
# Navajo Nation
# Primary Drinking Water Regulations

## Public Water Systems Supervision Program

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# PRIMARY DRINKING WATER REGULATIONS
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# PART I
# GENERAL PROVISIONS

**§ 101 TITLE**

These regulations may be cited as the Navajo Nation Primary Drinking Water Regulations (NNPDWR).

**§ 102 AUTHORITY**

These regulations are adopted pursuant to the Navajo Nation Safe Drinking Water Act (NNSDWA), 22 N.N.C. § 2501 et.seq.; they establish primary drinking water regulations and related regulations applicable to as amended public water systems pursuant to §§ 1401, 1412-13, 1417, 1445 and 1451 of the Public Health Service Act, as amended by the Safe Drinking Water Act, 42 U.S.C. §§ 300f, 300g-1, 300g-2, 300g-3, 300g-4, 300g- 5, 300g-6, 300j-4, 300j-9, and 300j-11.

**§ 103 PURPOSE**

The purpose of these regulations is to promote the protection of the health and welfare of the Navajo people and the environment by establishing appropriate water quality standards to ensure that drinking water is safe for consumption. No person shall control, manage or operate a public water system unless the system is maintained in compliance with the NNSDWA and these regulations. All public water system owners/operators must demonstrate technical, managerial and financial capability by complying with the NNSDWA and these regulations.

These regulations may be used as cleanup standard criteria for all groundwater remediation activities. Maximum Contaminant Levels defined in Part II of these regulations may be used as the aquifer water quality standards for aquifers within the Navajo Nation. Compliance with the MCL shall be from the analysis of a total (non-filtered) water sample (unless otherwise indicated in this document).

**§ 104 DEFINITIONS**

ACTION LEVEL - the concentration, specified in § 702(A), of lead or copper in water which determines, in some cases, the treatment requirements that a water system is required to complete as specified in Part VII (Lead and Copper Requirements) of these regulations.

ADMINISTRATOR - the Administrator of the United States Environmental Protection Agency.

AIR-GAP SEPARATION - a physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressurized receiving vessel.

AIR RELEASE VALVE - a valve that is placed at a high point of a pipeline for the automatic release of air to prevent air binding and the buildup of pressure.

AQUIFER - a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

ALLUVIAL DEPOSITS - strata which were laid down by water, commonly consisting of gravels, sands, and silts, which usually have a high capacity for conducting groundwater.

ANSI - American National Standards Institute.

API - American Petroleum Institute.

ASTM - American Society for Testing and Materials or ASTM International.

AUXILIARY WATER SUPPLY - any source of water other than the designated source of public water system that is either used, or equipped to be used, as a water supply and located on, or piped to, the premises of a water user. (The term “equipped” in this definition means that appurtenances such as inactive wells, pumps, power supply, intakes, suction lines, pipelines, connecting fittings, or storage tanks are in place and readily available for use.)

AVAILABLE - The system’s certified operator must be on site or able to be contacted as needed to initiate the appropriate action in a timely manner.

AWWA - American Water Works Association.

BACKFLOW - a reverse flow condition that causes water or mixtures of water and other liquids, gases, or substances to flow back into the distribution pipes or storage tanks of the drinking water supply from any source other than the intended source. It can be created by a difference in water pressure (backpressure) caused by a vacuum or partial vacuum (backsiphonage), or a combination of both.
BACKFLOW-PREVENTION ASSEMBLY - any assembly used to prevent backflow from entering a drinking water system.

BAG FILTER - a pressure-driven separation device that removes particulate matter larger than 1 micrometer using an engineered porous filtration media. It is typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside.

BANK FILTRATION - a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

BEST AVAILABLE TECHNOLOGY or BAT - the best technology, treatment techniques, or other means which the Administrator finds, after examination for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration). For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

BOARD - a group of individuals who are nominated by the Director to serve a term of three years. The Board will make recommendations and provide technical advice as needed.

BOOSTER PUMP - any pump installed within a water distribution system for the purpose of increasing the water pressure in the water distribution system, including distribution storage facilities downstream from the pump.

BOTTLED WATER SYSTEM - water system which manufactures bottled drinking water in the Navajo Nation.

BUSINESS PLAN - for the purpose of these regulations, a document consisting of three sub-plans, a "Facilities Plan", a "Management Plan", and a "Financing Plan" which is intended to show how a water system will be self-sustaining and have the commitment and the financial, managerial and technical capability to consistently comply with the Navajo Nation Safe Drinking Water Act and these Regulations.

CARTRIDGE FILTER - a pressure-driven separation device that removes particulate matter larger than 1 micrometer using an engineered porous filtration media. It is typically constructed as a rigid or semi-rigid, self-supporting filter element housed in a pressure vessel in which flow is from the outside of the cartridge to the inside.

CERTIFIED OPERATOR - a person who is certified by the Director as being qualified to operate a public water system.

CLEAN COMPLIANCE HISTORY – for the purposes of Part XXVI, a record of no MCL violations under §205; no monitoring violations under §404 or Part XXVI; and no coliform treatment technique trigger exceedances or treatment technique violations under Part XXVI.

COAGULATION - a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

COMBINED DISTRIBUTION SYSTEM - the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

COMPREHENSIVE PERFORMANCE EVALUATION (CPE) - a thorough review and analysis of a treatment plant’s performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant’s capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purposes of compliance with Part 1100 and 2100, the comprehensive performance evaluation must consist of at least the following components: assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of CPE report.

COMMUNITY WATER SYSTEM - a public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

COMPLIANCE CYCLE - the nine calendar year cycle during which public water system must monitor. Each compliance cycle consists of three three-year compliance periods. The first cycle begins January 1, 1993 and ends December 31, 2001; the second begins January 1, 2002 and ends December 31, 2010; the third

begins January 1, 2011 and ends December 31, 2019, and so on.

COMPLIANCE PERIOD - a three calendar year period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first calendar period runs from January 1, 1993 to December 31, 1995; the second from January 1, 1996 to December 31, 1998; the third from January 1, 1999 to December 31, 2001, and so on.

CONFINED AQUIFER - an aquifer in which ground water is confined under pressure which is significantly greater than atmospheric pressure; and its upper limit is the bottom of a bed of distinctly lower hydraulic conductivity than that of the material in which the confined water occurs.

CONFLUENT GROWTH - a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

CONSECUTIVE SYSTEM - a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

CONTAMINANT - any physical, chemical, biological or radiological substance or matter in drinking water.

CONVENTIONAL FILTRATION TREATMENT - a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

CORROSION INHIBITOR - a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

CT or $CT_{calc}$ - the product of "residual disinfectant concentration" (C) in mg/L determined before or at the first customer, and the corresponding "disinfectant contact time" (T) in minutes, i.e., "C" x "T". If a public water system applies disinfectants at more than one point prior to the first customer, it must determine the CT of each disinfectant sequence before or at the first customer to determine the total percent inactivation or "total inactivation ratio." In determining the total inactivation ratio, the public water system must determine the residual disinfectant concentration of each disinfection sequence and corresponding contact time before any subsequent disinfection application point(s). "$CT_{99.9}$" is the CT value required for 99.9% (3-log) inactivation of *Giardia lamblia* cysts. $CT_{99.9}$ for a variety of disinfectants and conditions appear in Tables 800 -D-4 to 800 -D-11 in Appendix D.

$$\frac{CTcalc}{CT_{99.9}}$$

is the inactivation ratio. The sum of the inactivation ratios, or total inactivation ratio shown as:

$$\sum \frac{(CTcalc)}{(CT_{99.9})}$$

is calculated by adding together the inactivation ratio for each disinfection sequence. A total inactivation ratio equal to or greater than 1.0 is assumed to provide a 3-log inactivation of *Giardia lamblia* cysts.

CROSS-CONNECTION - any unprotected actual or potential connection or structural arrangement between a public water system and any other source or distribution system containing liquid, gas or other substances not from an approved water supply.

DESIGN POPULATION - the estimated population to be served by the proposed facilities considering the population growth in the locality over the design life of the facilities.

DIATOMACEOUS EARTH FILTRATION - a process resulting in substantial particulate removal in which (1) a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and (2) while the water is filtered by passing through the cake on the septum, an additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

DIRECT FILTRATION - a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

DIRECTOR - The Executive Director of the Navajo Nation Environmental Protection Agency (NNEPA) or his

or her designee.

DISINFECTANT - any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, iodine and ozone, added to water in any part of the treatment or distribution process that is intended to kill or inactivate pathogenic microorganisms.

DISINFECTANT CONTACT TIME ("T" in CT calculations) - the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured. Where only one "C" is measured, "T" is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where "C" is measured. Where more than one "C" is measured, "T" is (a) for the first measurement of "C", the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first "C" is measured and (b) for subsequent measurements of "C", the time in minutes that it takes for water to move from the previous "C" measurement point to the "C" measurement point for which the particular "T" is being calculated. Disinfectant contact time in pipelines must be calculated based on "plug flow" by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration. See also Appendix D, Baffling Classifications, Table 800-D-14.

DISINFECTION - a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

DISINFECTION PROFILE - a summary of daily Giardia lamblia inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in §1304 (Disinfection profiling and benchmarking) and in Part 1100 and §§ 2104(A) to (G) of Part 2100.

DISINFECTION/DISINFECTANT BYPRODUCTS SYSTEMS - public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of §1100.

DISTRIBUTION SYSTEM - any combination of pipes, tanks, pumps, etc. that delivers water from the source(s) and/or treatment facility(ies) to the consumer.

DISTRIBUTION SYSTEM COMPLEXITY - conditions or characteristics that exist in a distribution system, such as pressure zones, booster stations, storage tanks, fire protection, chlorination, non-residential consumers, cross connection potential, demand variations, size of pipes, total distance of pipes and/or total geographic area, that must be considered when classifying the distribution system.

DOMESTIC OR OTHER NONDISTRIBUTION SYSTEM PLUMBING PROBLEM - a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

DOSE EQUIVALENT - 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).

DOUBLE CHECK VALVE ASSEMBLY - two independently-acting, internally-loaded, check valves with shut-off valves located upstream and downstream of the two check valves, and test cocks to enable field testing.

DUAL SAMPLE SET - a set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected for the purposes of conducting an IDSE under Part XXII and determining compliance with the TTHM and HAA5 MCLs under Part XXIII.

EFFECTIVE CORROSION INHIBITOR RESIDUAL - for the purpose of Part VII (Lead and Copper Requirements) only, a concentration sufficient to form a passivating film on the interior walls of a pipe.

ENGINEER - the project engineer, who has obtained a "professional engineer" registration in the state of Arizona, New Mexico or Utah.

ENHANCED COAGULATION - the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

ENHANCED SOFTENING - the improved removal of disinfection byproduct precursors by precipitative softening.

EXEMPTION - a waiver granted from certain provisions of these regulations by the Director to a public water system pursuant to the NNSDWA and § 105 of these regulations.

EXISTING PUBLIC WATER SYSTEM - a public water system in operation on the effective date of these NNPDWR or, for purposes of compliance with a revised NNPDWR, on the effective date of the revision.
FILTER PROFILE - is a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

FILTRATION - a process for removing particulate matter from water by passage through porous media.

FINISHED WATER - water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).

FIRST DRAW SAMPLE - a one-liter sample of tap water, collected in accordance with § 708 (B)(2), that has been standing in plumbing pipes at least 6 hours and is collected without flushing the tap.

FLOWING STREAM - a course of running water flowing in a definite channel.

FLOCCULATION - a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

GAC10 - granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with Part XXIII MCLs under § 207(B)(2) shall be 120 days.

GAC20 - granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

GRANDPARENTING - the exemption for an existing operator in responsible charge from meeting the initial education and/or examination requirements for certification to operate a particular water system.

GRAY WATER - Untreated household waste water that has not come into contact with toilet waste. It includes used water from bathtubs, showers, bathroom wash basins, and water from clothes-washing machines and laundry tubs. It does not include waste water from kitchen sinks or dishwashers.

GROSS ALPHA PARTICLE ACTIVITY - the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

GROSS BETA PARTICLE ACTIVITY - the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

GROUNDWATER - subsurface water found in void spaces in geologic materials within the zone of saturation.

GROUNDWATER SOURCE - a source of water captured underground. This term includes wells and springs.

GROUNDWATER SYSTEM - any public water system that use ground water except that it does not apply to public water systems that combine all of their ground water with surface water or with ground water under the direct influence of surface water prior to treatment under Part 700, including consecutive systems receiving finished ground water.

GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER (GWUDI)- any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*, *Cryptosporidium* significant and/or relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the NNEPA. The NNEPA determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation.

GROUT - a fluid mixture of cement and water (neat cement) of a consistency that can be forced through a pipe and placed as required. Various additives, such as sand, bentonite, and hydrated lime, may be included in the mixture to meet certain requirements. For example, sand is added when a considerable volume of grout is needed.

HALOACETIC ACIDS (five) (HAA5) - the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid,

and dibromoacetic acid), rounded to two significant figures after addition.

HALOGEN - one of the chemical elements chlorine, bromine or iodine.

HETEROTROPHIC PLATE COUNT (HPC) or STANDARD PLATE COUNT - a procedure for estimating the number of live heterotrophic bacteria in water and measuring changes during water treatment and distribution.

HYDROPNEUMATIC TANK - a system comprised of an airtight tank, in which air is compressed over water, is used to impart pressure to the water in the tank and to attached pipelines for the distribution of the water.

INDIAN COUNTRY - Land as defined at 18 U.S.C. § 1151: A(a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States, whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

INDIAN TRIBE - any Indian Tribe having a Federally recognized governing body carrying out substantial governmental duties and powers over any area.

INITIAL COMPLIANCE PERIOD - the first full three-year compliance period which begins at least 18 months after promulgation of the federal regulations, except that for contaminants listed at § 204 (A)(1) Table 200.3 (19)-(21), § 205 (A)(2) Table 200.4 (19) - (33), and § 203 (A) Table 200.1 (1), (6), (10) and (18), initial compliance period means the first full three-year compliance period after promulgation for systems with 150 or more service connections (January 1993-December 1995), and first full three-year compliance period after the effective date of the federal regulations (January 1996-December 1998) for systems having fewer than 150 service connections.

INJECTION WELL - a well used to dispose of fluids underground. Fluids enter either by gravity flow or by injection under pressure.

ISOLATION VALVE - a valve, including a ball valve, butterfly valve, gate valve, or other type of valve, installed in a pipeline to shut off the flow of the water in a portion of the pipeline for the purpose of inspection or repair.

LAKE/RESERVOIR - a natural or man-made basin or hollow on the Earth’s surface in which water collects or is stored and that may or may not have a current or single direction of flow.

LARGE WATER SYSTEM - for the purposes of Part VII (Lead and Copper Requirements), a water system that serves more than 50,000 persons.

LEAD FREE - for purposes of these regulations the term "lead free" 1) when used with respect to solders and flux, refers to those containing not more than 0.2%; 2) when used with respect to pipes and pipe fittings, refers to those containing not more than 8.0% lead; and 3)when used with respect to plumbing, fittings and fixtures intended by the manufacturer to dispense water for human ingestion, refers to those which comply with standards established in accordance with 42 U.S.C. 300g-6(e).

LEAD SERVICE LINE - a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck or other fitting which is connected to such lead line.

*LEGIONELLA* - a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease.

LEVEL 1 ASSESSMENT is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. It is conducted by the system operator or owner. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The assessment must be conducted consistent with any PWSSP directives.

LEVEL 2 ASSESSMENT is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system’s monitoring and operational practices) than does a Level 1 assessment through

the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by an individual approved by the Director, which may include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any PWSSP directives. The system must comply with any expedited actions or additional actions require by the Director in the case of an E.Coli MCL violation.

LOCATIONAL RUNNING ANNUAL AVERAGE (LRAA)- the average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

LOG - in terms of removal or inactivation of *Giardia lamblia* cysts or viruses, "One-log" is 90%; "Two-log" is 99%; "Three-log" is 99.9%; and "Four-log" is 99.99%.

MAN-MADE BETA PARTICLE AND PHOTON EMITTERS - 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.

MAXIMUM CONTAMINANT LEVEL (MCL) - the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

MAXIMUM CONTAMINANT LEVEL GOAL or MCLG - the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health or persons would occur, and which allows an adequate margin of safety. Maximum contaminant level goals are nonenforceable health goals.

MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL) - a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a PWS is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a PWS is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in §208, operators may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG) - the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

MAXIMUM TOTAL TRIHALOMETHANE POTENTIAL (MTP) - the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after seven days at a temperature of 25EC or above.

MEDIUM SIZE WATER SYSTEM - for the purpose of Part VII (Lead and Copper Requirements), a water system that serves greater than 3,300 and fewer than or equal to 50,000 persons.

MEMBRANE FILTRATION - a pressure- or vacuum-driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and that has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

NAVAJO NATION - means:

a. all land within the exterior boundaries of the Navajo Indian Reservation or of the Eastern Navajo Agency or of Navajo dependent Indian communities, including all lands within the boundaries of Navajo chapter governments;

b. all land held in trust by the United States for or restricted by the United States or otherwise set aside or apart under the superintendence of the United States for the use or benefit of the Navajo Nation, the Navajo Tribe, any Band of Navajo Indians, or any individual Navajo Indians as such; and

c. all other land over which the Navajo Nation may exercise governmental jurisdiction in accordance with federal or international law.

NAVAJO NATION PRIMARY DRINKING WATER REGULATIONS (NNPDWR) - Requirements promulgated pursuant to the NNSDWA that 1) apply to public water systems, 2) specify contaminants which, in the judgment of the Director, may have an adverse effect on the health of persons, 3) specify for each contaminant either (a) a maximum contaminant level if, in the judgment of the Director, it is economically and technologically feasible to ascertain the level of contaminant in public water systems, or b) if, in the judgment of the Director, it is not economically or technologically feasible to so ascertain the level of contaminant, specify each treatment technique known to the Director which leads to a reduction in the level of contaminant sufficient to satisfy the requirements of § 1412 of the U.S. SDWA and subchapter 3 of the Navajo Nation Safe Drinking Water Act; and 4) contain criteria and procedures to assure a supply of drinking water which dependably complies with maximum contaminant levels, including quality control and testing procedures to ensure compliance with such levels and to ensure proper operation and maintenance of the public water system, and requirements as to the minimum quality of water which may be taken into the system and siting for new facilities for public water systems.

NAVAJO NATION SAFE DRINKING WATER ACT (NNSDWA) - the act which is codified at 22 Navajo Nation Code (NNC) §§ 2501-2586, as amended, that establishes the Navajo Nation's environmental law with regard to public water systems and their responsibility to provide safe drinking water to the residents of the Navajo Nation.

