The supplier shall report to the commissioner its compliance with the conditions specified in 2.a.(1) and a summary of the action taken to resolve the prior positive sample result. If a positive routine sample is not used for the monthly calculation, another routine sample must be analyzed for compliance purposes. This provision may be used only once during two consecutive compliance periods.

(2) Three or more portions in more than one sample when less than 20 samples are examined per month; or

(3) Three or more portions in more than five percent of the samples when 20 or more samples are examined per month.

b. When the fermentation tube method and 100 milliliter standard portions pursuant to 7 MCAR S 1.147 B.1.b. are used, coliform bacteria shall not be present in any of the following:

(1) More than 60 percent of the portions in any month pursuant to 7 MCAR S 1.147 B.2. or 7 MCAR S 1.147 B.3.; except that systems required to take ten or fewer samples per month may exclude one positive routine sample resulting in one or more positive tubes per month from the monthly calculation if:

(a) The commissioner determines that the supplier maintains an active disinfectant residual in the distribution system, or the commissioner determines in writing to the public water system that no unreasonable risk to health existed under the circumstances;

(b) The supplier initiates two consecutive daily check samples from the same sampling point within 24 hours after

notification that the routine sample is positive, and each of these check samples is negative; and

(c) The original positive routine sample is reported and recorded by the supplier pursuant to 7 MCAR S 1.149 A. and B.

The supplier shall report to the state its compliance with the conditions specified in 2.b.(1) and a summary of the corrective action taken to resolve the prior positive sample result. If a positive routine sample is not used for the monthly calculation, another routine sample must be analyzed for compliance purposes. This provision may be used only once during two consecutive compliance periods.

(2) Five portions in more than one sample when less than five samples are examined per month; or,

(3) Five portions in more than 20 percent of the samples when five or more samples are examined per month.

3. For community or non-community supplies that are required to sample at a rate of less than four per month, compliance with 1. or 2. shall be based upon sampling during a three-month period, except that, at the discretion of the commissioner compliance may be based upon sampling during a one-month period.

4. If an average maximum contaminant level violation is caused by a single sample maximum contaminant level violation, then the case shall be treated as one violation with respect to the public notification requirements of 7 MCAR S 1.149 D.

B. [Unchanged.]

C. Inorganics.

1. The following are the maximum contaminant levels for inorganic chemicals applicable to community water supplies:

Contaminant	Level, milligrams per liter
Arsenic	0.05
Barium	1.

Cadmium	0.010
Chromium	0.05
Fluoride	2.2
Lead	0.05
Mercury	0.002
Nitrate (as N)	10.
Selenium	0.01
Silver	~~0.95~~ 0.05

2. Compliance with maximum contaminant levels for inorganic chemicals shall be calculated in accordance with 7 MCAR S 1.147 D.3.-6.

3. The maximum contaminant level for nitrate listed in 1. also applies to non-community water supplies, except that a nitrate level not in excess of 20 milligrams per liter may be allowed in a non-community water supply if the supplier demonstrates to the satisfaction of the commissioner that:

a. The water will not be available to children under six months of age;

b. There will be continuous posting of the fact that nitrate levels exceed 10 milligrams per liter and the potential health effects of exposure;

c. Local public health authorities and the commissioner will be notified annually of nitrate levels that exceed 10 milligrams per liter; and

d. No adverse health effects shall result.

D. Organics. The following are the maximum contaminant levels for organic chemicals. They apply only to community water supplies. Compliance with maximum contaminant levels for organic chemicals is calculated pursuant to 7 MCAR S 1.147 E.2., 3., and 4.

1. [Unchanged.]

2. [Unchanged.]

3. The maximum contaminant level for total trihalomethane is 0.10 milligrams per liter. This maximum contaminant level applies only to public water supplies which serve a population of 10,000 or more persons, and which add a disinfectant

(oxidant) to the water in any part of the drinking water treatment process. Compliance with the maximum contaminant level for total trihalomethane shall be calculated in accordance with 7 MCAR S 1.147 E.5.