NAVAJO NATION SECONDARY DRINKING WATER STANDARDS (NNSDWS) - Standards promulgated pursuant to the NNSDWA that apply to public water systems and specify the maximum contaminant levels which, in the judgment of the Director, are requisite to protect the public welfare primarily with regard to aesthetic qualities. Such standards may apply to any contaminant in drinking water (a) which may adversely affect the odor or appearance of water and, consequently, may cause a substantial number of persons served by the public water system to discontinue its use, or (b) which may otherwise adversely affect the public welfare. Such standards may vary according to geographic and other circumstances.

NEAR THE FIRST SERVICE CONNECTION - means at one of the 20% of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

NEW PUBLIC WATER SYSTEM - a public water system that begins operating after the effective date of these regulations.

NNEPA - means the Navajo Nation Environmental Protection Agency.

NON-COMMUNITY WATER SYSTEM - a public water system that is neither a "community water system" nor a "non-transient non-community water system", including but not limited to: seasonal facilities such as children's camps or recreational camping areas; and year-round facilities that serve more than 25 persons who are not residents thereof, such as gasoline service stations, marinas, rest areas and restaurants that are not served by a community water system.

NON-TRANSIENT NON-COMMUNITY WATER SYSTEM - a public water system that is not a "community water system" and that regularly serves at least 25 of the same persons for more than 6 months per year, including but not limited to schools, factories and public buildings.

NSF - NSF International, P.O. Box 130140, 789 N. Dixboro Road, Ann Arbor, MI 48113-0140, USA. Web: http:\\www.nsf.org

NTU - Nephelometric Turbidity Unit used to measure turbidity.

OPTIMAL CORROSION CONTROL TREATMENT - for the purpose of Part VII (Lead and Copper Requirements), the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any national primary drinking water regulations.

PERSON - an individual, corporation, company, association, partnership, municipality, local, state or federal government or agency or Indian tribe, tribal division, tribal department, tribal enterprise or tribal entity.

PICOCURIE (pCi) - that quantity of radioactive material producing 2.22 nuclear transformations per minute.

PLANT INTAKE - the works or structures at the head of a conduit through which water is diverted from a source (e.g., river or lake) into the treatment plant.

POINT OF DISINFECTANT APPLICATION - the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff.

POINT OF ENTRY - the point where all systems (both unfiltered and filtered) would record the lowest disinfectant residue concentration entering the system each day.

POINT-OF-ENTRY TREATMENT DEVICE (POE) - a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

POINT-OF-USE TREATMENT DEVICE (POU) - a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

PREMISES - the property under the ownership or control of the water user and served, or capable of being served, with water via a service connection with the public water system.

PRESEDIMENTATION - a preliminary treatment process used to remove gravel, sand, and other particulate material from source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

PRESSURE REDUCING VALVE - a valve that opens automatically when the water pressure reaches a preset limit to relieve the stress on the pipeline.

PRESSURE VACUUM BREAKER ASSEMBLY - the combination of an independently-acting, internally-loaded check valve and an independently-acting loaded air inlet valve located on its discharge side, with test cocks and shutoff valves attached at each end of the combination.

PRIVATE WATER SYSTEM - a system for the provision of piped water for human consumption or domestic purposes having fewer than 15 service connections or serving an average of 25 individuals or fewer at least 60 days during the year.

PROJECT ENGINEER - same as ENGINEER.

PUBLIC WATER SYSTEM -

a. The term “public water system” means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least 60 days out of the year. Such term includes:

i. any collection, treatment, storage and distribution facilities under control of the operator of such system and which are used primarily in connection with such system; and

ii. any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water system is either a “community water system” or a “noncommunity water system.”

b. For purposes of paragraph A, a connection to a system that delivers water by a constructed conveyance other than a pipe shall not be considered a connection, if

i. The water is used exclusively for purposes other than residential uses (consisting of drinking, bathing, and cooking, or other similar uses);

ii. The Director determines that alternative water to achieve the equivalent level of public health protection provided by the applicable NNPDWR is provided for residential or similar uses for drinking and cooking; or

iii. The Director determines that the water provided for residential or similar uses for drinking, cooking, and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable NNPDWR.

PUBLIC WATER SYSTEM OWNER OR OPERATOR - any person who owns or operates a public water system within the jurisdiction of the Navajo Nation.

PWSSP - the Navajo Public Water Systems Supervision Program within the Navajo Nation Environmental Protection Agency.

REDUCED PRESSURE PRINCIPLE ASSEMBLY - two independently-acting, internally-loaded check valves with an automatic differential pressure relief valve located in between, shut-off valves located upstream and downstream of the two check valves, and test cocks to enable field testing.

REGION - one of the 10 geographical areas or regions of the country into which the U.S. Environmental Protection Agency (EPA) is divided, or the EPA Headquarters in Washington, DC (see http://www.epa.gov/epahome/locate2.htm).

REM - 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.

REPEAT COMPLIANCE PERIOD - any subsequent compliance period after the initial compliance period.

RESOURCES COMMITTEE - means Resources Committee of the Navajo Nation Council.

RESIDUAL DISINFECTANT CONCENTRATION ("C" in CT calculations) - the concentration of disinfectant measured in mg/L in a representative sample of water.

RESPONSIBLE CHARGE - The Operator(s) in Responsible Charge is defined as the person(s) designated by the owner to be the certified operator(s) who makes decisions regarding the daily operational activities of a public water system, water treatment facility, and/or distribution system that will directly impact the quality and/or quantity of drinking water.

SDWA - The Public Health Service Act, as amended by the Safe Drinking Water Act, Public Law 93-523, 42 U.S.C. § 300f et seq.

SAMPLING REQUIREMENT - the sampling analysis and other appropriate measurements required of water systems by the Director.

SANITARY DEFECT is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

SANITARY SEAL - a cap on the top of the well casing usually fitted with a rubber expansion gasket, which seals off surface drainage, thereby protecting the well from contamination directly down the casing.

SANITARY SURVEY - an on-site review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

SEASONAL SYSTEM is a non-community water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

SECONDARY MAXIMUM CONTAMINANT LEVEL - the maximum level of a contaminant in a public water system which, in the judgment of the Director, is requisite to protect the public welfare. The SMCL means the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of the public water system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.

SEDIMENTATION - a process for removal of solids before filtration by gravity or separation.

SERVICE CONNECTION - a single physical connection from a water service main which provides water to one or more buildings.

SERVICE LINE SAMPLE - a one-liter sample of water collected in accordance with § 708(B)(3), that has been standing for at least 6 hours in a service line.

SLOW SAND FILTRATION - a process involving the passage of raw water through a bed of sand at low velocity (generally less than 0.4m/h) resulting in substantial particulate removal by physical and biological mechanisms.

SINGLE FAMILY STRUCTURE - for the purposes of Part VII (Lead and Copper Requirements), a building constructed as a single-family residence that is currently used as either a residence or a place of business.

SMALL WATER SYSTEM - for the purposes of Part VII (Lead and Copper Requirements), a water system that serves 3,300 persons or fewer.

STANDARD SAMPLE - the portion of finished drinking water that is examined for the presence of coliform bacteria.

STATIC WATER LEVEL - the vertical distance from the ground surface to the water level in a well when the water level is not affected by drawdown due to pumping.

SUBSTANTIAL MODIFICATION - a modification to a public water system that changes capacity, hydraulic condition, operation of treatment units, water treatment process, or the quality of water delivered to the consumer. A modification that costs at least $10,000 or involves the replacement or addition of at least 3 miles of service line.

SURFACE WATER - all water which is open to the atmosphere and is subject to surface runoff.

SURFACE WATER TREATMENT SYSTEMS - water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of Part VIII of the NNPDWR.

SUVA - Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm ($UV_{254}$) (in $m^{-1}$) by its concentration of dissolved organic carbon (DOC) (in mg/L).

SYSTEM WITH A SINGLE SERVICE CONNECTION - a system which supplies drinking water to consumers via a single service line.

TIME OF TRAVEL (TOT) - the time period used to define the area through which ground water will move and recharge a pumping well.

TOTAL ORGANIC CARBON (TOC) - total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

TOO NUMEROUS TO COUNT (TNTC) - the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

TRANSIENT NON-COMMUNITY WATER SYSTEM - a public water system that is not a community water system and that does not regularly serve at least 25 of the same persons for more than six months per year.

TREATMENT - a physical, chemical, or biological process intended to change or improve the quality of water.

TREATMENT FACILITY - any place(s) where a community water system or nontransient noncommunity water system alters the physical or chemical characteristics of the drinking water.

TOTAL TRIHALOMETHANES (TTHM) - the sum of the concentration in milligrams per liter (mg/L) of the trihalomethane compounds (trichloromethane, [chloroform], dibromochloromethane, bromodichloromethane, and tribromomethane [bromoform]), rounded to two significant figures.

TRIGGER LEVEL - the concentration of a contaminant that can initiate either an increase or decrease in monitoring for that contaminant.

TRIHALOMETHANE (THM) - 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.

TURBIDITY UNIT - Turbidity in water is caused by suspended matter such as clay, silt, finely divided organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms. Turbidity is an expression of the optical property that causes light to be scattered and absorbed rather than transmitted in straight lines through the sample, and is used as an indicator of treatment effectiveness, specifically for clarification and filtration processes. Turbidity is measured in Nephelometric Turbidity Units (NTU).

TWO-STAGE LIME SOFTENING - a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

UNCOVERED FINISHED WATER STORAGE FACILITY - a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and

that is directly open to the atmosphere.

UNIFORM RULES - The Navajo Nation Environmental Protection Agency Uniform Regulations for Permit Review, Administrative Enforcement Orders, Hearings, and Rulemaking under Navajo Nation Environmental Acts.

UNREGULATED CONTAMINANT - a known or suspected disease-causing contaminant for which no maximum contaminant level has been established.

VALIDATED EXAM - an exam that is independently reviewed by subject matter experts to ensure it is based on a job analysis and related to the classification of the system or facility.

VARIANCE - a waiver from certain provisions of these regulations granted, by the Director, to a public water system pursuant to the NNSDWA and §105 of these regulations.

VIABLE WATER SYSTEM - a water system which is self-sustaining and has the commitment and the financial, managerial and technical capability to consistently comply with the NNSDWA and the NNPDWR.

VIRUS - a virus of fecal origin that is infectious to humans by waterborne transmission.

WATERBORNE DISEASE OUTBREAK - the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the Director or PWSSP.

WATER SUPPLY SOURCE - a well, spring, infiltration gallery, intake structure, or other source of piped water for human consumption.

WATER TABLE (UNCONFINED) AQUIFER - an aquifer in which ground water is under atmospheric pressure.

WATER USER - any person that is authorized to receive water from the public water system.

WELL - a bored, drilled or driven shaft, or a dug hole whose depth is greater than the largest surface dimension, from which water is extracted or injected.

WELLFIELD - an area containing two or more wells with overlapping zones of contribution that supply a public water system.

WELLHEAD - the physical structure, facility, or device at the ground surface from or through which groundwater flows or is pumped from water-bearing formations.

WELL CASING - tubular retaining structure, generally metal, which is installed in the excavated hole to maintain the well opening.

WELLHEAD PROTECTION - a program that reduces the threat to the quality of ground water used for drinking water by identifying and managing recharge areas to specific wells or well fields. As defined by P.L. 99-339, a wellhead protection area is a surface or subsurface area that surrounds an individual water well or wellfield that is used by a public water system. It is designed to incorporate the groundwater or surface water supplies that are likely to be drawn to the well system. The pumping of a well causes a conical “V” shaped depression in the underlying water table that varies as a result of differing geographic and hydrologic conditions. The water within this zone of depression would be likely to reach the well at some time, and so would any groundwater contaminants within that zone. By restricting surface activities over these zones, protection of the resource is enhanced.

WELLHEAD PROTECTION AREA- see WELLHEAD PROTECTION

WHOLESALE SYSTEM - a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

**§ 105 VARIANCES AND EXEMPTIONS**

A. Variances or exemptions from certain provisions of these regulations may be granted by the Director pursuant to subchapter 6 of the Navajo Nation Safe Drinking Water Act and § 2205 of these regulations (for very small system variances), except that variances or exemptions from the MCL for *E.Coli* and variances from any of the treatment technique requirements of Part VIII, General Requirements for Surface Water Treatment, may not be granted. As provided in § 2562(F)(2) of the Navajo Nation Safe Drinking Water Act, small systems variances are not available for rules addressing microbial contaminants, which would include Parts VIII, XIII, XXI, XXIV, XXV, and XXVII.

**§ 106 SITING REQUIREMENTS**

Before a person may enter into a financial commitment for or initiate construction of a new public water system or increase the capacity of an existing public water system, he shall notify the Director, comply with the requirements of § 2524 of the NNSDWA and §1500-Minimum Design Regulations of these regulations and to the extent practicable, avoid locating part or all of the new or expanded facility at a site which:

A. Is subject to a significant risk from earthquakes, floods, fires or other disasters which could cause a breakdown of the public water system or any portion thereof; or

B. Except for intake structures, is within the floodplain of a 100-year flood, or is lower than any recorded high tide where appropriate records exist.

Permits to construct and permits to operate a public water system may be obtained from the Public Water Systems Supervision Program. Permits to drill wells may be obtained from the Navajo Nation Department of Water Resource Management, Water Code Section, (928) 729-4004.

**§ 107 APPLICABILITY**

A. Except as provided in section 107 (B), these regulations apply to all public water systems within the Navajo Nation as described in the Navajo Nation Safe Drinking Water Act.

B. These regulations do not apply to any public water system that meets all of the following conditions:

1. it consists only of distribution and storage facilities (and does not have any collection and treatment facilities);

2. it obtains all of its water from, but is not owned or operated by, a public water system to which these regulations apply;

3. it does not sell water to any person;

4. it is not a carrier that conveys passengers in interstate commerce; and

5. it does not provide water to any school, tribal, state or federal governmental employees or private entity serving an average of twenty-five (25) or more employees or individuals daily at least 60 days out of the year.

C. These regulations are effective immediately upon promulgation, which occurs upon approval by the Resources Committee, unless specific regulations herein provide for a different effective date.

**§ 108 SEVERABILITY**

If any provision of these regulations or the application thereof to any person or circumstance is held invalid, the remainder of these regulations and the application of such provision to other persons or circumstances shall remain unaffected, and to this end the provisions of these regulations are declared to be severable.

**§ 109 OPERATING PERMITS**

A. Public water systems and bottled water systems shall obtain and maintain an operating permit from the Director.

B. For existing public water systems and bottled water systems, for the first time, the owner or the entity responsible for operation and maintenance shall complete and submit an application form for an operating permit within ninety (90) days of the effective date of these regulations, as provided in § 202 of the Uniform Rules. A copy of the application form may be obtained from the Public Water Systems Supervision Program. If an existing system has submitted a timely and complete application for an operating permit (including a renewal operating permit), but the Director has not taken final action on the application, the existing system's failure to have a permit shall not be a violation of the NNSDWA or these regulations, unless the delay in final action was due to the failure of the applicant to timely submit information required or requested to process the application.

C. For new public water systems and bottled water systems, the owner or the entity responsible for operation and maintenance shall submit an operating permit application after obtaining the approval of construction from the Director.

D. The owner or the entity responsible for operation and maintenance shall submit an application fee together with the operating permit application, as determined by the Director, and as provided in § 202(A) of the Uniform Rules.

E. The Director will review the application for completeness and will issue the Operating Permit pursuant to the permitting provisions in subpart 2 of the Uniform Rules.

F. For new public water systems, a certified operator of appropriate level as determined according to § 1405 must be assigned to the system before the operating permit can be issued. Existing systems that do not have an operator certified to the appropriate level shall obtain certification within the time specified in the operating permit.

G. The operating permit shall be good for three (3) years. Application for renewal must be submitted at least 30 days before the expiration of the permit. The renewal fee will be the same as the first time application fee as given in § 109(D).

H. The Director may revoke an operating permit according to the procedures in § 204 of the Uniform Rules, for any water system that is unable to demonstrate its ability to remain a viable water system, as defined in § 104 of NNPDWR.

I. The Director may modify an operating permit at any time to include any new promulgated requirements of the NNSDWA or NNPDWR to include any approved or permitted construction modifications to the system, or to modify a compliance schedule. The Director will modify a permit according to the procedures set forth in the Uniform Rules.

J. The permittee may request a modification of the operating permit at any time with adequate justification. The permittee shall complete and submit to the Director an operating permit application form along with a detailed justification for the modification(s) requested. Permit modifications will be issued by the Director on a case by case basis, pursuant to § 204 of the Uniform Rules.

K. An operating permit is non-transferable, except with prior approval of the Director. The permittee shall submit written notification to the Director at least 30 days in advance of the proposed transfer. This notification shall include an operating permit application form which has been completed by the proposed new owner of the system. The Director may request on a case by case basis that the proposed new owner of the system submit a business plan which shows how the system will be managed to ensure its long term viability. If the Director approves the transfer, a new operating permit will be issued to the new owner of the system.

L. If an existing public water system or a bottled water system is out of compliance with any of the requirements of the NNSDWA or NNPDWR, the Director may include in the operating permit a schedule for achieving compliance with such requirements.

M. If an existing public water system is divided into two or more smaller water systems, each of the smaller water systems shall comply with the water quality monitoring requirements of the water system prior to it being divided.

N. An operating permit does not convey any property right of any sort, or any exclusive privilege.

O. The permittee shall allow the Director or an authorized representative, upon the presentation of credentials and/or other documentation as may be required by law, to:

1. Gain entry into the permittee’s premises where a regulated facility or activity is located or conducted, or where records are kept;

2. Have access to and copy any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facility, equipment, practice or operation regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the NNSDWA, any substance or parameter at any location.

P. The permittee shall report any noncompliance which may endanger public water systems or public health. An oral report, by telephone or in person, must be provided to the Public Water Systems Supervision Program within 24 hours from the time the permittee becomes aware of the circumstances. A written report shall follow within 5 working days of the time the permittee becomes aware of the circumstances. The written report shall contain a description of the noncompliance and its

cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Q. All public water systems should develop an “Operation and Maintenance Manual” and a copy of the manual should be readily accessible to the inspectors from the Navajo Nation Environmental Protection Agency when requested. The manual should contain the following information:

1. Schematics of the system showing sources, treatment processes, storage, distribution mains, service lines, pumps, valves, pressure tanks, hydrants, and control systems;

2. Details about manual, automatic, and semi-automatic controls and trouble-shooting for all the pumps, valves, tanks and treatment units;

3. Safety procedures for chemical handling, explosion and fire hazards;

4. Water sampling requirements and schedules including a sampling site plan; and

5. Emergency water supply plan.

**§ 110 NO WAIVER OF SOVEREIGN IMMUNITY**

These regulations shall not constitute a waiver of sovereign immunity. NNEPA assumes no liability for public water system malfunction or under-performance. NNEPA only prescribes minimum design requirements, which shall not diminish the duty of owners and operators to comply with applicable statutes and regulations and industry standards and to provide adequate system design, construction, operation, maintenance and performance.