E. [Unchanged.]

7 MCAR S 1.147 Monitoring and analytical requirements.

A. In general.

1. It shall be the responsibility of the supplier of water to monitor the quality of the water in his supply, according to the sampling schedules and testing procedures prescribed in this rule. Where a supplier has the capability for on-site testing for turbidity and/or maintains a laboratory approved to test for coliform bacteria, such supplier shall follow the relevant procedures in the appropriate parts of this rule. If an approved on-site laboratory is not available, the supplier of water shall send his water samples to an appropriate approved testing laboratory, according to procedures prescribed by the commissioner. Such procedures shall be prescribed for each supplier, and shall include a description of the type of container to be used, the manner in which the container shall be handled and delivered to the laboratory, and the date by which a sample must be sent to the approved laboratory for testing.

2. The following terms, which are used in B.-L., shall have the meanings given them. The department will make available to the public any analytical method referenced in this rule if the method is not available for lending from a public library.

a. "EPA Chemical" means "Methods of Chemical Analysis of Water and Wastes," United States Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268 (EPA-600/4-79-020), March 1979, available from ORD Publications, CERI, Environmental Protection Agency, Cincinnati, Ohio 45268. For approved analytical procedures for metals, the technique applicable to total metals must be used.

b. "Standard Methods" means "Standard Methods for the Examination of Water and Wastewater," 14th Edition, American

Public Health Association, 1015 15th Street N.W., Washington, D.C. 20005.

c. "USGS 1979" means "Techniques of Water Resources Investigation of the United States Geological Survey," Chapter A-1, "Methods for Determination of Inorganic Substances in Water and Fluvial Sediments," Book 5, 1979, (Stock #024-001-03177-9, available from Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402).

d. "ASTM" means "Annual Book of ASTM Standards," Part 31 Water, 1979, American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

e. "USGS 1972" means "Techniques of Water Resources Investigation of the United States Geological Survey," Chapter A-3, "Methods of Analysis of Organic Substances in Water," Book 5, 1972 (Stock #2401-1227, available from Superintendent of Documents, United States Government Printing Office, Washington, D.C. 20402).

f. "EPA Microbiological" means "Microbiological Methods for Monitoring the Environment, Water and Wastes," United States Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio, 45268--EPA--600/8-78-017, December 1978 (available from ORD Publications, CERI, United States Environmental Protection Agency, Cincinnati, Ohio 45268).

g. "EPA Organochlorine Methods" means "Methods for Organochlorine Pesticides and Chlorophenoxy Acid Herbicides in Drinking Water and Raw Source Water," (available from ORD Publications, CERI, United States Environmental Protection Agency, Cincinnati, Ohio 45268).

B. Microbiological contaminant sampling and analytical requirements.

1. Analyses for coliform bacteria shall be made for the purpose of determining compliance with 7 MCAR S 1.146 A. Analyses shall be conducted in accordance with the analytical recommendations set forth in Standard Methods, Method 908A, Paragraphs 1, 2 and 3; or Method 908D, Table 908:I; or Method

909A; or EPA Microbiological Methods Part III, Section B 1.0 to 2.6.2, 2.7 to 2.7.2(c); or Part III, Section B 4.0 to 4.6.4(c), except that a standard sample size as referred to in a. and b. shall be employed. See A.2.b. and f. for complete title of reference sources.

a. [Unchanged.]

b. [Unchanged.]

2. [Unchanged.]

3. The supplier of water for a non-community water supply shall sample for coliform bacteria at least once in each calendar quarter during which the supply provides water to the public. Such sampling shall begin before June 24, 1979. If the commissioner determines, on the basis of a sanitary survey which includes a determination of compliance with the Minnesota Water Well Construction Code, 7 MCAR SS 1.210-~~1.255~~ 1.224, that it is more appropriate for the supply to sample on a frequency other than quarterly, the commissioner shall impose a special sampling frequency. Such special frequency shall then be the frequency required under these rules and shall be confirmed or changed on the basis of subsequent surveys.