# PART II
# MAXIMUM CONTAMINANT LEVELS

**§ 201 PURPOSE**

The purpose of this part is to define the Maximum Contaminant Levels, or MCL, for each contaminant.

**§ 202 SPECIAL MAXIMUM CONTAMINANT LEVELS FOR ARSENIC AND NITRATE**

A. The MCL for arsenic of 0.010 mg/L or 10 parts per billion (10ppb) applies to community water systems and non-transient, non-community water systems and shall become effective January 23, 2006.

1. Compliance with the MCL for arsenic is calculated pursuant to § 405.

2. The owner/operator shall report the most recent arsenic levels in their water systems. These levels and health effects shall be reported in the Consumer Confidence Reports required by Part XII of these regulations.

B. The MCL for nitrate is 10mg/L or 10 parts per million (10ppm).

C. At the discretion of the Director, nitrate levels not exceeding 20 mg/L may be allowed in a non-community water system if the public water system owner or operator demonstrates to the satisfaction of the Director that:

1. Such water will not be available to children under six months of age;

2. There will be continuous public notification stating that nitrate levels exceed 10 mg/L and lists the potential health effects due to exposure;

3. PWSSP shall be notified annually of nitrate levels that exceed 10 mg/L; and

4. No adverse health effects shall result.

**§ 203 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR INORGANIC CONTAMINANTS**

A. Applicability

1. The MCLs for inorganic contaminants (1)-(10), (12)-(13), and (17)-(18) of Table 200.1 applies to community water systems (CWS) and non-transient, non-community water systems (NTNCWS).

2. The MCL specified in (11) of Table 200.1 only applies to CWSs.

3. The MCLs specified in (14)-(16) of Table 200.1 apply to CWSs; NTNCWSs; and transient non-community water systems (TNCWS).

4. The MCLs specified in (14), (15) and (16) of Table 200.1 apply to consecutive public water systems. Other MCL sampling requirements will be determined, by the Director, after a sanitary survey of the system, a wellhead protection delineation or a vulnerability assessment survey indicates that further sampling requirements are needed. MCL sampling for asbestos (4) is required for those systems with asbestos-cement pipe in the distribution system.

5. BAT(s) are the best available technology, treatment technique, or other means available for achieving compliance with the MCLs for inorganic contaminants and are identified in Table 200.1.

**TABLE 200.1 MAXIMUM CONTAMINANT LEVELS, MAXIMUM CONTAMINANT LEVEL GOALS WITH EFFECTIVE DATES FOR INORGANIC CONTAMINANTS**

| # | EFFECTIVE DATE | CONTAMINANT | MCL mg/L | MCLG mg/L | BATs |
|---|---|---|---|---|---|
| 1 | 3/21/1996 | Antimony | 0.006 | 0.006 | 2,7 |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 2 | 3/21/1996 | Arsenic[4] | 0.05 | Zero | 1,2,5,6,7,9,12[5] |
| 3 | 1/23/2006 | Arsenic[4] | 0.010[6] | Zero | 1,2,5,6,7,9,12[5] |
| 4 | 3/21/1996 | Asbestos | 7 million fibers/liter (longer than 10µm) | 7 million fibers/liter (longer than 10µm) | 2,3,8 |
| 5 | 3/21/1996 | Barium | 2 | 2 | 5,6,7,9 |
| 6 | 3/21/1996 | Beryllium | 0.004 | 0.004 | 1,2,5,6,7 |
| 7 | 3/21/1996 | Cadmium | 0.005 | 0.005 | 2,5,6,7 |
| 8 | 3/21/1996 | Chromium | 0.1 | 0.1 | 2,5,6[2], 7 |
| 9 | 3/21/1996 | Copper | | 1.3 | |
| 10 | 3/21/1996 | Cyanide (as free cyanide) | 0.2 | 0.2 | 5,7,10 |
| 11 | 3/21/1996 | Fluoride | 4.0 | 4.0 | |
| 12 | 3/21/1996 | Lead | 0.015 | Zero | |
| 13 | 3/21/1996 | Mercury | 0.002 | 0.002 | 2[1],4,6[1],7[1] |
| 14 | 3/21/1996 | Nitrate | 10 (as Nitrogen) | 10 (as Nitrogen) | 5,7,9 |
| 15 | 3/21/1996 | Nitrite | 1 (as Nitrogen) | 1 (as Nitrogen) | 5,7 |
| 16 | 3/21/1996 | Total Nitrate and Nitrite | 10 (as Nitrogen) | 10 (as Nitrogen) | |
| 17 | 3/21/1996 | Selenium | 0.05 | 0.05 | 1,2[3],6,7,9 |
| 18 | 3/21/1996 | Thallium | 0.002 | 0.0005 | 1,5 |

[1] BAT only if influent Hg concentrations #10 micrograms/liter.
[2] BAT for Chromium III only.
[3] BAT for Selenium IV only.
[4] BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.
[5] To obtain high removals, iron to arsenic ratio must be at least 20:1.
[6] This MCL will replace the 0.05 mg/L MCL and will apply to CWS and NTNCWS, effective January 23, 2006.

Key to BAT(s) in Table 200.1

| | | |
|---|---|---|
| 1 = Activated Alumina<br>2 = Coagulation/Filtration (Not BAT for systems <500 service connections)<br>3 = Direct & Diatomite Filtration | 4 = Granular Activated Carbon<br>5 = Ion Exchange<br>6 = Lime Softening (Not BAT for systems <500 service connections) | 7 = Reverse Osmosis<br>8 = Corrosion Control<br>9 = Electrodialysis<br>10= Chlorine<br>11= Ultraviolet<br>12= Oxidation / Filtration |

6. The Administrator, pursuant to section 1412 of the Safe Drinking Water Act (SDWA), hereby

identifies in the following table the affordable technology, treatment technique or other means available to systems serving 10,000 persons or fewer for achieving compliance with the maximum contaminant level for arsenic:

**TABLE 200.2 SMALL SYSTEM COMPLIANCE TECHNOLOGIES (SSCTS)[1] FOR ARSENIC[2]**

| Small system compliance technology | Affordable for listed small system categories[3] |
|---|---|
| Activated Alumina (centralized) | All size categories. |
| Activated Alumina (Point-of-Use)[4] | All size categories. |
| Coagulation/Filtration[5] | 501-3,300 and 3,301-10,000. |
| Coagulation-assisted Micro-filtration | 501-3,300 and 3,301-10,000. |
| Electrodialysis reversal[6] | 501-3,300 and 3,301-10,000. |
| Enhanced coagulation/Filtration | All size categories. |
| Enhanced lime softening (pH>10.5) | All size categories. |
| Ion Exchange | All size categories. |
| Lime Softening | 501-3,300 and 3,301-10,000. |
| Oxidation/Filtration[7] | All size categories. |
| Reverse Osmosis (centralized)[6] | 501-3,300 and 3,301-10,000. |
| Reverse Osmosis (Point-of-Use)[4] | All size categories. |

[1]Section 1412 (b)(4)(E)(ii) of the SDWA specifies that SSCTs must be affordable and technically feasible for small systems.
[2]SSCTs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.
[3]The Act (ibid.) Specifies three categories of small systems; (i) those serving 25 or more, but fewer than 501, (ii) those serving more than 500, but fewer than 3,301, and (iii) those serving more than 3,300 but fewer than 10,001.
[4]When POU or POE devices are used for compliance, programs to ensure proper long-term operation, maintenance, and monitoring must be provided by the water system to ensure adequate performance.
[5]Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.
[6]Technologies reject a large volume of water, may not be appropriate for areas where water quantity may be an issue.
[7]To obtain high removals, iron to arsenic ratio must be at least 20:1.

**§ 204 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR ORGANIC CONTAMINANTS**

A. Applicability

1. The following MCLs for organic contaminants apply to CWSs and NTNCWSs.

**TABLE 200.3 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR VOLATILE ORGANIC CHEMICALS WITH EFFECTIVE DATES**

| # | CAS[1] No. | EFFECTIVE DATES | CONTAMINANT | MCL mg/L | MCLG mg/L |
|---|---|---|---|---|---|
| 1 | 75-01-4 | 3/21/1996 | Vinyl chloride | 0.002 | 0.00 |
| 2 | 71-43-2 | 3/21/1996 | Benzene | 0.005 | 0.00 |
| 3 | 56-23-5 | 3/21/1996 | Carbon tetrachloride | 0.005 | 0.00 |
| 4 | 107-06-2 | 3/21/1996 | 1,2-Dichloroethane | 0.005 | 0.00 |
| 5 | 79-01-6 | 3/21/1996 | Trichloroethylene | 0.005 | 0.00 |
| 6 | 106-46-7 | 3/21/1996 | para-Dichlorobenzene | 0.075 | 0.075 |

| | | | | | |
|---|---|---|---|---|---|
| 7 | 75-35-4 | 3/21/1996 | 1,1-Dichloroethylene | 0.007 | 0.007 |
| 8 | 71-55-6 | 3/21/1996 | 1,1,1-Trichloroethane | 0.2 | 0.20 |
| 9 | 156-59-2 | 3/21/1996 | cis-1,2-Dichloroethylene | 0.07 | 0.07 |
| 10 | 78-87-5 | 3/21/1996 | 1,2-Dichloropropane | 0.005 | 0.00 |
| 11 | 100-41-4 | 3/21/1996 | Ethylbenzene | 0.7 | 0.7 |
| 12 | 108-90-7 | 3/21/1996 | Monochlorobenzene | 0.1 | 0.1 |
| 13 | 95-50-1 | 3/21/1996 | o-Dichlorobenzene | 0.6 | 0.6 |
| 14 | 100-42-5 | 3/21/1996 | Styrene | 0.1 | 0.1 |
| 15 | 127-18-4 | 3/21/1996 | Tetrachloroethylene | 0.005 | 0.00 |
| 16 | 108-88-3 | 3/21/1996 | Toluene | 1 | 1 |
| 17 | 156-60-5 | 3/21/1996 | trans-1,2-Dichloroethylene | 0.1 | 0.1 |
| 18 | 1330-20-7 | 3/21/1996 | Xylenes (total) | 10 | 10 |
| 19 | 75-09-2 | 3/21/1996 | Dichloromethane | 0.005 | 0.00 |
| 20 | 120-82-1 | 3/21/1996 | 1,2,4-Trichlorobenzene | 0.07 | 0.07 |
| 21 | 79-00-5 | 3/21/1996 | 1,1,2-Trichloroethane | 0.005 | 0.003 |

[1]Chemical Abstract Service Number

2. The following MCLs and MCLGs for synthetic organic contaminants apply to CWSs and NTNCWS.

**TABLE 200.4 MAXIMUM CONTAMINANT LEVELS, MAXIMUM CONTAMINANT LEVEL GOALS WITH EFFECTIVE DATES FOR SYNTHETIC ORGANIC CHEMICALS**

| # | CAS No. | EFFECTIVE DATES | CONTAMINANT | MCL mg/L | MCLG mg/L |
|---|---|---|---|---|---|
| 1 | 15972-60-8 | 3/21/1996 | Alachlor | 0.002 | 0.00 |
| 2 | 116-06-3 | 3/21/1996 | Aldicarb | 0.003 | 0.001 |
| 3 | 1646-87-3 | 3/21/1996 | Aldicarb sulfoxide | 0.004 | 0.001 |
| 4 | 1646-87-4 | 3/21/1996 | Aldicarb sulfone | 0.002 | 0.001 |
| 5 | 1912-24-9 | 3/21/1996 | Atrazine | 0.003 | 0.003 |
| 6 | 1563-66-2 | 3/21/1996 | Carbofuran | 0.04 | 0.04 |
| 7 | 57-74-9 | 3/21/1996 | Chlordane | 0.002 | 0.00 |
| 8 | 96-12-8 | 3/21/1996 | Dibromochloropropane | 0.0002 | 0.00 |
| 9 | 94-75-7 | 3/21/1996 | 2,4-D | 0.07 | 0.07 |
| 10 | 106-93-4 | 3/21/1996 | Ethylene dibromide | 0.00005 | 0.00 |

| | | | | | |
|---|---|---|---|---|---|
| 11 | 76-44-8 | 3/21/1996 | Heptachlor | 0.0004 | 0.00 |
| 12 | 1024-57-3 | 3/21/1996 | Heptachlor epoxide | 0.0002 | 0.00 |
| 13 | 58-89-9 | 3/21/1996 | Lindane | 0.0002 | 0.0002 |
| 14 | 72-43-5 | 3/21/1996 | Methoxychlor | 0.04 | 0.04 |
| 15 | 1336-36-3 | 3/21/1996 | Polychlorinated biphenyls | 0.0005 | 0.00 |
| 16 | 87-86-5 | 3/21/1996 | Pentachlorophenol | 0.001 | 0.00 |
| 17 | 8001-35-2 | 3/21/1996 | Toxaphene | 0.003 | 0.00 |
| 18 | 93-72-1 | 3/21/1996 | 2,4,5-TP | 0.05 | 0.05 |
| 19 | 50-32-8 | 3/21/1996 | Benzo[a]pyrene | 0.0002 | 0.00 |
| 20 | 75-99-0 | 3/21/1996 | Dalapon | 0.2 | 0.2 |
| 21 | 103-23-1 | 3/21/1996 | Di(2-ethylhexyl)adipate | 0.4 | 0.4 |
| 22 | 117-81-7 | 3/21/1996 | Di(2-ethylhexyl)phthalate | 0.006 | 0.00 |
| 23 | 88-85-7 | 3/21/1996 | Dinoseb | 0.007 | 0.007 |
| 24 | 85-00-7 | 3/21/1996 | Diquat | 0.02 | 0.02 |
| 25 | 145-73-3 | 3/21/1996 | Endothall | 0.1 | 0.1 |
| 26 | 72-20-8 | 3/21/1996 | Endrin | 0.002 | 0.002 |
| 27 | 1071-83-6 | 3/21/1996 | Glyphosate | 0.7 | 0.7 |
| 28 | 118-74-1 | 3/21/1996 | Hexachlorobenzene | 0.001 | 0.00 |
| 29 | 77-47-4 | 3/21/1996 | Hexachlorocyclopentadiene | 0.05 | 0.05 |
| 30 | 23135-22-0 | 3/21/1996 | Oxamyl (Vydate) | 0.2 | 0.2 |
| 31 | 1918-02-1 | 3/21/1996 | Picloram | 0.5 | 0.5 |
| 32 | 122-34-9 | 3/21/1996 | Simazine | 0.004 | 0.004 |
| 33 | 1746-01-6 | 3/21/1996 | 2,3,7,8-TCDD (Dioxin) | $3x10^{-8}$ | 0.00 |

B. The Administrator pursuant to § 1412 of the SDWA has identified as indicated in Table 200.5 the granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) techniques as the best technology treatment technique or other means available for achieving compliance with the MCL for organic contaminants identified in subsections (A)(1) and (A)(2) of this section:

**TABLE 200.5 BAT FOR ORGANIC CONTAMINANTS (SYNTHETIC AND VOLATILE)**

| # | CAS No. | CONTAMINANT | GAC | PTA | OX |
|---|---|---|---|---|---|
| 1 | 15972-60-8 | Alachlor | X | | |
| 2 | 116-06-3 | Aldicarb | X | | |
| 3 | 1646-88-4 | Aldicarb sulfone | X | | |
| 4 | 1646-87-3 | Aldicarb sulfoxide | X | | |
| 5 | 1912-24-9 | Atrazine | X | | |
| 6 | 71-43-2 | Benzene | X | X | |
| 7 | 50-32-8 | Benzo[a]pyrene | X | | |
| 8 | 1563-66-2 | Carbofuran | X | | |
| 9 | 56-23-5 | Carbon tetrachloride | X | X | |
| 10 | 57-74-9 | Chlordane | X | | |
| 11 | 75-99-0 | Dalapon | X | | |
| 12 | 94-75-7 | 2,4-D | X | | |
| 13 | 103-23-1 | Di(2-ethylhexyl)adipate | X | X | |
| 14 | 117-81-7 | Di(2-ethylhexyl)phthalate | X | | |
| 15 | 96-12-8 | Dibromochloroproprane (DBCP) | X | X | |
| 16 | 95-50-1 | o-Dichlorobenzene | X | X | |
| 17 | 106-46-7 | para-Dichlorobenzene | X | X | |
| 18 | 107-06-2 | 1,2-Dichloroethane | X | X | |
| 19 | 75-35-4 | 1,1-Dichloroethylene | X | X | |
| 20 | 156-59-2 | cis-1,2-Dichloroethylene | X | X | |
| 21 | 156-60-5 | trans-1,2-Dichloroethylene | X | X | |
| 22 | 75-09-2 | Dichloromethane | | X | |
| 23 | 78-87-5 | 1,2-Dichloropropane | X | X | |
| 24 | 88-85-7 | Dinoseb | X | | |
| 25 | 85-00-7 | Diquat | X | | |
| 26 | 145-73-3 | Endothall | X | | |
| 27 | 72-20-8 | Endrin | X | | |
| 28 | 100-41-4 | Ethylbenzene | X | X | |
| 29 | 106-93-4 | Ethylene Dibromide (EDB) | X | X | |
| 30 | 1071-83-6 | Glyphosate | | | X |
| 31 | 76-44-8 | Heptachlor | X | | |
| 32 | 1024-57-3 | Heptachlor epoxide | X | | |
| 33 | 118-74-1 | Hexachlorobenzene | X | | |

| | | | | | |
|---|---|---|---|---|---|
| 34 | 77-47-3 | Hexachlorocyclopentadiene | X | X | |
| 35 | 58-89-9 | Lindane | X | | |
| 36 | 72-43-5 | Methoxychlor | X | | |
| 37 | 108-90-7 | Monochlorobenzene | X | X | |
| 38 | 23135-22-0 | Oxamyl (Vydate) | X | | |
| 39 | 87-86-5 | Pentachlorophenol | X | | |
| 40 | 1918-02-1 | Picloram | X | | |
| 41 | 1336-36-3 | Polychlorinated biphenyls (PCB) | X | | |
| 42 | 122-34-9 | Simazine | X | | |
| 43 | 100-42-5 | Styrene | X | X | |
| 44 | 1746-01-6 | 2,3,7,8-TCDD (Dioxin) | X | | |
| 45 | 127-18-4 | Tetrachloroethylene | X | X | |
| 46 | 108-88-3 | Toluene | X | X | |
| 47 | 8001-35-2 | Toxaphene | X | | |
| 48 | 93-72-1 | 2,4,5-TP (Silvex) | X | | |
| 49 | 120-82-1 | 1,2,4-Trichlorobenzene | X | X | |
| 50 | 71-55-6 | 1,1,1-Trichloroethane | X | X | |
| 51 | 79-00-5 | 1,1,2-Trichloroethane | X | X | |
| 52 | 79-01-6 | Trichloroethylene | X | X | |
| 53 | 75-01-4 | Vinyl chloride | | X | |
| 54 | 1330-20-7 | Xylene | X | X | |

**§ 205 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR MICROBIOLOGICAL CONTAMINANTS**

A. A public water system must determine compliance with the MCL for total coliforms in subsections (B) and (C) of this section for each month in which it is required to monitor for total coliforms.

B. Applicability

1. Each CWS, NTNCWS, TNCWS and Consecutive system is required to comply with this section. Until March 31, 2016, the MCL for total coliform is based on the presence or absence in a sample, rather than coliform density.

**TABLE 200.6 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR MICROBIOLOGICAL CONTAMINANTS**

| # | CONTAMINANT | MCL | MCLG |
|---|---|---|---|
| 1 | *Giardia lamblia* | zero | zero |
| 2 | Viruses | zero | zero |
| 3 | *Legionella* | zero | zero |
| 4 | *Cryptosporidium* | zero | zero |
| 5 | *Escherichia coli (E.Coli)* | See § 205(C) | zero |

2. The MCLG identified in 4 of Table 200.6 is applicable until March 31, 2016. The MCLG identified in 6 of Table 200.6 is applicable beginning April 1, 2016.

C. Compliance

1. A system is in compliance with the MCL for *E.coli* for samples taken under the provisions of Part XXVII of this part unless any of the conditions identified in subsections (C)(1)(a) through (C)(1)(d) of this section occur. For purposes of the public notification requirements in Part VI of this part, violation of the MCL may pose an acute risk to health.

   a. The system has an *E.coli*-positive repeat sample following a total coliform-positive routine sample.

   b. The system has a total coliform-positive repeat sample following an *E.coli*-positive routine sample.

   c. The system fails to take all required repeat samples following an *E.coli*-positive routine sample.

   d. The system fails to test for *E.coli* when any repeat sample tests positive for total coliform.

D. The following are identified as the best technology, treatment techniques, or other means to achieve compliance with the maximum contaminant level for *E. Coli* in subsections (B) and (C) of this section:

1. Protection of wells from fecal contamination by appropriate construction and location;

2. Maintenance of a disinfectant residual throughout the distribution system;

3. Proper maintenance of the distribution system including appropriate pipe replacement and repair procedure, adequate flushing programs, proper operation and maintenance of storage tanks and reservoirs, cross connection control, and continual maintenance of positive water pressure in all parts of the distribution system;

4. Filtration and/or disinfection of surface water, as described in Parts VIII, XIII, XXI, and XXIV of these regulations (General Requirements for Surface Water Treatment and Enhanced Surface Water Treatment), or disinfection of groundwater, as described in Part XXV of these regulations, using strong oxidants such as chlorine, chlorine dioxide, or ozone;

5. For systems using groundwater, compliance with the requirements of an NNEPA-approved Wellhead Protection Program that is developed and implemented pursuant to § 2538 of the NNSDWA and Part XVII of these regulations-Wellhead Protection Regulations; and

6. Proper placement, maintenance and testing of backflow prevention and cross connection devices, as described in Part XX of these regulations.

E. The technology, treatment techniques, or other means available identified in subsection (D) of this section are hereby identified as affordable technology, treatment techniques, or other means available to systems serving 10,000 or fewer people for achieving compliance with the maximum contaminant level for *E. coli* in paragraph (B) and (C) of this section.

**§ 206 MAXIMUM CONTAMINANT LEVELS FOR TURBIDITY**

The MCL for turbidity are applicable to both community and non-community water systems using surface water sources in whole or in part. The MCL for turbidity in drinking water, measured at a representative entry point(s) to the distribution system are:

A. One turbidity unit (TU), as determined by a monthly average pursuant to § 414, except that five or fewer turbidity units may be allowed if the public water system owner or operator can demonstrate to the Director that the higher turbidity level does not:

1. Interfere with disinfection;

2. Prevent maintenance of an effective disinfectant agent throughout the distribution system; or

3. Interfere with microbiological determinations.

B. Five turbidity units based on an average for two consecutive days pursuant to § 414.

**§ 207 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR DISINFECTION BYPRODUCTS**

A. Applicability

1. The MCLs and MCLGs for Disinfection Byproducts are as follows:

**TABLE 200.7 MAXIMUM CONTAMINANT LEVELS FOR DISINFECTION BYPRODUCTS**

| Disinfection Byproduct | MCL (mg/L) | MCLG (mg/L) |
|---|---|---|
| Total Trihalomethanes (TTHM)<br>Haloacetic acids (five) (HAA5)<br>Bromate<br>Chlorite | 0.080<br>0.060<br>0.010<br>1.0 | <br><br>Zero<br>0.8 |
| Bromodichloromethane<br>Bromoform<br>Chloroform<br>Dichloroacetic Acid<br>Trichloroacetic Acid<br>Dibromochloromethane<br>Monochloroacetic Acid | | Zero<br>Zero<br>0.07<br>Zero<br>0.02<br>0.06<br>0.07 |

B. Compliance Dates

1. All CWSs and NTNCWSs:

a. Part VIII - General Requirements for Surface Water Systems serving 10,000 or more persons must comply with this section upon promulgation of these regulations;

b. Part VIII - General Requirements for Surface Water Systems serving fewer than 10,000 persons must comply with this section beginning January 1, 2004;

c. Public water systems using only ground water not under the direct influence of surface water must comply with this section beginning January 1, 2004.

d. All systems must comply with the MCLs listed in this section until the date specified for Part XXIII compliance in § 2300(C).

i. Part XXIII MCLs for TTHM and HAA5 must be complied with as a locational running annual average at each monitoring location beginning with the date specified for Part XXIII compliance in § 2301(C).

2. A system that is installing GAC or membrane technology to comply with this section may apply to the Director for an extension of up to 24 months past the date of promulgation of these regulations, but not beyond December 31, 2003. In granting the extension, the Director must set a schedule for compliance and may specify any interim measures that the system must take. Failure to meet the schedule or interim treatment requirements constitutes a violation of the NNPDWR.

C. The Administrator, pursuant to § 1412 of the SDWA, has identified the following as the best available technology, treatment techniques, or other means available to achieve compliance with the MCLs for disinfection byproducts identified in subsection (A) of this section:

**TABLE 200.8 BATs FOR DISINFECTION BYPRODUCTS**

| **Disinfection Byproduct** | **Best Available Technology** |
|---|---|
| TTHM | Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant. |
| HAA5 | Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant. |

| | |
|---|---|
| Bromate | Control of ozone treatment processes to reduce production of bromate. |
| Chlorite | Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels. |

D. The Administrator, pursuant to section 1412 of the SDWA, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this subsection (D) for all systems that disinfect their source water:

| Disinfection byproduct | Best available technology |
|---|---|
| Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5). | Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight cutoff ≤1000 Daltons; or GAC20. |

E. The Administrator, pursuant to section 1412 of the SDWA, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for TTHM and HAA5 identified in this subsection (E) for consecutive systems that buy or otherwise receive finished water:

| Disinfection byproduct | Best available technology |
|---|---|
| Total trihalomethanes (TTHM) and Haloacetic acids (five) (HAA5). | Systems serving ≥10,000: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance.<br>Systems serving ≤10,000: Improved distribution system and storage tank management to reduce residence time. |

**§ 208 MAXIMUM RESIDUAL DISINFECTANT LEVELS AND MAXIMUM RESIDUAL DISINFECTANT LEVEL GOALS**

A. Applicability

1. The Maximum Residual Disinfectant Levels and Maximum Residual Disinfectant Level Goals are as follows:

**TABLE 200.9 MAXIMUM RESIDUAL DISINFECTANT LEVELS (MRDLs) AND MAXIMUM RESIDUAL DISINFECTANT LEVEL GOALS (MRDLGs)**

| **Disinfectant residual** | **MRDL (mg/L)** | **MRDLG (mg/L)** |
|---|---|---|
| Chlorine | 4.0 (as $Cl_2$) | 4.0 (as $Cl_2$) |
| Chloramines | 4.0 (as $Cl_2$) | 4.0 (as $Cl_2$) |
| Chlorine dioxide | 0.8 (as $ClO_2$) | 0.8 (as $ClO_2$) |

B. Compliance Dates

1. All CWSs and NTNCWSs:

a. Part VIII - General Requirements for Surface Water Systems serving 10,000 or more persons must comply with this section upon promulgation of these regulations;

b. Part VIII - General Requirements for Surface Water Systems serving fewer than 10,000 persons must comply with this section beginning January 1, 2004;

c. Public water systems using only ground water, not under the direct influence of surface water, must comply with this section beginning January 1, 2004.

2. All TNCWSs:

a. Part VIII - General Requirements for Surface Water Systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with

the chlorine dioxide MRDL upon promulgation of these regulations;

b. Part VIII - General Requirements for Surface Water Systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004;

c. Public water systems using only ground water, not under the direct influence of surface water, and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

C. The Administrator, pursuant to § 1412 of the SDWA, has identified the following as the best available technology, treatment techniques, or other means available to achieve compliance with the maximum residual disinfectant levels identified in subsection (A) of this section: control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

**§ 209 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR RADIONUCLIDES**

A. Applicability

1. The following MCLs and MCLGs for radionuclides apply to CWSs.

**TABLE 200.10 MAXIMUM CONTAMINANT LEVELS AND MAXIMUM CONTAMINANT LEVEL GOALS FOR RADIONUCLIDES**

| # | Contaminant | MCL | MCLG |
|---|---|---|---|
| 1 | Gross alpha particle activity | 15 pCi/L (including radium-226 but excluding radon and uranium) | Zero |
| 2 | Combined radium-226 and radium-228 | 5 pCi/L (see note 1 below) | Zero |
| 3 | Beta particle and photon radioactivity | 4 millirem/year (see notes 2 and 3 below) | Zero |
| 4 | Uranium | 30 micrograms per liter (µg/L) | Zero |

Notes:
1. The combined radium-226 and radium-228 value is determined by adding the results of the analysis for radium-226 and the analysis for radium-228.
2. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year (mrem/year).
3. Except for the radionuclides listed in Table 200.11, the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalents must be calculated on the basis of 2 liters per day drinking water intake using the 168 hour data list in AMaximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure, NBS (National Bureau of Standards) Handbook 69 as amended August 1963, U.S. Department of Commerce[1]. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 mrem/year.
[1] This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of this document are available from the National Technical Information Service, NTIS ADA 280 282, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia 22161. The toll-free number is 800-553-6847. Copies may be inspected at EPA's Drinking Water Docket, 401 M Street, SW., Washington, DC 20460; or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

**TABLE 200.11 AVERAGE ANNUAL CONCENTRATIONS ASSUMED TO PRODUCE A TOTAL BODY OR ORGAN DOSE OF 4 mrem/yr**

| # | Radionuclide | Critical organ | pCi per liter |
|---|---|---|---|
| 1 | Tritium | Total body | 20,000 |
| 2 | Strontium-90 | Bone marrow | 8 |

B. Compliance dates for combined radium-226 and radium-228, gross alpha particle activity, gross beta particle, photon radioactivity, and uranium:

1. CWSs must comply with the MCLs listed in Table 200.10 beginning December 8, 2003 and compliance shall be determined in accordance with the requirements of § 411. Compliance

with the reporting requirements for radionuclides is listed in Part XII (Consumer Confidence Report) Appendix F and Part VII (Public Notification) Appendices B and is required beginning December 8, 2003.

C. BATs for radionuclides

1. The Administrator pursuant to § 1412 of the SDWA has identified as indicated in the following table, the best available technology to achieve compliance with the MCLs for combined radium-226 and radium-228, uranium, gross alpha particle activity, beta particle and photon radioactivity.

**TABLE 200.12 BATs FOR COMBINED RADIUM-226 AND RADIUM-228, URANIUM, GROSS ALPHA PARTICLE ACTIVITY, BETA PARTICLE AND PHOTON RADIOACTIVITY**

| # | **Contaminant** | **BATs** |
|---|---|---|
| 1 | Combined radium-226 and radium-228 | Ion exchange, reverse osmosis, lime softening |
| 2 | Uranium | Ion exchange, reverse osmosis, lime softening, coagulation/filtration |
| 3 | Gross alpha particle activity (excluding radon and uranium) | Reverse osmosis |
| 4 | Beta particle and photon radioactivity | Ion exchange, reverse osmosis |

D. Compliance technologies for radionuclides for small water systems

**TABLE 200.13 COMPLIANCE TECHNOLOGIES FOR RADIONUCLIDES FOR SMALL WATER SYSTEMS AND LIMITATIONS OF USE**

| # | Unit Technologies | Limitations (see footnotes) | Operator skill level[1] | Raw water quality range and considerations[1] |
|---|---|---|---|---|
| 1. | Ion exchange (IE) | a | Intermediate | All ground waters |
| 2. | Point of use (POU[2]) | b | Basic | All ground waters |
| 3. | Reverse osmosis (RO) | c | Advanced | Surface waters usually require pre-filtration |
| 4. | POU[2] RO | b | Basic | Surface waters usually require pre-filtration |
| 5. | Lime softening | d | Advanced | All waters |
| 6. | Green sand filtration | e | Basic | |
| 7. | Co-precipitation with barium sulfate | f | Intermediate to Advanced | Ground waters with suitable water quality |
| 8. | Electrodialysis/ electrodialysis reversal | | Basic to Intermediate | All ground waters |
| 9. | Pre-formed hydrous manganese oxide filtration | g | Intermediate | All ground waters |
| 10. | Activated alumina | a, h | Advanced | All ground waters; competing anion concentrations may affect regeneration frequency |
| 11. | Enhanced coagulation/ filtration | i | Advanced | Can treat a wide range of water qualities |

[1] National Research Council (NRC). Safe Water from Every Tap: Improving Water Service to Small Communities. National Academy Press. Washington, D.C. 1997. Basic means Level 1, Intermediate means Level 2 or 3 and Advanced means Level 4 as defined in § 1400.
[2] A POU, or "point-of-use" technology is a treatment device installed at a single tap used for the purpose of reducing contaminants in drinking water at that one tap. POU devices are typically installed at the kitchen tap. See the April 21, 2000 NODA for more details.

Limitations Footnotes: Technologies for Radionuclides:
a The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.
b When POU devices are used for compliance, programs for long-term operation, maintenance, and monitoring must be provided by water utility to ensure proper performance.
c Reject water disposal options should be carefully considered before choosing this technology. See other RO limitations described in the SWTR Compliance Technologies Table.
d The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.
e Removal efficiencies can vary depending on water quality.
f This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.
g This technology is most applicable to small systems that already have filtration in place.
h Handling of chemicals required during regeneration and pH adjustment may be too difficult for small systems without an adequately trained operator.
i Assumes modification to a coagulation/filtration process already in place.

**TABLE 200.14 COMPLIANCE TECHNOLOGIES BY SYSTEM SIZE CATEGORY FOR RADIONUCLIDES**

| # | Contaminant | Compliance Technologies[1] for systems size categories (population served) | | |
|---|---|---|---|---|
| | | 25-500 | 501-3,300 | 3,300-10,000 |
| 1 | Combined radium-226 and radium-228 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | 1, 2, 3, 4, 5, 6, 7, 8, 9 |
| 2 | Gross alpha particle activity | 3, 4 | 3, 4 | 3, 4 |
| 3 | Beta particle activity and photon activity | 1, 2, 3, 4 | 1, 2, 3, 4 | 1, 2, 3, 4 |
| 4 | Uranium | 1, 2, 4, 10, 11 | 1, 2, 3, 4, 5,10,11 | 1, 2, 3, 4, 5, 10, 11 |

NOTE: [1]Numbers correspond to those technologies found listed in the Table 200.13 of this section.

**§ 210 RESERVED**

# PART III
# SANITARY SURVEYS

**§ 301 PURPOSE**

Sanitary surveys, or on-site inspections, are conducted to evaluate public water systems for delivery of safe drinking water by assessing operation and maintenance practices, providing technical assistance, and determining compliance with the NNSDWA and the NNPDWR.

**§ 302 AUTHORITY**

Pursuant to the NNSDWA § 107(A), 22 N.N.C. § 2507(A), the Director has the authority to require PWSs to respond to significant deficiencies found in a sanitary survey, to conduct a Composite Correction Program (CCP), and to assure that PWSs implement any follow-up recommendations that result from the CCP.

**§ 303 GUIDELINES FOR SANITARY SURVEYS**

Sanitary surveys, or on-site inspections, will be performed by the PWSSP, in accordance with the United States Environmental Protection Agency, Region 9's *Conducting Sanitary Surveys of Public Water Systems Guidance*.

**§ 304 SANITARY SURVEYS**

A. Groundwater systems must provide the Director, at his/her request, any existing information that will enable the Director to conduct a sanitary survey.

B. For the purposes of this part, a "sanitary survey" as conducted by the Director, includes but is not limited to, an onsite review of the water source(s) (identifying sources of contamination by using results of source water assessments or other relevant information, where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources, and operations and the distribution of safe drinking water.

C. The sanitary survey must include an evaluation of the applicable components listed in paragraphs (C)(1) through (8) of this section:

1. Source,

2. Treatment,

3. Distribution system,

4. Finished water storage,

5. Pumps, pump facilities, and controls,

6. Monitoring, reporting, and data verification,

7. System management and operation, and

8. Operator compliance with PWSSP requirements.

**§ 305 SCHEDULING OF SANITARY SURVEYS**

A. The PWSSP will schedule surveys of all public water systems, as follows:

1. Each public water system that utilizes a groundwater source(s) will be surveyed, or inspected, on a two to five year frequency based on the compliance status.

2. Every surface water treatment plant will be inspected on an annual basis. The distribution system extending from the treatment plant will be inspected on a two to five year frequency.

3. Every public water system that utilizes unfiltered Groundwater Under the Direct Influence of Surface Water will be inspected annually.

a. The public water system must be subject to an annual on-site inspection to

assess the watershed control program and disinfection treatment process. Either the Director or a person approved by the Director must conduct the on-site inspection. The inspection must be conducted by competent individuals such as sanitary and civil engineers, sanitarians, or technicians who have experience and knowledge about the operation and maintenance of a public water system, and who have a sound understanding of public health principles and waterborne diseases. A report of the on-site inspection summarizing all findings must be prepared every year and forwarded to the Director. The on-site inspection must indicate to the Director's satisfaction that the watershed control program and disinfection treatment process are adequately designed and maintained. The on-site inspection must include:

i. A review of the effectiveness of the watershed control program;

ii. A review of the physical condition of the source intake and how well it is protected;

iii. A review of the public water systems equipment maintenance program to ensure there is low probability for failure of the disinfection process;

iv. An inspection of the disinfection equipment for physical deterioration;

v. A review of operating procedures;

vi. A review of data records to ensure that all required tests are being conducted and recorded and disinfection is effectively practiced; and

vii. Identification of any improvements which are needed in the equipment, public water system maintenance and operation, or data collection.