4. [Unchanged.]

5. [Unchanged.]

6. [Unchanged.]

7. [Unchanged.]

8. [Unchanged.]

9. [Unchanged.]

C. Turbidity sampling and analytical requirements.

1. a. All public water supplies, whether community or non-community, which use water obtained in whole or in part from surface sources must be sampled for turbidity. Such samples shall be taken by suppliers at representative points of entry into the water distribution system at least once per day, for the purpose of making turbidity measurements to determine compliance with 7 MCAR S 1.146 B.

b. The commissioner may reduce the sampling frequency for a non-community water supply if he determines that this

reduced sampling frequency will not pose a risk to the public health and notifies the non-community water supply of this determination in writing. Such a reduction may be granted only if the non-community water supply practices disinfection and maintains an active disinfectant residual in the distribution system.

c. The measurement shall be made by the Nephelometric Method in accordance with the recommendations set forth in Standard Methods or EPA Chemical, Nephelometric Method, 180.1.1., as further described in A.2.a. and b.

d. Sampling by community water supplies ~~that~~ shall begin before the effective date of these rules. Sampling by non-community water supplies shall begin before June 24, 1979.

2. [Unchanged.]

D. Inorganic chemical contaminant sampling and analytical requirements.

1. [Unchanged.]

2. [Unchanged.]

3. Analyses conducted to determine compliance with 7 MCAR S 1.146 C. shall be made in accordance with a.-j. See A.2. for complete title of reference sources.

a. Arsenic: EPA Chemical, Method 206.2, or Method 206.3, or Method 206.4; or Standard Methods, Method 404-A and 404-B(4), or Method 301.A VII; or USGS 1979, Method I-1062-78; or ASTM, Method D-2972-78A, or D-2972-78B.

b. Barium: EPA Chemical, Method 208.1, or 208.2; or Standard Methods, Method 301-A IV.

c. Cadmium: EPA Chemical, Method 213.1, or 213.2; or Standard Methods, Method 301-A II or III; or ASTM, Method 3447-78A.

d. Chromium: EPA Chemical, Method 218.1, or 218.2; or Standard Methods, Method 301-A II or III; or ASTM, Method D-1687-77D.

e. Fluoride: EPA Chemical, Method 340.1 or 340.2, or 340.3; or Standard Methods, Method 414-A, or 414-B, or 414-C, or 603; or USGS 1979, Method I-3325-78; or ASTM, Method D-1179-72A,

or D-1179-72B; or Industrial Method #129-71W, "Fluoride in Water and Wastewater," ~~Technicion~~ Technicon Industrial Systems, Tarrytown, New York 10591, December 1972; or Industrial Method #380-75WE, Automated Electrode Method, "Fluoride in Water and Wastewater," Technicon Industrial Systems, Tarrytown, New York, February 1976.

f. Lead: EPA Chemical, Method 239.1 or 239.2; or Standard Methods, Method 301-A II or III; or ASTM, Method D-3559-79A or B.

g. Mercury: EPA Chemical, Method 245.1 or 245.2; or Standard Methods, Method 301-A VI; or ASTM, Method D-3223-79.

h. Nitrate: EPA Chemical, Method 352.1, or 353.1 or 353.2 or 353.3; or Standard Methods, Method 419-D, or 419-C, or 605; or ASTM, Method D-992-71, or D-3867-79A or D-3867-79B.

i. Selenium: EPA Chemical, Method 270.2 or 270.3; or Standard Methods, Method 301-A VII; or USGS 1979, Method I-1667-78; or ASTM, Method D-3859-79.

j. Silver: EPA Chemical, Method 272.1 or 272.2; or Standard Methods, Method 301-A II.

4. [Unchanged.]

5. [Unchanged.]

6. [Unchanged.]

E. Organic chemical contaminant sampling and analytical requirements.

1. [Unchanged.]

2. Analytical requirements for compliance with 7 MCAR S 1.146 D.1. and 7 MCAR S 1.146 D.2. shall be as described in a. and b.

a. Analyses made to determine compliance with 7 MCAR S 1.146 D.1. shall be made in accordance with EPA Organochlorine Methods; or Standard Methods, Method 509-A; or ASTM, Method D-3086-79; or USGS 1972, "Gas Chromatographic Methods for Analysis of Organic Substances in Water," Chapter A-3. See 7 MCAR S 1.147 A.2. for complete title of reference sources.

b. Analyses made to determine compliance with 7 MCAR S 1.146 D.2. shall be conducted in accordance with EPA

Organochlorine Methods; or Standard Methods, Method 509-B; or ASTM, Method D-3478-79; or USGS ~~1979~~ 1972, "Gas Chromatographic Methods for Analysis of Organic Substances in Water," Chapter A-3. See 7 MCAR S 1.147 A.2. for complete title of reference sources.

3. [Unchanged.]

4. [Unchanged.]

5. Total trihalomethanes sampling, analytical and other requirements shall be as described in a.-i.

a. Community water supplies which serve a population of 10,000 or more individuals and which ~~did~~ add a disinfectant (oxidant) to the water in any part of the drinking water treatment process shall analyze for total trihalomethanes in accordance with this section. For systems serving 75,000 or more individuals, sampling and analyses shall begin not later than ~~January 1, 1982~~ the effective date of this rule. For systems serving 10,000 to 74,999 individuals, sampling and analyses shall begin not later than January 1, 1983. For the purpose of this section, the minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer are considered one treatment plant for determining the minimum number of samples. All samples taken within an established frequency shall be collected within a 24-hour period.

b. For all community water supplies utilizing surface water sources in whole or in part, and for all community water supplies utilizing only ground water sources that have not been determined by the commissioner to qualify for the monitoring requirements of e. and f., analyses for total trihalomethanes shall be performed at quarterly intervals on at least four water samples for each treatment plant used by the supply. At least 25 percent of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining 75 percent shall be taken at representative locations in the distribution system, taking into

account number of persons served, different sources of water and different treatment methods employed. The results of all analyses per quarter shall be arithmetically averaged and reported to the commissioner within 30 days of the supply's receipt of such results. All samples collected shall be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in h.

c. Upon the written request of a community water system, the monitoring frequency required by b. may be reduced by the commissioner to a minimum of one sample analyzed for total trihalomethanes per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system, upon a written determination by the commissioner that the data from at least one year of monitoring in accordance with b. and local conditions demonstrate that total trihalomethane concentrations will be consistently below the maximum contaminant level.

d. If at any time during which the reduced monitoring frequency prescribed under c. applies, the results from any analysis exceed 0.10 milligrams per liter of total trihalomethanes and such results are confirmed by at least one check sample taken promptly after such results are received, or if the supply makes any significant change to its source of water or treatment program, the supply shall immediately begin monitoring in accordance with the requirements of b. and shall continue that monitoring for at least one year before the frequency may be reduced again.

e. Upon written request to the commissioner, a community water supply utilizing only ground water sources may seek to have the monitoring frequency required by b. reduced to a minimum of one sample for maximum total trihalomethane potential per year for each treatment plant used by the supply taken at a point in the distribution system reflecting maximum residence time of the water in the system. The supply shall submit to the commissioner the results of at least one sample

analyzed for maximum total trihalomethane potential for each treatment plant used by the supply taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The supply's monitoring frequency may only be reduced upon a written determination by the commissioner that, based upon the data submitted by the supply, the supply has a maximum total trihalomethane potential of less than 0.10 milligrams per liter and that, based upon an assessment of the local conditions of the supply, the supply is not likely to approach or exceed the maximum contaminant level for total trihalomethanes. All samples collected shall be used for determining whether the supply must comply with the monitoring requirements of b.-d., unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in h.