4. Consecutive water systems will be inspected on a two to five year basis.

**§ 306 REPORTING**

A. A report of findings will be sent to the owner/operator within 30 days after the inspection has been completed. The report will outline the compliance status with the NNSDWA and the NNPDWR and any other deficiencies pertaining to the infrastructure, operation, and maintenance that may affect the delivery of safe drinking water. A courtesy copy will be forwarded to persons who participated in the sanitary survey.

B. The owner/operator shall respond to the report of findings and submit a compliance schedule that addresses each deficiency within 45 days after the date of inspection.

**§ 307 INSPECTIONS OF NONCOMPLYING PUBLIC WATER SYSTEMS**

A. Public water systems that have been determined by the PWSSP to be in noncompliance will be inspected annually, or more frequently as needed, to bring the system into compliance.

B. The PWSSP will conduct follow-up inspections of systems in noncompliance. PWSSP will provide technical assistance to owners/operators in order to achieve compliance.

# PART IV
# SAMPLING AND ANALYTICAL REQUIREMENTS

**§ 401 PURPOSE**

The purpose of this part is to ensure that all sampling and analytical requirements are consistent with the NNSDWA and the NNPDWR. A monitoring schedule may be prepared by the Navajo PWSSP staff for use by the public water system owner/operator to ensure compliance with the monitoring requirements.

NOTE: Analytical methodologies for each contaminant group are listed in Appendix A.

**§ 402 CERTIFIED LABORATORIES**

A. For the purpose of determining compliance with §§ 404 through 415, Appendix A, C, and D, samples may be considered only if they have been analyzed by a laboratory approved by the EPA, except that measurements for alkalinity, calcium, conductivity, disinfectant residual, orthophosphate, pH, silica, temperature and turbidity may be performed by any person acceptable to the EPA.

B. Nothing in these regulations shall be construed to preclude the Director or authorized representative(s) from taking samples or from using the results from such samples to determine compliance by a public water system owner or operator with applicable requirements of these regulations.

**§ 403 RESERVED**

**§ 404 MICROBIOLOGICAL SAMPLING AND ANALYTICAL REQUIREMENTS**

Coliform bacteria sampling and analysis for all types of public water systems must be performed according to the provisions of Part XXVII of these regulations.

**§ 405 SAMPLING AND ANALYTICAL REQUIREMENTS FOR INORGANIC CHEMICALS**

CWSs and NTNCWSs shall conduct sampling and analyses to determine compliance with the MCLs (antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium and thallium) specified in § 203 in accordance with this section.

Each public water system shall sample at the time designated by the Director during each three-year compliance period.

A. Sampling and analyses shall be conducted as follows:

1. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment and have the sample(s) analyzed. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment and have the sample(s) analyzed. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

   NOTE: For purposes of this subsection surface water systems include systems with a combination of surface and groundwater sources.

3. If a system draws water from more than one source and the sources are combined before entering the distribution system, the system must obtain a sample at an entry point to the distribution system during periods of normal operation (i.e., all the sources are in use and ample time is allowed for water from the furthest source to reach the sampling point).

B. The frequency of sampling and analyses conducted to determine compliance with the MCLs specified in § 203 for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium and thallium shall be as follows:

1. Groundwater systems shall take one sample at each sampling point once every three years.

Surface water systems, combined surface/ground water systems or GWUDI shall take one sample annually at each sampling point.

2. All new systems or systems that use a new source of water and that will begin operation after January 22, 2004 must demonstrate compliance with the arsenic MCL within a period of time specified by the Director. The system must also comply with the initial sampling frequencies specified by the Director to ensure a system can demonstrate compliance with the arsenic MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

C. Composite Samples for Inorganic Chemicals:

Composite samples from a maximum of five samples is allowed, provided that the public water system notify the Director in writing and that the detection limit of the method used for analysis is less than one-fifth of the MCL. Detection limits for each analytical method and MCLs for each inorganic contaminant are listed in Appendix A, Table 400-A-2. Compositing of samples must be done in the laboratory.

1. If the concentration in the composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, then a follow-up sample must be taken within 14 days at each sampling point included in the composite. These samples must be analyzed for the contaminants which exceeded one-fifth of the MCL in the composite sample.

2. If the population served by the system is greater than 3,300 persons, then compositing may only be allowed by the Director at sampling points within a single system.

   In systems serving less than or equal to 3,300 persons, compositing may be allowed among different systems provided that the 5-sample limit is maintained.

3. If duplicates of the original sample taken from each sampling point used in the composite are available, then the system may use the duplicates instead of resampling. The duplicates must be analyzed and the results reported to the Director within 14 days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.

D. Confirmation Samples:

1. If analytical results indicate an exceedance of the MCL for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium:

   a. The public water system must collect one sample as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point.

E. Compliance with the MCLs listed in § 203 shall be determined based on analytical result(s) obtained at each sampling point.

1. For public water systems which collect more than one sample per year, compliance with the MCLs for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium or thallium is determined by a running annual average at any sampling point.

   a. If the average at any sampling point is greater than the MCL, then the system is out of compliance.

   b. If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately.

   c. Any sample below the method detection limit shall be calculated as zero for the purpose of determining the annual average.

   d. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

2. For public water systems which are sampling annually, or less frequently, the system is out of compliance with the MCLs for antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, or thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the Director, the determination of compliance will be based on the average of the two samples. If a public water system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

a. Arsenic sampling results will be reported to the nearest 0.001 mg/L

3. If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the Director may allow the public water system to give public notice to only the area served by that portion of the distribution system which is out of compliance.

F. Response to Violations of the MCL for Inorganic Chemicals

1. Compliance with the MCLs listed in § 203 shall be determined based on analytical result(s) obtained at each sampling point as required in subsection (E) of this section.

2. The Director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by his/her authorized representative(s).

3. If the result of an analysis indicates that the level of arsenic listed in § 203 exceeds the MCL, then;

a. the public water system owner or operator shall report to the Director within seven days, and

b. initiate three additional analyses at the same sampling point within one month.

4. When the average of four analyses made, pursuant to subsection (3) of this section, rounded to the same number of significant figures as the MCL for arsenic exceeds the MCL, the water system owner or operator shall:

a. notify the Director pursuant to § 502; and

b. give notice to the public pursuant to § 603.

Sampling after public notification shall be at a frequency designated by the Director and shall continue until the MCL has not been exceeded in two successive samples or until a sampling schedule as a condition to a variance, exemption or enforcement action shall become effective.

G. Waivers

1. The system may apply to the Director, in writing, for a waiver from the sampling frequencies specified in subsection (B)(1) of this section.

a. The Director may grant a public water system a waiver for sampling of “free” cyanide, provided that the Director determines that the water system is not vulnerable due to lack of any industrial source of cyanide.

2. A condition of the waiver shall require that a public water system take a minimum of one sample while the waiver is effective. The term during which the waiver is effective shall not exceed one nine-year compliance cycle.

3. The Director may grant a waiver provided surface water systems have sampled annually for at least three years and groundwater systems have conducted a minimum of three rounds of sampling. Both surface and groundwater systems shall demonstrate that all previous analytical results were below the MCL.

4. Systems that use a new water source are not eligible for a waiver until three rounds of sampling from the new source have been completed.

5. In determining the appropriate reduced sampling frequency, the Director shall consider:

a. Reported concentrations from all previous sampling;

b. The degree of variation in reported concentrations; and

c. Other factors which may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the system's configuration, changes in the system's operating procedures, or changes in stream flows or characteristics.

6. A decision by the Director to grant a waiver shall be made in writing and shall set forth the basis for the determination. The public water system shall specify the basis for its request. The Director shall review and, where appropriate, revise its determination of the appropriate sampling frequency when the system submits new sampling data or when other data relevant to the system's appropriate sampling frequency become available.

7. Systems which exceed the MCLs as calculated in subsection (E)(1) of this section shall sample quarterly beginning in the next quarter after the violation occurred.

8. The Director may decrease the quarterly sampling requirement to the frequencies specified in subsections (B)(1) and (G)(1) of this section provided that the system is reliably and consistently below the MCL. In no case can the Director make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

**§ 406 SAMPLING AND ANALYTICAL REQUIREMENTS FOR ASBESTOS**

A. Sampling and analyses shall be conducted as follows:

The frequency of sampling conducted to determine compliance with the MCL for asbestos specified in § 203 shall be conducted as follows:

1. Each CWS and NTNCWS is required to sample for asbestos during the first three-year compliance period of each nine-year compliance cycle.

B. Confirmation Sampling for Asbestos

1. If the initial sample exceeds the MCL for asbestos, then the public water system must collect a confirmation sample immediately after the initial asbestos sample was taken (but not to exceed two weeks) at the same sampling point.

C. Compliance with the MCL for Asbestos

1. For public water systems which collect more than one sample per year, compliance with the MCLs for asbestos is determined by a running annual average at any sampling point.

   a. If the average at any sampling point is greater than the MCL, then the system is out of compliance.

   b. If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately.

   c. Any sample below the detection limit shall be calculated as zero for the purpose of determining the annual average.

   d. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

2. For systems which are sampling annually, or less frequently, the system is out of compliance with the MCLs for asbestos if the level of the contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the Director, the determination of compliance will be based on the average of the two samples. If a public water system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

3. If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the Director may allow the system to give public notice to only the area served by that portion of the system which is out of compliance.

D. Response to Violations of the MCL for Asbestos

1. A system which exceeds the MCLs as determined in subsection (C) of this section shall sample quarterly beginning in the next quarter after the violation occurred.

2. The Director may decrease the quarterly sampling requirement to the frequency specified in subsection (A) of this section provided the Director has determined that the system is reliably and consistently below the MCL. In no case can the Director make this determination

unless a groundwater system takes a minimum of two quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four quarterly samples.

3. The Director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by his/her authorized representative(s).

E. Waivers

1. The public water system may apply to the Director to waive the asbestos requirement based on the following conditions;

   a. the system is not vulnerable to asbestos contamination in its source water; and/or

   b. contamination due to corrosion of asbestos-cement pipe(s).

2. If the Director grants the waiver, then the system is not required to sample during that specified nine-year compliance cycle. A waiver remains in effect until the completion of the nine-year compliance cycle.

   a. Systems not receiving a waiver must sample and analyze in accordance with the provisions of subsection (A) of this section.

3. A system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and where asbestos contamination is most likely to occur.

4. A system vulnerable to asbestos contamination due solely to source water shall sample in accordance with the provisions of subsection (A) of this section.

5. A system vulnerable to asbestos contamination due to both its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and where asbestos contamination is most likely to occur.

**§ 407 SAMPLING AND ANALYTICAL REQUIREMENTS FOR NITRATE**

All public water systems shall collect a sample at each entry point to the distribution system after treatment to determine compliance with the MCL for nitrate in § 203.

A. Sampling and analyses shall be conducted as follows:

1. All public water systems served by groundwater systems shall sample annually. Surface water systems, combined surface and groundwater systems, or GWUDI shall take one sample quarterly.

2. For all public water systems, the repeat sampling frequency for groundwater systems shall be quarterly for at least one year following any one sample in which the concentration is greater than or equal to fifty percent (≥50%) of the MCL. The Director may allow a groundwater system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently below the MCL.

3. For CWSs and NTNCWSs, the Director may allow a surface water system, combined surface and groundwater systems, or GWUDI to reduce the sampling frequency to annually if all analytical results from four consecutive quarters are less than fifty percent (<50 %) of the MCL. A surface water system shall return to quarterly sampling if any one sample is ≥50 % of the MCL.

4. After the completed round of quarterly sampling, each CWS and NTNCWS which is sampling annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

B. Confirmation samples for Nitrate

1. If analytical results indicate an exceedance of the MCL for Nitrate:

   a. The public water system shall collect a confirmation sample within 24 hours upon notification of the analytical result(s).

   b. Systems unable to comply with the 24-hour sampling requirement must:

i. immediately notify persons served by the public water system in accordance with §§ 603 and 604 and meet other Tier 1 public notification requirements under Part VI of these regulations; and,

ii. collect and analyze a confirmation sample within two weeks of notification of the analytical results of the first sample.

2. If a Director-required confirmation sample is taken for Nitrate, then the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with subsection (C) of this section. The Director has the discretion to delete results of obvious sampling errors.

C. Compliance with the MCL for Nitrate

1. Compliance with the MCL for nitrate is determined based on one sample, if the levels are below the MCL. If the levels of nitrate exceed the MCL in the initial sample, a confirmation sample is required and compliance shall be determined based on the average of the initial and confirmation samples.

2. If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the Director may allow the system to give public notice to only the area served by that portion of the distribution system which is out of compliance.

D. Response to Violations of the MCL for Nitrate

1. The Director may require more frequent sampling or may require confirmation samples for results that exceed the MCL.

2. The Director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by the Director's authorized representative(s).

3. If the result of an analysis indicates that the level of nitrate listed in § 203 exceeds the MCL, the public water system owner or operator shall:

a. report to the Director within seven days; and

b. initiate three additional analyses at the same sampling point within one month.

4. When the average of four analyses made pursuant to subsection (3) of this section, rounded to the same number of significant figures as the MCL for nitrate exceeds the MCL, the public water system owner or operator shall:

a. notify the Director pursuant to § 502; and

b. give notice to the public pursuant to § 603.

Sampling after public notification shall be at a frequency designated by the Director and shall continue until the MCL has not been exceeded in two successive samples or until a sampling schedule as a condition to a variance, exemption or enforcement action shall become effective.

5. The provisions of subsections (3) and (4) of this section notwithstanding, compliance with the MCL for nitrate shall be determined on the basis of the mean of two analyses. When a level exceeding the MCL for nitrate is found, a second analysis shall be initiated within twenty-four hours, and if the mean of the two analyses exceeds the MCL, the public water system owner or operator shall report the findings to the Director pursuant to § 502 and shall notify the public pursuant to § 603.

E. Waivers

1. There are no waivers of the nitrate sampling requirements.

**§ 408 SAMPLING AND ANALYTICAL REQUIREMENTS FOR NITRITE**

All public water systems shall sample to determine compliance with the MCL for nitrite in § 203.

A. Sampling and analyses shall be conducted as follows:

1. All public water systems served by groundwater shall sample at a frequency specified by the Director. Surface water systems, combined surface and groundwater systems, or GWUDI shall take one sample annually.

2. All public water systems shall take one sample at each entry point to the distribution system after treatment.

B. Confirmation samples for Nitrite

1. If analytical results indicate an exceedance of the MCL for Nitrite:

a. The public water system must collect a confirmation sample within 24 hours upon receiving the analytical result(s).

b. Systems unable to comply with the 24-hour sampling requirement must:

i. immediately notify persons served by the public water system in accordance with § 605 and 606 and meet other Tier 1 public notification requirements under Part VI of these regulations; and,

ii. collect and analyze a confirmation sample within two weeks of notification of the analytical results.

C. Compliance with the MCL for Nitrite

1. Compliance with the MCL for nitrite is determined based on one sample, if the levels are below the MCL. If the levels of nitrite exceed the MCL in the initial sample, a confirmation sample is required and compliance shall be determined based on the average of the initial and confirmation samples.

2. All public water systems where an analytical result for nitrite is <50 % of the MCL shall sample at the frequency specified by the Director.

3. The repeat sampling frequency for any public water system whose concentration is ≥50 % of the MCL, shall sample quarterly for at least one year. The Director may allow a system to reduce the sampling frequency to annually after determining the system is reliably and consistently below the MCL.

4. Public water systems which are sampling annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.

5. If a public water system has a distribution system separable from other parts of the distribution system with no interconnections, the Director may allow the system to give public notice to only the area served by that portion of the distribution system which is out of compliance.

D. Response to Violations of the MCL for Nitrite

1. The Director may require more frequent sampling or may require confirmation samples for results that exceed the MCL.

2. The Director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by the Director’s authorized representative(s).

E. Waivers

1. There shall be no waivers of the nitrite sampling requirements.

## § 409 SAMPLING AND ANALYTICAL REQUIREMENTS FOR VOLATILE ORGANIC CHEMICALS

CWSs and NTNCWSs shall conduct sampling and analyses to determine compliance with the MCLs listed in § 204, Table 200.3 (1) through (21), in accordance with this section.

Each public water system shall sample at the time designated by the Director during each three-year compliance period.

A. Sampling and analyses shall be conducted as follows:

1. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system after treatment and have the samples analyzed (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, or treatment plant within the distribution system.

2. Surface water systems, or water systems using a combination of surface/ground or GWUDI, shall take a minimum of one sample at each entry point to the distribution system after treatment and have the samples analyzed.

   Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, or treatment plant within the distribution system.

3. If a system draws water from more than one source and the sources are combined before entering the distribution system, the system must obtain a sample at an entry point to the distribution system during periods of normal operation (i.e., all the sources are in use and ample time is allowed for water from the furthest source to reach the sampling point).

4. Each CWS and NTNCWS shall take four consecutive quarterly samples for each contaminant listed in § 204, Table 200.3 (2) through (21) during each three-year compliance period.

5. If the initial sampling for contaminants listed in § 204, Table 200.3 (1) through (21) have been conducted and the systems did not detect any contaminant listed in Table 200.3 (1) through (21), then each ground and surface water system shall take one sample annually beginning with the initial three-year compliance period.

6. After a minimum of three years of annual sampling, the Director may allow groundwater systems with no previous detection of any contaminant listed in § 204, Table 200.3 to take one sample during each three-year compliance period.

7. The Director may reduce the total number of samples a system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory and analyzed within 14 days of sample collection.

   a. If the concentration in the composite sample is greater than or equal to 0.0005 mg/L for any contaminant listed in § 204, Table 200.3 (1) through (21) then a follow-up sample must be taken and analyzed within 14 days from each sampling point included in the composite, and be analyzed for that contaminant.

   b. If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the Director within 14 days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.

   c. If the population served by the system is > 3,300 persons, then compositing may only be permitted by the Director at sampling points within a single system. In systems serving ≤3,300 persons, the Director may permit compositing among different systems provided the 5-sample limit is maintained.

B. Confirmation samples for Volatile Organic Chemicals

1. The Director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the Director, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified in

subsection (D) of this section. The Director will delete the results of obvious sampling errors from this calculation.