f. If at any time during which the reduced monitoring frequency prescribed under e. applies, the results from any analysis taken by the supply for maximum total trihalomethane potential are equal to or greater than 0.10 milligrams per liter, and those results are confirmed by at least one check sample taken promptly after such results are received, the supply shall immediately begin monitoring in accordance with the requirements of b.-d. The monitoring shall continue for at least one year before the frequency may be reduced again. In the event of any significant change to the supply's raw water or treatment program, the supply shall immediately analyze an additional sample for maximum total trihalomethane potential taken at a point in the distribution system reflecting maximum residence time of the water in the system for the purpose of determining whether the supply must comply with the monitoring requirements of b.-d.

g. Compliance with 7 MCAR S 1.146 D.3. shall be determined based on a running annual average of quarterly samples collected by the supply as prescribed in b. and c. If the average of samples covering any 12-month period exceeds the maximum contaminant level prescribed in 7 MCAR S 1.146 D.3., the

supplier of water shall report to the state pursuant to 7 MCAR S 1.149 B. and notify the public pursuant to 7 MCAR S 1.149 D. Monitoring after public notification shall be at a frequency designated by the commissioner and shall continue until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

h. Sampling and analyses made pursuant to this section shall be conducted by one of the following methods:

(1) "The Analysis of Trihalomethanes in Finished Waters by the Purge and Trap Method," Method 501.1, Environmental Monitoring and Support Laboratory, United States Environmental Protection Agency, Cincinnati, Ohio 45268.

(2) "The Analysis of Trihalomethanes in Drinking Water by Liquid/Liquid Extraction," Method 501.2, Environmental Monitoring and Support Laboratory, United States Environmental Protection Agency, Cincinnati, Ohio 45268.

Samples for total trihalomethane shall be dechlorinated upon collection to prevent further production of trihalomethanes, according to the procedures described in (1) and (2). Samples for maximum total trihalomethane potential should not be dechlorinated, and should be held for seven days at 25 degrees Celsius prior to analysis, according to the procedures described in (1) and (2).

i. Before a community water supply makes any significant modifications to its existing treatment process for the purposes of achieving compliance with 7 MCAR S 1.146 C.3., such supply must submit to the commissioner and obtain the commissioner's approval of a detailed plan setting forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such supply will not be adversely affected by such modification. Each supply shall comply with the provisions set forth in the plan as approved. At a minimum, an approved plan shall require the system modifying its disinfection practice to:

(1) Evaluate the water supply for sanitary defects

and evaluate the source water for biological quality;

(2) Evaluate its existing treatment practices and consider improvements that will minimize disinfectant demand and optimize finished water quality throughout the distribution system;

(3) Provide baseline water quality survey data of the distribution system. Such data shall include the results from monitoring for coliform and fecal coliform bacteria, standard plate counts at 35 degrees Celsius and 20 degrees Celsius, phosphate, ammonia nitrogen and total organic carbon;

(4) Conduct additional monitoring to assure continued maintenance of optimal biological quality in finished water, for example, when chloramines are introduced as disinfectants or when pre-chlorination is being discontinued; and

(5) Demonstrate an active disinfectant residual throughout the distribution system at all times during and after the modification.

F. [Unchanged.]

G. [Unchanged.]

H. Approved laboratories. For the purpose of determining compliance with A.-F., samples may be considered only if they have been analyzed by a laboratory approved by the commissioner, except that measurements for temperature, pH, turbidity, and free chlorine residual may be performed by any person acceptable to the commissioner.

I. [Unchanged.]

J. [Unchanged.]

K. Special monitoring for sodium.

1. Community public water supplies shall collect and analyze one sample per treatment plant at the entry point of the distribution system for the determination of sodium concentration levels. Samples must be collected and analyzed annually for supplies utilizing surface water sources in whole or in part, and at least every three years for supplies utilizing solely ground water sources. The minimum number of

samples required to be taken by the supply shall be based on the number of treatment plants used by the supply, except that multiple wells drawing raw water from a single aquifer will be considered one treatment plant for determining the minimum number of samples.