C. Detection Limits for Volatile Organic Chemicals

1. If a contaminant listed in Table 200.3 (2) through (21) is detected at a level exceeding 0.0005 mg/L in any sample, then:

a. The system must sample quarterly at each sampling point which resulted in a detection.

b. The Director may decrease the quarterly sampling requirement specified in subsection (C)(1)(a) of this section provided it has determined that the system is reliably and consistently below the MCL. In no case shall the Director make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

c. If the Director determines that the system is reliably and consistently below the MCL, the Director may allow the system to sample annually. Systems which sample annually must sample during the quarter(s) which previously yielded the highest analytical result.

d. Systems which have three consecutive annual samples with no detection of a contaminant may apply to the Director for a waiver as specified in subsection (F)(2) of this section.

e. Groundwater systems which have detected one or more of the following two-carbon organic compounds:

i. trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene, shall sample quarterly for vinyl chloride.

ii. A vinyl chloride sample shall be taken at each sampling point at which one or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the Director may reduce the quarterly sampling frequency of vinyl chloride sampling to one sample during each three-year compliance period.

iii. Surface water systems are required to sample for vinyl chloride as specified by the Director.

D. Compliance with § 204, Table 200.3 (1) through (21) shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

1. For public water systems which collect more than one sample per year, compliance with the MCLs listed in § 204, Table 200.3 (1) through (21) is determined by a running annual average at each sampling point.

a. Systems monitoring annually or less frequently whose sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.

b. If any one sample would cause the annual average to exceed the MCL, then the system is out of compliance immediately.

c. If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

d. Any sample below the detection limit shall be calculated at zero for the purpose of determining the annual average.

2. All new systems or systems that use a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL within a period of time specified by the Director. The system must also comply with the initial sampling frequencies specified by the Director to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

E. Response to Violations of the MCL for Volatile Organic Chemicals

1. Systems which violate the requirements of § 204, Table 200.3 (1) through (21), as determined by subsection (D) of this section, must sample quarterly. After a minimum of four consecutive quarterly samples which show the system is in compliance as specified in subsection (D) of this section and the system and the Director determines that the system is reliably and consistently below the MCL, the system may sample at the frequency and times specified in subsection (C)(1)(c) of this section.

2. The Director may increase required sampling where necessary to detect variations within the system.

F. Waivers

1. Each CWS and NTNCWS groundwater system which does not detect a contaminant listed in § 204, Table 200.3 (1) through (21) may apply to the Director for a waiver from the requirements of subsections (A)(5) and (6) of this section after completing the initial sampling of each nine-year compliance cycle. (For the purposes of this section detection is defined as ≥ to 0.0005 mg/L.)

   a. A waiver shall be effective for no more than six years (two three-year compliance periods).

   b. The Director may also issue waivers to small systems for the initial round of sampling for 1,2,4-trichlorobenzene.

2. The Director may grant a waiver after evaluating a vulnerability assessment survey which includes the following factor(s):

   a. Knowledge of previous use (including transport, storage, or disposal) of the contaminant(s) within the watershed or zone of influence of the system. If a determination by the Director reveals no previous use of the contaminant(s) within the watershed or zone of influence, a waiver may be granted.

   b. If previous use of the contaminant(s) is unknown or has been used previously, then the following factors shall be used to determine whether a waiver is granted.

      i. Previous analytical results.

      ii. The proximity of the system to a potential point or non-point source(s) of contamination. Point sources include, but are not limited to, spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.

      iii. The environmental persistence and transport of the contaminants.

      iv. The number of persons served by the water system and the proximity of a smaller system to a larger system.

      v. How well the water source is protected against contamination whether it is a surface or groundwater system. Groundwater systems must consider factors such as depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

3. As a condition of the waiver a groundwater system must:

   a. Take one sample at each sampling point during the time the waiver is effective (i.e. one sample during two three-year compliance periods or six years); and

   b. Update its vulnerability assessment survey every three years. If and when new potential sources of contamination have been identified to impact a drinking water source, then the vulnerability assessment survey must be updated and submitted to the Director.

   c. Based on this vulnerability assessment the Director must reconfirm that the system is not vulnerable.

d. If the Director does not make this reconfirmation within three years of the initial determination, then:

i. The waiver is invalidated; and

ii. The system is required to sample annually as specified in subsection (A)(5) of this section.

4. Each CWS and NTNCWS surface water system which does not detect a contaminant listed in § 204, Table 200.3 (1) through (21) may apply to the Director for a waiver from the requirements of subsection (A)(5) of this section after completing the initial sampling of each nine-year compliance cycle.

a. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL.

b. Systems meeting this criterion must be determined by the Director to be non-vulnerable based on a vulnerability assessment survey during each three-year compliance period.

c. Each system receiving a waiver shall sample at the frequency specified by the Director (if any).

5. The Director may allow the use of monitoring data collected during the previous "nine-year" compliance cycle for purposes of initial sampling compliance. If the data are generally consistent with the other requirements of this section, the Director may use these data (i.e., single sample rather than four quarterly samples) to satisfy the initial sampling requirement of subsection (A)(4) of this section. Systems which use grandfathered samples and did not detect any contaminant(s) listed in § 204, Table 200.3 (2) through (21) shall begin sampling annually in accordance with subsection (A)(5) of this section beginning with the initial three-year compliance period.

**§ 410 SAMPLING AND ANALYTICAL REQUIREMENTS FOR SYNTHETIC ORGANIC CHEMICALS**

CWSs and NTNCWSs shall conduct sampling and analyses to determine compliance with the MCLs listed in Table 200.4 (1) through (33) in § 204, in accordance with this section.

Each public water system shall conduct sampling and analyses at the time designated by the Director during each three-year compliance period.

For purposes of this section, surface water systems include systems with a combination of surface and groundwater sources.

A. Sampling and analyses shall be conducted as follows:

1. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system after treatment and have the sample analyzed (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. Surface water systems, or water systems using a combination of surface/ground or GWUDI, shall take a minimum of one sample at each entry point to the distribution system after treatment and have the samples analyzed.

Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, or treatment plant within the distribution system.

3. If a public water system draws water from more than one source and the sources are combined before entering the distribution system, the public water system must obtain a sample at an entry point to the distribution system during periods of normal operation (i.e., all the sources are in use and ample time is allowed for water from the furthest source to reach the sampling point).

4. Sampling frequency:

a. Each CWS and NTNCWS shall take four consecutive quarterly samples for each contaminant listed in § 204(A)(2), Table 200.4, during each three-year compliance

period beginning with the nine-year compliance cycle.

b. Public water systems serving more than 3,300 persons which do not detect a contaminant in the initial three-year compliance period, of a nine-year compliance cycle, may reduce the sampling frequency to a minimum of two quarterly samples in one year during each of the three-year compliance periods.

c. Public water systems serving less than or equal to 3,300 persons which do not detect a contaminant in the initial three-year compliance period may reduce the sampling frequency to a minimum of one sample during each of the three-year compliance periods.

5. The Director may reduce the total number of samples a public water system must analyze by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory and analyzed within 14 days of sample collection.

a. If the concentration in the composite sample detects one or more contaminants listed in § 204(A)(2), then a follow-up sample must be taken and analyzed within 14 days from each sampling point included in the composite, and be analyzed for that contaminant.

b. If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these instead of resampling. The duplicate must be analyzed and the results reported to the Director within 14 days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.

c. If the population served by the system is >3,300 persons, then compositing may only be permitted by the Director at sampling points within a single system. In systems serving ≤3,300 persons, the Director may permit compositing among different systems provided the 5-sample limit is maintained.

6. If sampling data are generally consistent with the requirements of subsection (A) of this section, then the Director may allow systems to use that data to satisfy the sampling requirement for the initial three-year compliance period.

7. The Director may increase the required sampling frequency, where necessary, to detect variations within the system (e.g. fluctuations in concentration due to seasonal use, changes in water source).

B. Confirmation samples for Synthetic Organic Chemicals

1. The Director may require a confirmation sample for positive or negative results. If a confirmation sample is required by the Director, the result must be averaged with the first sampling result and the average used for the compliance determination as specified by subsection (D)(1) of this section. The Director has the discretion to delete results of obvious sampling errors from this calculation.

C. Detection Limits for Synthetic Organic Chemicals

1. If an organic contaminant listed in § 204(A)(2) is detected (as defined by subsection (C)(2) of this section) in any sample, then:

a. Each system must sample quarterly at each sampling point which resulted in a detection.

b. The Director may decrease the quarterly sampling requirement specified in subsection (C)(1) (a) of this section provided it has determined that the system is reliably and consistently below the MCL. In no case shall the Director make this determination unless a:

i. groundwater system takes a minimum of two quarterly samples; or

ii. surface water system takes a minimum of four quarterly samples.

c. After the Director determines the public water system is reliably and consistently below the MCL, the Director may allow the system to sample annually. Public water

systems which sample annually must sample during the quarter that previously yielded the highest analytical result.

d. Public water systems which have 3 consecutive annual samples with no detection of a contaminant may apply to the Director for a waiver as specified in subsection (F)(2) of this section.

2. Detection, as used in this subsection, shall be defined as greater than or equal to the following concentrations for each contaminant.

**TABLE 400.1 DETECTION LIMIT**

| CONTAMINANT | LIMIT (mg/L) |
|---|---|
| Alachlor | 0.0002 |
| Aldicarb | 0.0005 |
| Aldicarb sulfoxide | 0.0005 |
| Aldicarb sulfone | 0.0008 |
| Atrazine | 0.0001 |
| Benzo(a)pyrene | 0.00002 |
| Carbofuran | 0.0009 |
| Chlordane | 0.0002 |
| Dalapon | 0.001 |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.00002 |
| Di(2-ethylhexyl) adipate | 0.0006 |
| Di(2-ethylhexyl) phthalate | 0.0006 |
| Dinoseb | 0.0002 |
| Diquat | 0.0004 |
| 2,4-D | 0.0001 |
| Endothall | 0.009 |
| Endrin | 0.00001 |
| Ethylene dibromide (EDB) | 0.00001 |
| Glyphosate | 0.006 |
| Heptachlor | 0.00004 |
| Heptachlor epoxide | 0.00002 |
| Hexachlorobenzene | 0.0001 |
| Hexachlorocyclopentadiene | 0.0001 |
| Lindane | 0.00002 |
| Methoxychlor | 0.0001 |
| Oxamyl | 0.002 |
| Picloram | 0.0001 |

| | |
|---|---|
| Polychlorinated biphenyls (PCBs) (as decachlorobiphenyl) | 0.0001 |
| Pentachlorophenol | 0.00004 |
| Simazine | 0.00007 |
| Toxaphene | 0.001 |
| 2,3,7,8-TCDD (Dioxin) | 0.000000005 |
| 2,4,5-TP (Silvex) | 0.0002 |

3. If PCBs (as one of seven Arochlors) are detected (as designated in this subsection) in any sample analyzed using Methods 505 or 508, the public water system shall re-analyze the sample using Method 508A to quantitate PCBs (as decachlorobiphenyl).

**TABLE 400.2 DETECTION LIMIT OF PCB**

| **AROCHLOR** | **DETECTION LIMIT (mg/L)** |
|---|---|
| 1016 | 0.00008 |
| 1221 | 0.02 |
| 1232 | 0.0005 |
| 1242 | 0.0003 |
| 1248 | 0.0001 |
| 1254 | 0.0001 |
| 1260 | 0.0002 |

a. Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A.

D. Compliance with the MCL for Synthetic Organic Chemicals

1. Compliance with § 204(A)(2) shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

a. For public water systems which are conducting sampling at a frequency greater than annual, compliance with the MCL is determined by a running annual average at each sampling point.

i. Public water systems monitoring annually or less frequently whose sample result exceeds the regulatory detection level as defined by subsection (C)(2) of this section must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.

ii. If any sample result will cause the running annual average to exceed the MCL at any sampling point, the public water system is out of compliance with the MCL immediately.

iii. If a public water system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

iv. If a sample result is less than the detection limit, zero will be used to calculate the annual average.

2. All new public water systems or systems that use a new source of water that begin operation after January 22, 2004 must demonstrate compliance with the MCL within a period of time specified by the Director. The system must also comply with the initial sampling frequencies specified by the Director to ensure a system can demonstrate compliance with the MCL. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this section.

E. Response to Violations of the MCL for Synthetic Organic Chemicals

1. Public water systems which violate the requirements of § 204(A)(2) as determined by subsection (D)(1) of this section must sample quarterly. After a minimum of four quarterly samples show the system is in compliance and the Director determines the public water system is reliably and consistently below the MCL, as specified in subsection (D)(1) of this section, the public water system shall sample at the frequency specified in subsection (C)(1)(c) of this section.

2. The Director has the authority to determine compliance or initiate enforcement action based upon analytical results and other information compiled by his/her authorized representative(s).

F. Waivers

1. Each CWS and NTNCWS may apply to the Director for a waiver from the requirement of subsection (A)(4) of this section. A public water system must reapply for a waiver for each three-year compliance period.

2. A Director may grant a waiver after evaluating the following factor(s):

a. Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the public water system. If a determination by the Director reveals no previous use of the contaminant within the watershed or zone of influence, a waiver may be granted.

b. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

i. Previous analytical results.

ii. The proximity of the public water system to a potential point or non-point source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Non-point sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.

iii. The environmental persistence and transport of the pesticide or PCBs.

iv. How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing.

v. Elevated nitrate levels at the water supply source.

vi. Use of PCBs in equipment used in the production, storage, or distribution of water (i.e., PCBs used in pumps, transformers, etc.).

**§ 411 SAMPLING FREQUENCY AND COMPLIANCE REQUIREMENTS FOR RADIONUCLIDES IN COMMUNITY WATER SYSTEMS**

A. Sampling, analysis, and compliance requirements for radionuclides.

Sampling and analyses for the following contaminants shall be conducted to determine compliance with § 209 (radioactivity) in accordance with the methods found in Appendix A. With the written permission of the Director, concurred in by the Administrator of the EPA, or their equivalent determined by EPA an alternate analytical technique may be employed in accordance with Appendix A § 401-A.

1. Community water systems (CWSs) must conduct initial monitoring to determine compliance with § 209(A) by December 31, 2007. For the purposes of monitoring for gross alpha particle

activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, “detection limit” is defined as in Appendix A § 405-A(C).

a. Applicability and sampling location for existing CWSs or sources. All existing CWSs using ground water, surface water or systems using both ground and surface water must sample at every entry point to the distribution system that is representative of all sources being used under normal operating conditions. The public water system must take each sample at the same sampling point unless conditions make another sampling point more representative of each source or the Director has designated a distribution system location, in accordance with subsection (A)(2)(b)(iii) of this section.

b. Applicability and sampling location for new CWSs or sources.

i. All new CWSs or CWSs that use a new source of water must begin to conduct initial monitoring for the new source within the first quarter after initiating use of the source.

ii. CWSs must conduct more frequent monitoring when ordered by the Director in the event of possible contamination or when changes in the distribution system or treatment processes occur which may increase the concentration of radioactivity in finished water.

2. Initial monitoring: Public water systems must conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows:

a. Public water systems without acceptable historical data, as defined below, must collect four consecutive quarterly samples at all sampling points before December 31, 2007.

b. Grandfathering of data: The Director may allow historical monitoring data collected at a sampling point to satisfy the initial monitoring requirements for that sampling point, for the following situations.

i. To satisfy initial monitoring requirements, a CWS having only one entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

ii. To satisfy initial monitoring requirements, a CWS with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

iii. To satisfy initial monitoring requirements, a CWS with appropriate historical data for a representative point in the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003, provided that the Director finds that the historical data satisfactorily demonstrate that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points. The Director must make a written finding indicating how the data conforms to these requirements.

c. For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the Director may waive the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two quarters are below the detection limit.

d. If the average of the initial monitoring results for a sampling point is above the MCL, the public water system must collect and analyze quarterly samples at that sampling point until the system has results from four consecutive quarters that are at or below the MCL, unless the public water system enters into another schedule as part of a formal compliance agreement with the Director.

3. Compositing: To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a public water system may composite up to four consecutive quarterly samples from a single entry point if analysis is done within a year of the first sample. The Director will treat analytical results from the composited

as the average analytical result to determine compliance with the MCLs and the future monitoring frequency. If the analytical result from the composited sample is greater than 2 MCL, the Director may direct the system to take additional quarterly samples before allowing the system to sample under a reduced monitoring schedule.

4. A gross alpha particle activity measurement may be substituted for the required radium-226 measurement provided that the measured gross alpha particle activity does not exceed 5 pCi/L. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/L. The gross alpha measurement shall have a confidence interval of 95% (1.65σ, where σ is the standard deviation of the net counting rate of the sample) for radium-226 and uranium. When a public water system uses a gross alpha particle activity measurement in lieu of a radium-226 and/or uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for radium-226 and/or uranium. If the gross alpha particle activity result is less than detection,2 the detection limit will be used to determine compliance and the future monitoring frequency.

B. Detection Limits for Radionuclides

For the purpose of sampling radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of ± 100% at the 95% confidence level (1.96 sigma, where sigma is the standard deviation of the net counting rate of the sample).

1. To determine compliance with Table 200.10, (#'s 1, 2 and 4) the detection limit shall not exceed the concentrations in Table 400.3.

**TABLE 400.3 DETECTION LIMITS FOR GROSS ALPHA PARTICLE ACTIITY, RADIUM 226, RADIUM 228 AND URANIUM**

| Contaminant | Detection Limit |
|---|---|
| Gross alpha particle activity | 3 pCi/L |
| Radium 226 | 1 pCi/L |
| Radium 228 | 1 pCi/L |
| Uranium | 1µg/L |

2. To determine compliance with § 209(A)(1) (#3 - Beta particle and photon radioactivity), the detection limits shall not exceed the concentrations listed in Table 400.4.

**TABLE 400.4 DETECTION LIMITS FOR MAN-MADE BETA PARTICLE AND PHOTON EMITTERS**

| **RADIONUCLIDE** | **DETECTION LIMIT** |
|---|---|
| Tritium | 1,000 pCi/L |
| Strontium-89 | 10 pCi/L |
| Strontium-90 | 2 pCi/L |
| Iodine-131 | 1 pCi/L |
| Cesium-134 | 10 pCi/L |
| Gross Beta | 4 pCi/L |
| Other Radionuclides | 1/10 of the applicable limit |

C. Compliance with the MCL for Radionuclides

1. The Director may require more frequent monitoring than specified in subsection (A) of this section, or may require confirmation samples at the Director's discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Each public water system shall monitor at the time designated by the Director during each compliance period.

3. Compliance with § 209(A) will be determined based on the analytical result(s) obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

   a. For public water systems sampling more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL.

   b. For public water systems sampling more than once per year, if any sample result will cause the running average to exceed the MCL at any sample point, the system is out of compliance with the MCL immediately.

   c. Public water systems must include all samples taken and analyzed under the provisions of this section in determining compliance, even if that number is greater than the minimum required.

   d. If a public water system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

   e. If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, 2 the detection limit will be used to calculate the annual average.

4. The Director shall have the discretion to delete results of obvious sampling or analytic errors.

5. If the MCL for radioactivity set forth in § 209(A) is exceeded, the operator of a CWS must give notice to the Director pursuant to § 502 and to the public as required by § 603.

D. Response to Violations of the MCL for Radionuclides

1. The Director has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by an authorized representative.

2. To judge compliance with the MCLs listed in § 209, averages of data shall be used and shall be rounded to the same number of significant figures as the MCL for the substance in question.

E. Reduced Monitoring

1. The Director may allow CWSs to reduce the future frequency of monitoring from once every three years to once every six or nine years at each sampling point, based on the following criteria.

   a. If the average of the initial monitoring results for each contaminant (i.e., gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit specified in Table 400.4, in § 411(B)(1), the system must collect and analyze for that contaminant using at least one sample at that sampling point every nine years.

   b. For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below 2 the MCL, the system must collect and analyze for that contaminant using at least one sample at that sampling point every six years.

   c. For combined radium-226 and radium-228, the analytical results must be combined.

i. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below 2 the MCL, the CWS must collect and analyze for that contaminant using at least one sample at that sampling point every six years.

d. For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above 2 the MCL but at or below the MCL, the public water system must collect and analyze at least one sample at that sampling point every three years.

e. For combined radium-226 and radium-228, the analytical results must be combined.

i. If the average of the combined initial monitoring results for radium-226 and radium-228 is above 2 the MCL but at or below the MCL, the public water system must collect and analyze at least one sample at that sampling point every three years.

f. Public water systems must use the samples collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods (e.g., if a system's sampling point is on a nine year monitoring period, and the sample result is above 2 MCL, then the next monitoring period for that sampling point is three years).

g. If a public water system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that sampling point until the system has results from four consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the Director.

**§ 412 MONITORING AND COMPLIANCE REQUIREMENTS FOR BETA PARTICLE AND PHOTON RADIOACTIVITY**

A. To determine compliance with the maximum contaminant levels in § 209 for beta particle and photon radioactivity, a public water system must monitor at a frequency as follows:

1. CWSs (both surface and ground water) designated by the Director as vulnerable must sample for beta particle and photon radioactivity. Public water systems must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system, beginning within one quarter after being notified by the Director. Public water systems already designated by the Director must continue to sample until the Director reviews and either reaffirms or removes the designation.

a. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 50 pCi/L (screening level), the Director may reduce the frequency of monitoring at that sampling point to once every 3 years. Public water systems must collect all samples required in (A)(1) of this section during the reduced monitoring period.

b. For systems in the vicinity of a nuclear facility, the Director may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the Director determines if such data is applicable to a particular public water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the CWS's entry point(s) in accordance with (A)(1) of this section.

2. CWSs (both surface and ground water) designated by the Director as utilizing waters contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. Public water systems must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system, beginning within one quarter after being notified by the Director. Systems already designated by the Director as systems using waters contaminated by effluents from nuclear facilities must continue to sample until the Director reviews and either reaffirms or removes the designation.

a. Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended.

b. For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. As ordered by the Director, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

c. Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. The latter procedure is recommended.

d. If the gross beta particle activity beta minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/L, the Director may reduce the frequency of monitoring at that sampling point to every 3 years. Public water systems must collect all samples required in (A)(2) of this section during the reduced monitoring period.

e. For systems in the vicinity of a nuclear facility, the Director may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the Director determines if such data is applicable to a particular public water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the CWS's entry point(s) in accordance with (A)(2) of this section.

3. CWSs designated by the Director to monitor for beta particle and photon radioactivity cannot apply to the Director for a waiver from the monitoring frequencies specified in (A)(1) or (A)(2) of this section.

4. CWSs may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

5. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with § 209 (A)(1)(#3,Note 2), using the formula in § 209(A)(1)(#3, Note 3). Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

6. Public water systems must monitor monthly at the sampling point(s) which exceed the maximum contaminant level in § 209(A)(1) beginning the month after the exceedance occurs. Public water systems must continue monthly monitoring until the system has established, by a rolling average of 3 monthly samples, that the MCL is being met. Public water systems who establish that the MCL is being met must return to quarterly monitoring until the systems meet the requirements set forth in (A)(1)(b) or (A)(2)(a) of this section.

**§ 413 TURBIDITY SAMPLING AND ANALYTICAL REQUIREMENTS**

The requirements in this section apply to unfiltered systems that the Director has determined, in writing pursuant to § 2535 of the NNSDWA, must install filtration, until June 29, 1993, or until filtration is installed, whichever is later.

A. Samples shall be taken by public water system owners or operators for both community and non-CWSs at a representative entry point(s) to the water distribution system at least once per day, for the purpose of making turbidity measurements to determine compliance with § 206. If the Director determines that a reduced sampling frequency in a non-CWS will not pose a risk to public health, the Director can reduce the required sampling frequency. The option of reducing the turbidity frequency shall be permitted only in those public water systems that practice disinfection and which maintain an active residual disinfectant in the distribution system, and in cases where the Director has indicated in writing that no unreasonable risk to health existed under the circumstances of this option. Turbidity measurements shall be made as directed in Appendix D § 801-D(B).

B. If the result of a turbidity analysis indicates that the maximum allowable limit has been exceeded, the sampling and measurement shall be confirmed by resampling as soon as practical and preferably within one hour. If the repeat sample confirms that the maximum allowable limit has been exceeded,

the public water system owner or operator shall report to the Director within forty-eight hours. The repeat sample shall be the sample used for the purpose of calculating the monthly average. If the monthly average of the daily samples exceeds the maximum allowable limit, or if the average of two samples taken on consecutive days exceeds 5 NTU, the public water system owner or operator shall report to the Director and notify the public as required by §§ 502 and 603.

C. Sampling for non-CWSs shall begin within two years after the effective date of this part.

D. The requirements of this section shall apply only to public water systems which use water obtained in whole or in part from surface sources.

E. The Director has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by his/her authorized representative(s).

**§ 414 ALTERNATE ANALYTICAL TECHNIQUES**

With the written permission of the Director, concurred in by the Administrator of the U.S. EPA, an alternate analytical technique may be employed. An alternate technique shall be accepted only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with an MCL. The use of the alternate analytical technique shall not decrease the frequency of monitoring required by this part.

# PART V
# REPORTING AND RECORDKEEPING

**§ 501 PURPOSE**

The purpose of this part is to define the reporting and recordkeeping requirements for all public water system owners/operators.

**§ 502 REPORTING REQUIREMENTS**

A. Except where a shorter period is specified in this part, the public water system owner or operator shall report to the Director the results of any test measurement or analysis required by these regulations within:

1. The first ten days following the month in which the result is received, or

2. The first ten days following the end of the required sampling period as stipulated by the Director, whichever of these is shorter.

B. Except where a different reporting period is specified in this part, the public water system owner or operator must report to the Director within 48 hours the failure to comply with NNPDWR (including failure to comply with sampling requirements) set forth in these regulations;

C. The public water system owner or operator is not required to report analytical results to the Director in cases where an approved EPA laboratory reports the results directly to the Director.

D. The public water system, within 10 days of completing the public notification requirements under Part VI(Public Notification) of these regulations for the initial public notice and any repeat notices, must submit to the PWSSP a certification that it has fully complied with the public notification regulations. The water system must include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system and to the media.

E. The public water system owner or operator shall submit to the Director within the time stated in the request copies of any records required to be maintained under § 503 or copies of any documents which the Director is entitled to inspect pursuant to the authority of §§ 2541 and 2542 of the NNSDWA.

**§ 503 RECORD MAINTENANCE**

Any public water system owner or operator subject to these regulations shall retain on its premises or at a convenient location near its premises the following records for the following periods:

A. Records of microbiological analyses and turbidity analyses made pursuant to this part shall be kept for not less than 5 years. Records of chemical analyses made pursuant to these regulations shall be kept for not less than 10 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included:

1. The date, place, Navajo Nation well identification number, and time of sampling, and the name of the person who collected the sample;

2. Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or processed water sample or other special purpose sample;

3. Date of analysis;

4. Laboratory and person responsible for performing analysis;

5. The analytical technique/method used; and

6. The results of the analysis.

B. Records of action taken by the system to correct violations of these regulations shall be kept for a period not less than 3 years after the last action taken with respect to the particular violation involved.

C. Copies of any written reports, summaries or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any Tribal, state or federal agency, shall be kept for a period not less than 10 years after completion of the sanitary survey involved.

D. Records concerning a variance or exemption granted to the system shall be kept for a period ending not less than 5 years following the expiration of such variance or exemption.

E. Copies of public notices issued pursuant to Part VI and certifications made to the NNEPA-PWSSP pursuant to § 502 must be kept for three years after issuance.

F. Copies of the consumer confidence reports submitted by water systems must be kept at the PWSSP office for a period of one year.

1. Copies of the certifications that consumer confidence reports were submitted to the consumers must be retained at the PWSSP office for a period of five years.

G. Copies of monitoring plans developed pursuant to these regulations shall be kept for the same period of time as the records of analyses taken under the plan are required to be kept under subsection (A) of this section, except as specified elsewhere in these regulations.

# PART VI
# PUBLIC NOTIFICATION OF DRINKING WATER VIOLATIONS

## § 601 PURPOSE

The purpose of these regulations is to define the requirements for publicly notifying persons served by a public water system of any noncompliance with the NNSDWA.

## § 602 GENERAL PUBLIC NOTIFICATION REQUIREMENTS

Public water systems must comply with the requirements in this section upon promulgation of these regulations.

A. Each owner or operator of a public water system (CWS, NTNCWS, TNCWS) must give notice for all violations of the NNPDWR and for other situations, as listed in Table 600.1. The term "NNPDWR violations" is used in this section to include violations of the maximum contaminant level (MCL), maximum residual disinfection level (MRDL), treatment technique (TT), monitoring requirements, and testing procedures in these regulations. Appendix B to these regulations identifies the tier assignment for each specific violation or situation requiring a public notice.

**TABLE 600.1 VIOLATIONS CATEGORIES AND OTHER SITUATIONS REQUIRING A PUBLIC NOTICE**

| |
|---|
| 1. NNPDWR violations:<br><br>a. Failure to comply with an applicable MCL or MRDL.<br>b. Failure to comply with a prescribed treatment technique (TT).<br>c. Failure to perform water quality monitoring, as required by the drinking water regulations.<br>d. Failure to comply with testing procedures as prescribed by a drinking water regulation. |
| 2. Variance and exemptions under §§ 2561, 2562, and 2563 of NNSDWA:<br><br>a. Operation under a variance or an exemption.<br>b. Failure to comply with the requirements of any schedule that has been set under a variance or exemption. |
| 3. Special public notices:<br><br>a. Occurrence of a waterborne disease outbreak or other waterborne emergency.<br>b. Exceedance of the nitrate MCL by non-community water systems, where granted permission by the Director under § 202(C) of these regulations.<br>c. Exceedance of the secondary maximum contaminant level (SMCL) for fluoride.<br>d. Other violations and situations determined by the Director to require a public notice under this section, not already listed in Appendix B. |

B. Types of public notice required for each violation or situation.

1. Public notice requirements are divided into three tiers (Table 600.2) to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved.

   a. The public notice requirements for each violation or situation listed in Table 600.1 of this section are determined by the tier to which it is assigned.

   b. Table 600.2 of this section provides the definition of each tier. Appendix B of these regulations identifies the tier assignment for each specific violation or situation.

**TABLE 600.2 DEFINITION OF PUBLIC NOTICE TIERS**

| |
|---|
| 1. Tier 1 Public Notice:<br><br>Required for NNPDWR violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure. |
| 2. Tier 2 Public Notice:<br><br>Required for all other NNPDWR violations and situations with potential to have serious adverse effects on human health. |
| 3. Tier 3 Public Notice:<br><br>Required for all other NNPDWR violations and situations not included in Tier 1 and Tier 2. |

C. Notification

1. Each public water system must provide public notice to persons served by the water system, in accordance with this section. Public water systems that sell or otherwise provide drinking water to other water systems (i.e., to consecutive systems) are required to give public notice to the owner or operator of the consecutive system; the consecutive system is responsible for providing public notice to the persons it serves.

2. If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the Director may allow the system to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. Permission by the Director for limiting distribution of the notice must be granted in writing.

3. A copy of the notice must also be sent to the Director, in accordance with the requirements under § 502(D).

**§ 603 TIER 1 PUBLIC NOTICE: FORM, MANNER, AND FREQUENCY OF NOTICE**

A. Violations or situations requiring a Tier 1 Public Notice

1. Table 600.3 of this section lists the violation categories and other situations requiring a Tier 1 Public Notice.

2. Appendix B to these regulations identifies the tier assignment for each specific violation or situation.

**TABLE 600.3 VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 1 PUBLIC NOTICE**

| |
|---|
| 1. Violation of the MCL for *E. coli* (as specified in §205(B)and(C) and §2710(A)); |
| 2. Violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, as defined in § 203, or when the public water system fails to take a confirmation sample within 24 hours of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL, as specified in §§ 407(B) and 408(B); |
| 3. Exceedance of the nitrate MCL by NTNCWS and TNCWS, where permitted to exceed the MCL by the Director under § 202(C), as required under § 610; |
| 4. Violation of the MRDL for chlorine dioxide, as defined in § 208(A)(1), when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceeds the MRDL, or when the public water system does not take the required samples in the distribution system, as specified in § 1104(C)(2)(a); |

| | |
|---|---|
| 5. | Violation of the turbidity MCL under § 206(B), where the Director determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the system learns of the violation; |
| 6. | Violation of the Part VIII - General Requirements For Surface Water Treatment or Part XIII - Enhanced Surface Water Treatment technique, Part XXI-Long Term 1 Enhanced Surface Water Treatment (LT1ESWTR) requirement resulting from a single exceedance of the maximum allowable turbidity limit (as identified in Appendix B), where the Director determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 hours after the system learns of the violation; |
| 7. | Occurrence of a waterborne disease outbreak, as defined in §104, or other waterborne emergency (such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination); |
| 8. | Detection of E.coli, enterococci, or coliphage in source water samples as specified in § 2503(A) and § 2503(B). |
| 9. | Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the Director either in its regulations or on a case-by-case basis. |

B. Additional Required Steps for Tier 1 Public Notice

Public water systems must:

1. Provide a public notice as soon as practical but no later than 24 hours after the system learns of the violation;

2. Initiate consultation with the Director as soon as practical, but no later than 24 hours after the public water system learns of the violation or situation, to determine additional public notice requirements; and

3. Comply with any additional public notification requirements (including any repeat notices or direction on the duration of the posted notices) that are established as a result of the consultation with the Director. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served.

C. Form and manner of the public notice

Public water systems must provide the notice within 24 hours in a form and manner appropriate to reach all persons served, in English or Navajo. The form and manner used by the public water system are to fit the specific situation, but must be designed to reach residential, transient, and non-transient users of the water system. In order to reach all persons served, public water systems are to use, at a minimum, one or more of the following forms of delivery:

1. Appropriate broadcast media (such as radio and television);

2. Posting of the notice in conspicuous locations throughout the area served by the public water system;

3. Hand delivery of the notice to persons served by the public water system; or

4. Another delivery method approved in writing by the Director.

## § 604 TIER 2 PUBLIC NOTICEBFORM, MANNER, AND FREQUENCY OF NOTICE

A. Violations or situations requiring a Tier 2 Public Notice. Table 600.4 of this section lists the violation categories and other situations requiring a Tier 2 Public Notice. Appendix B to this subpart identifies the tier assignment for each specific violation or situation.

**TABLE 600.4 VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 2 PUBLIC NOTICE**

| | |
|---|---|
| 1. | All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 Public Notice is required under § 604(A) or where the Director determines that a Tier 1 Public Notice is required; |
| 2. | Violations of the monitoring and testing procedure requirements, where the Director determines that a Tier 2 Public Notice rather than a Tier 3 Public Notice is required, taking into account potential health impacts and persistence of the violation; and |
| 3. | Failure to comply with the terms and conditions of any variance or exemption in place. |
| 4. | Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer under § 2504(A). |

B. Tier 2 Public Notification

1. Public water systems must provide the public notice as soon as practical, but no later than 30 days after the system learns of the violation.

   a. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than seven days, even if the violation or situation is resolved.

   b. The Director, in appropriate circumstances, may allow additional time for the initial notice of up to three months from the date the system learns of the violation.

   c. It is not appropriate for the Director to grant an extension to the 30-day deadline for any unresolved violation or to allow across-the-board extensions by rule or policy for other violations or situations requiring a Tier 2 public notice.

   d. Extensions granted by the Director must be in writing.

2. The public water system must repeat the notice every three months as long as the violation or situation persists, unless the Director determines that appropriate circumstances warrant a different repeat notice frequency.

   a. In no circumstance may the repeat notice be given less frequently than once per year.

   b. It is not appropriate for the Director to allow less frequent repeat notice for an MCL or treatment technique violation under Part XXVII of these regulations or a treatment technique violation under Part VIII - General Requirements for Surface Water Treatment or Part XIII - Enhanced Surface Water Treatment.

   c. It is also not appropriate for the Director to allow through its rules or policies across-the-board reductions in the repeat notice frequency for other ongoing violations requiring a Tier 2 repeat notice.

   d. Director-determinations allowing repeat notices to be given less frequently than once every three months must be in writing.

3. For the turbidity violations specified in this paragraph, public water systems must consult with the Director as soon as practical but no later than 24 hours after the public water system learns of the violation, to determine whether a Tier 1 Public Notice under § 604(A) is required to protect public health. When consultation does not take place within the 24-hour period, the public water system must distribute a Tier 1 notice of the violation within the next 24 hours (i.e., no later than 48 hours after the system learns of the

violation), following the requirements under §604(B) and (C). Consultation with the Director is required for:

a. Violation of the turbidity MCL under § 206(B); or

b. Violation of the SWTR, ESWTR or LT1ESWTR treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit.

C. Form and manner of the Tier 2 Public Notice

Public water systems must provide the initial public notice and any repeat notices in a form and manner that are appropriate to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

1. Unless directed otherwise by the Director in writing, CWSs must provide notice by:

a. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

b. Any other method appropriate to reach other persons regularly served by the system, if they would not normally be reached by the notice required in subsection (C)(1)(a) of this section.

i. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.).

ii. Other methods may include: Publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places served by the system or on the Internet; or delivery to community organizations or chapters.

2. Unless directed otherwise by the Director in writing, NTNCWSs and TNCWSs must provide notice by:

a. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

b. Any other method appropriate to reach other persons served by the system if they would not normally be reached by the notice required in paragraph (C)(2)(a) of this section.

i. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely pass by.

ii. Other methods may include: Publication in a local newspaper or newsletter distributed to customers; use of e-mail to notify employees or students; or, delivery of multiple copies in central locations (e.g., community centers, chapters).

**§ 605 TIER 3 PUBLIC NOTICE: FORM, MANNER AND FREQUENCY OF NOTICE**

A. Violations or situations requiring a Tier 3 Public Notice

Table 600.5 lists the violation categories and other situations requiring a Tier 3 Public Notice. Appendix B to these regulations identifies the tier assignment for each specific violation or situation.