2. The supplier of water shall report the results of the analyses for sodium within the first ten days of the month following the month in which the sample results were received or within the first ten days following the end of the required monitoring period as stipulated by the commissioner whichever of these is first. If more than annual sampling is required, the supplier shall report the average sodium concentration within ten days of the month following the month in which the analytical results of the last sample used for the annual average ~~was~~ were received.

3. Analyses for sodium shall be performed by the flame photometric method in accordance with the procedures described in Standard Methods, Method 320A; or EPA Chemical, Method 273.1 or 273.2; or ASTM, Method D-1428-64A. See 7 MCAR S 1.147 A.2. for complete title of reference sources.

L. Special monitoring for corrosivity characteristics.

1. Community public water supplies shall collect samples from a representative entry point to the water distribution system for the purpose of analysis to determine the corrosivity characteristics of the water.

a. The supplier shall collect for analysis for each treatment plant using surface water sources in whole or in part, one sample during mid-winter and one sample during mid-summer. The supplier of the water shall collect for analysis one sample per treatment plant for each treatment plant using ground water sources. The minimum number of samples required to be taken by the supply shall be based on the number of treatment plants used by the supply, except that multiple wells drawing raw water from a single aquifer may be considered one treatment plant for determining the minimum number of samples.

b. Determination of the corrosivity characteristics of

the water shall include measurement of pH, calcium hardness, alkalinity, temperature, total dissolved solids or total filterable residue, and calculation of the Langelier Index in accordance with 3. The determination of corrosivity characteristics shall only include one round of sampling. One round of sampling consists of two samples per treatment plant for surface water and one sample per treatment plant for ground water sources.

2. The supplier of ~~wate~~ water shall report the results of the analyses for the corrosivity characteristics within the first ten days of the month following the month in which the sample results were received. If more frequent sampling is required the supplier can accumulate the data and report each value within ten days of the month following the month in which the analytical results of the last sample were received.

3. Analyses conducted to determine the corrosivity of the water shall be made in accordance to the methods described in a.-f. See 7 MCAR S 1.147 A.2. for complete title of reference sources.

a. Langelier Index--Standard Methods, Method 203.

b. Total Filterable Residue--Standard Methods, Method 208B; or EPA Chemical, Method 160.1.

c. Temperature--Standard Methods, Method 212.

d. Calcium--Standard Methods, Method 306C; or ASTM, Method D-1126-67B.

e. Alkalinity--Standard Methods, Method 403; or ASTM, Method D-1067-70B; or EPA Chemical, Method 310.1.

f. pH--Standard Methods, Method 424; or EPA Chemical, Method 150.1; or ASTM, Method D-1293-78 A or B.

4. Community water supplies shall identify whether the following construction materials are present in their distribution system and report to the commissioner the existence of any of the following materials:

a. Lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing;

b. Copper from piping and alloys, service lines, and

home plumbing;

c. Galvanized piping, service lines, and home plumbing;

d. Ferrous piping materials such as cast iron and steel;

e. Asbestos cement pipe;

f. Vinyl-lined asbestos cement pipe; or

g. Coal tar lined pipes and tanks.

7 MCAR S 1.149 Record maintenance; reporting; public notification.

A. [Unchanged.]

B. 1. [Unchanged.]

2. Except when a shorter reporting period is specified, all results of tests, analyses or measurements shall be submitted on prescribed reporting forms to the commissioner within the time period specified in a. or b., whichever is shorter:

a. The first ten days following the month in which the result is received by the supplier; or

b. The first ten days following the end of the required monitoring period as stipulated by the commissioner.

3. [Unchanged.]

4. [Unchanged.]

5. [Unchanged.]

C. [Unchanged.]

D. [Unchanged.]