**TABLE 600.5 VIOLATION CATEGORIES AND OTHER SITUATIONS REQUIRING A TIER 3 PUBLIC NOTICE**

| | |
|---|---|
| 1. | Monitoring violations under the NNPDWR, except where a Tier 1 Public Notice is required under § 604(A) or where the Director determines that a Tier 2 Public Notice is required; |
| 2. | Failure to comply with a testing procedure established in these regulations, except where a Tier 1 Public Notice is required under § 604(A) or where the Director determines that a Tier 2 Public Notice is required; |
| 3. | Operation under a variance granted under §§ 2561 or 2562 of the NNSDWA or an exemption granted under § 2563 of the NNSDWA; |
| 4. | Availability of unregulated contaminant monitoring results, as required under § 608. |
| 5. | Exceedance of the fluoride secondary maximum contaminant level (SMCL), as required under § 609; and |
| 6. | Reporting and Recordkeeping violations under Part XXVI of these regulations. |

B. Tier 3 Public Notification

1. Public water systems must provide the public notice no later than one year after the public water system learns of the violation or situation or begins operating under a variance or exemption. Following the initial notice, the public water system must repeat the notice annually for as long as the violation, variance, exemption, or other situation persists. If the public notice is posted, the notice must remain in place for as long as the violation, variance, exemption, or other situation persists, but in no case less than seven days (even if the violation or situation is resolved).

2. Instead of individual Tier 3 Public Notices, a public water system may use an annual report detailing all violations and situations that occurred during the previous twelve months, as long as the timing requirements of subsection (B)(1) of this section are met.

C. Form and manner of the Tier 3 Public Notice

Public water systems must provide the initial notice and any repeat notices in a form and manner that are appropriate to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

1. Unless directed otherwise by the Director in writing, CWSs must provide notice by:

a. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

b. Any other method appropriate to reach other persons regularly served by the system, if they would not normally be reached by the notice required in subsection (C)(1)(a) of this section.

i. Such persons may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.).

ii. Other methods may include: Publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places or on the Internet; or delivery to community organizations or chapters.

2. Unless directed otherwise by the Director in writing, NTNCWSs and TNCWSs must provide notice by:

a. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

b. Any other method appropriate to reach other persons served by the system, if they would not normally be reached by the notice required in subsection (C)(2)(a) of this section.

i. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely pass by.

ii. Other methods may include: Publication in a local newspaper or newsletter distributed to customers; use of e-mail to notify employees or students; or, delivery of multiple copies in central locations (e.g., community centers, chapters).

D. Use of the Consumer Confidence Report to meet the Tier 3 Public Notice Requirements

For CWSs, the Consumer Confidence Report (CCR) required under § 1200 of these regulations may be used as a vehicle for the initial Tier 3 Public Notice and all required repeat notices, as long as:

1. The CCR is provided to persons served no later than 12 months after the system learns of the violation or situation as required under § 606(B);

2. The Tier 3 Public Notice contained in the CCR follows the content requirements under § 607; and

3. The CCR is distributed following the delivery requirements under § 606(C).

**§ 606 CONTENT OF THE PUBLIC NOTICE**

A. Elements to be included in the Public Notice for Violations of NNPDWR or Other Situations Requiring a Public Notice.

When a public water system violates a NNPDWR or has a situation requiring public notification, each public notice must include the following elements:

1. A description of the violation or situation, including the contaminant(s) of concern, and (as applicable) the contaminant level(s);

2. When the violation or situation occurred;

3. Any potential adverse health effects from the violation or situation, including the standard language under paragraphs (D)(1) or (D)(2) of this section, whichever is applicable;

4. The population at risk, including sub-populations particularly vulnerable if exposed to the contaminant in their drinking water;

5. Whether alternative water supplies should be used;

6. What actions consumers should take, including when they should seek medical help, if known;

7. What the system is doing to correct the violation or situation;

8. When the public water system expects to return to compliance or resolve the situation;

9. The name, business address, and phone number of the public water system owner, operator, or designee as a source of additional information concerning the notice; and

10. A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subsection (D)(3) of this section, where applicable.

B. Elements to be included in the public notice for public water systems operating under a variance or exemption.

1. If a public water system has been granted a variance or an exemption, the public notice must contain:

a. An explanation of the reasons for the variance or exemption;

b. The date on which the variance or exemption was issued;

c. A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and

d. A notice of any opportunity for public input in the review of the variance or exemption.

2. If a public water system violates the conditions of a variance or exemption, the public notice must contain the ten elements listed in subsection (A) of this section.

C. Public Notice Presentation

1. Each public notice required by this section:

a. Must be displayed in a conspicuous way when printed or posted;

b. Must not contain overly technical language or very small print;

c. Must not be formatted in a way that defeats the purpose of the notice;

d. Must not contain language which nullifies the purpose of the notice.

2. Each public notice required by this section must comply with multilingual requirements, as follows:

a. For public water systems serving a large proportion of non-English speaking consumers, as determined by the Director, the public notice must contain information in Navajo and/or English, or other appropriate languages regarding the importance of the notice or contain a telephone number or address where persons served may contact the public water system to obtain a translated copy of the notice or to request assistance in the appropriate language.

b. In cases where the Director has not determined what constitutes a large proportion of non-English speaking consumers, the public water system must include in the public notice the same information as in subsection (C)(2)(a) of this section, where appropriate to reach a large proportion of non-English speaking persons served by the water system.

D. Public water systems are required to include the following standard language in their public notice:

1. Public water systems must include in each public notice the standard health effects language specified in Appendix B § 602-B for each MCL or MRDL violations, treatment technique violations, and violations of the conditions of a variance or exemption.

2. Public water systems must include the following language in their notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations listed in Appendix B:

“We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we “did not monitor or test” or “did not complete all monitoring or testing” for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time.”

3. Standard language to encourage the distribution of the public notice to all persons served must include following language (where applicable):

“Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.”

**§ 607 NOTICE TO NEW BILLING UNITS OR NEW CUSTOMERS**

A. CWSs must give a copy of the most recent public notice for any continuing violation, the existence of a variance or exemption, or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.

B. NTNCWSs and TNCWSs must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation, variance or exemption, or other situation requiring a public notice for as long as the violation, variance, exemption, or other situation persists.

**§ 608 SPECIAL NOTICE OF THE AVAILABLITY OF UNREGULATED CONTAMINANT MONITORING RESULTS**

A. When is the special notice given? The owner or operator of a community water system or non-transient, non-community water system required to monitor under § 141.40 must notify persons served by the systems of the availability of the results of such sampling no later than 12 months after the monitoring results are known.

B. What is the form and manner of the special notice? The form and manner of the public notice must follow the requirements for a Tier 3 public notice prescribed in §§ 605(C), (D)(1), and (D)(3). The notice must also identify a person and provide the telephone number to contact the information on the monitoring results.

**§ 609 SPECIAL NOTICE FOR EXCEEDANCE OF THE SMCL FOR FLUORIDE**

A. Special notice time delivery

CWSs that exceed the fluoride secondary maximum contaminant level (SMCL) of 2 mg/L as specified in §1800 (determined by the last single sample taken in accordance with §405), but do not exceed the maximum contaminant level (MCL) of 4 mg/L for fluoride (as specified in § 203), must provide the public notice in subsection (C) of this section to persons served.

1. Public notice must be provided as soon as practical but no later than 12 months from the day the water system learns of the exceedance.

2. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the PWSSP.

3. The public water system must repeat the notice at least annually for as long as the SMCL is exceeded. If the public notice is posted, the notice must remain in place for as long as the SMCL is exceeded, but in no case less than seven days (even if the exceedance is eliminated).

4. On a case-by-case basis, the Director may require an initial notice sooner than 12 months and repeat notices more frequently than annually.

B. The form and manner of the public notice (including repeat notices) must follow the requirements for a Tier 3 public notice in § 606(C), (D)(1), and (D)(3).

C. The notice must contain the following mandatory language, including the language necessary to fill in the blanks:

“This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system [name] has a fluoride concentration of [insert value] mg/L. Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water. Drinking water containing more than 4 mg/L of fluoride (the EPA's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/L of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/L because of this cosmetic dental problem. For more information, please call [name of water system contact] of [name of community water system] at [phone number]. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP.”

**§ 610 SPECIAL NOTICE FOR NITRATE EXCEEDANCES ABOVE THE MCL BY NTNCWSs and TNCWSs, WHERE GRANTED PERMISSION BY THE DIRECTOR UNDER § 202(C)**

A. Special notice time delivery.

NTNCWSs or TNCWSs granted permission by the Director under § 202(C) to exceed the nitrate MCL, must provide notice to persons served according to the requirements for a Tier 1 Public Notice under § 604(A) and (B).

B. NTNCWSs and TNCWSs granted permission by the Director to exceed the nitrate MCL under § 202(C), must provide continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure, according to the requirements for Tier 1 Public Notice delivery under § 604(C) and the content requirements under § 607.

**§ 611 NOTICE BY DIRECTOR ON BEHALF OF THE WATER SYSTEM**

A. The Director may give the notice required by this subpart on behalf of the owner and operator of the public water system if the Director complies with the requirements of this subpart.

B. The owner or operator of the public water system remains responsible for ensuring that the requirements of this section are met.

**§ 612 SPECIAL NOTICE FOR REPEATED FAILURE TO CONDUCT MONITORING OF THE SOURCE WATER FOR CRYPTOSPORIDIUM AND FOR FAILURE TO DETERMINE BIN CLASSIFICATION OR MEAN CRYPTOSPORIDIUM LEVEL**

A. Special notice for failure to monitor

The owner or operator of a community or non-community water system that is required to monitor source water under § 2402(C) must notify persons served by the water system that monitoring has not been completed as specified no later than 30 days after the system has failed to collect any 3 months of monitoring as specified in § 2402(C). The notice must be repeated as specified in § 605(B).

B. Special notice for failure to determine bin classification or mean Cryptosporidium level

The owner or operator of a community or non-community water system that is required to determine a bin classification under § 2409, or determine mean Cryptosporidium level under § 2411, must notify persons served by the water system that the determination has not been made as required no later than 30 days after the system has failed to report the determination as specified in § 2409(E) or § 2411(A), respectively. The notice must be repeated as specified in § 605(B). The notice is not required if the system is complying with a Director-approved schedule to address the violation.

C. Form and manner of special notice

The form and manner of the public notice must follow the requirements for a Tier 2 public notice prescribed in § 605(C). The public notice must be presented as required in § 605(C).

D. Mandatory language to be contained in special notice

The notice must contain the following language, including the language necessary to fill in the blanks.

1. The special notice for repeated failure to conduct monitoring must contain the following language:

"We are required to monitor the source of your drinking water for Cryptosporidium. Results of the monitoring are to be used to determine whether water treatment at the (treatment plan name) is sufficient to adequately remove Cryptosporidium from your drinking water. We are required to complete this monitoring and make this determination by (required bin determination date). We "did not monitor or test" or "did not complete all monitoring or testing" on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate Cryptosporidium removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the deadline required, (date).
For more information, please call (name of water system contact) of (name of water system) at (phone number)."

2. The special notice for failure to determine bin classification or mean Cryptosporidium level must contain the following language:

   "We are required to monitor the source of your drinking water for Cryptosporidium in order to determine by (date) whether water treatment at the (treatment plant name) is sufficient to adequately remove Cryptosporidium from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of (date). For more information, please call (name of water system contact) of (name of water system) at (phone number)."

3. Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

# PART VII
# LEAD AND COPPER

**§ 701 PURPOSE**

A. These regulations apply to community water systems and non-transient non-community water systems. Effective dates for §§ 704, 707, 708, 712 and 713 became effective on July 7, 1991, and for §§ 701, 705, 706, 709, 710, and 711 became effective on December 7, 1992.

B. These regulations establish a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

**§ 702 PROHIBITION ON USE OF LEAD PIPES, SOLDER, AND FLUX**

A. General Requirements

1. Prohibition. Any pipe, solder, or flux, which is used after June 19, 1986, in the installation or repair of:

a. Any CWS or NTNCWS, or

b. Any plumbing in a residential or non-residential facility providing water for human consumption which is connected to a CWS or NTNCWS shall be lead free as defined in § 104. This subsection shall not apply to leaded joints necessary for the repair of cast iron pipes.

Notice shall be provided notwithstanding the absence of a violation of any NNPDWR, according to § 602.

B. Navajo Nation Enforcement

1. Enforcement of prohibition. The requirements of subsection (A)(1) of this section shall be enforced in the Navajo Nation effective June 19, 1988. The Director shall enforce such requirements through local plumbing codes, or such other means of enforcement as the Director may determine to be appropriate.

C. Penalties: If the Administrator determines that the Director is not enforcing the requirements of subsection (A) of this section, as required pursuant to subsection (B), the Administrator may withhold up to 5% of Federal funds available to the PWSSP for program grants under § 1443(A) of the Act.

**§ 703 COMPLIANCE**

A. Lead and copper action levels

1. The lead action level is exceeded if the concentration of lead in more than 10% of tap water samples collected during any sampling period conducted in accordance with § 704 is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L).

2. The copper action level is exceeded if the concentration of copper in more than 10% of tap water samples collected during any sampling period conducted in accordance with § 704 is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

3. The 90th percentile lead and copper levels shall be computed as follows:

a. The results of all lead or copper samples taken during a sampling period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

b. The number of samples taken during the sampling period shall be multiplied by 0.9.

c. The contaminant concentration in the numbered sample yielded by the calculation in subsection (A)(3)(b) is the 90th percentile contaminant level.

d. For CWSs and NTNCWSs serving fewer than 100 people that collect 5 samples per sampling period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

e. For a public water system that has been allowed by the Director to collect fewer than five samples in accordance with § 704(C), the sample result with the highest concentration is considered the 90th percentile value.

B. Corrosion control treatment requirements

1. All CWSs and NTNCWSs shall install and operate optimal corrosion control treatment.

2. Any CWSs and NTNCWSs that complies with the applicable corrosion control treatment requirements specified by the Director under §§ 705 and 706 shall be deemed in compliance with the treatment requirement contained in subsection (B)(1)of this section.

C. Source water treatment requirements

1. Any CWS or NTNCWS exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the Director under § 709.

D. Lead service line replacement requirements

1. Any CWS or NTNCWS exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in § 710.

E. Sampling and analytical requirements

1. Tap water sampling for lead and copper, sampling for water quality parameters, source water sampling for lead and copper, and analyses of the sampling results under this part shall be completed in compliance with §§ 704, 707 and 708. The sampling methodology can be found in Appendix C-Lead and Copper.

F. Public education requirements

1. Pursuant to § 711, all water systems must provide a consumer notice of lead tap water sampling results to persons served at the sites (taps) that are tested. Any CWS or NTNCWS exceeding the lead action level shall implement the public education requirements.

G. Reporting requirements

1. A CWS or NTNCWS shall report to the Director any information required by the treatment provisions of this part and § 712.

H. Recordkeeping requirements

1. A CWS or NTNCWS shall maintain records in accordance with § 713.

I. Violation of NNPDWRs

1. Failure to comply with the applicable requirements of this part shall constitute a violation of the NNPDWR for lead and/or copper.

**§ 704 SAMPLING REQUIREMENTS FOR LEAD AND COPPER IN TAP WATER**

A. Sample site location

1. By the applicable date for commencement of sampling under subsection (D)(1) and (D)(2) of this section, each CWS or NTNCWS shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements of this section, and which is sufficiently large enough to ensure that the CWS or NTNCWS can collect the number of lead and copper tap samples required in subsection (C) of this section. All sites from which the first draw samples are collected shall be selected from

this pool of targeted sampling sites. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

2. A CWS or NTNCWS shall use the information on lead, copper, and galvanized steel that it is required to collect under § Appendix C (702-C) of these regulations (special sampling for corrosivity characteristics) when conducting a materials evaluation. When an evaluation of the information collected pursuant to § Appendix C (702-C) is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in subsection (A) of this section, the CWS or NTNCWS shall review the sources of information listed below in order to identify a sufficient number of sampling sites. In addition, the CWS or NTNCWS shall seek to collect such information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities):

   a. All plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system;

   b. All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and

   c. All existing water quality information, which includes the results of all prior analyses of the CWS or NTNCWS or individual structures connected to the CWS or NTNCWS, indicating locations that may be particularly susceptible to high lead or copper concentrations.

3. The sampling sites selected for a CWS's sampling pool ("tier 1 sampling sites") shall consist of single family structures that:

   a. Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

   b. Are served by a lead service line. When multiple-family residences comprise at least 20% of the structures served by a CWS or NTNCWS, the system may include these types of structures in its sampling pool.

4. Any CWS with insufficient tier 1 sampling sites shall complete its sampling pool with "tier 2 sampling sites" consisting of buildings, including multiple-family residences that:

   a. Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

   b. Are served by a lead service line.

5. Any CWS with insufficient tier 1 and tier 2 sampling sites shall complete its sampling pool with "tier 3 sampling sites" consisting of single family structures that contain copper pipes with lead solder installed before 1983. A CWS with insufficient tier 1, tier 2, and tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. For the purpose of this subsection, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

6. The sampling sites selected for a NTNCWS ("tier 1 sampling sites") shall consist of buildings that:

   a. Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

   b. Are served by a lead service line.

7. A NTNCWS with insufficient tier 1 sites that meet the targeting criteria in subsection (A)(6) of this section shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the NTNCWS shall use representative sites throughout the distribution system. For the purpose of this subsection, a representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

8. Any CWS or NTNCWS whose distribution system contains lead service lines shall draw 50% of the samples it collects during each sampling period from sites that contain lead pipes, or copper pipes with lead solder, and 50% of those samples from sites served by a lead service line. A CWS or NTNCWS that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first draw samples from all of the sites identified as being served by such lines.

B. Sample collection methods

1. All tap samples for lead and copper collected in accordance with this part, with the exception of lead service line samples collected under § 710(C), and samples collected under subsection (B)(5) of this section, shall be first draw samples.

2. Each first-draw tap sample for lead and copper shall be one liter in volume and shall have stood motionless in the plumbing system of each sampling site for at least six hours. First-draw samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap. First-draw samples from a non-residential building shall be collected at an interior tap from which water is typically drawn for consumption.

Non-first-draw samples collected in lieu of first-draw samples pursuant to subsection (B)(5) of this section shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the CWS or NTNCWS owner/operator or the owner/operator may allow residents to collect first draw samples after instructing the residents of the sampling procedures specified in this subsection. To avoid problems of residents handling nitric acid, acidification of first draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a CWS or NTNCWS owner/operator allows residents to perform sampling, the owner/operator may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

3. Each service line sample shall be one liter in volume and have stood motionless in the lead service line for at least six hours. Lead service line samples shall be collected in one of the following three ways:

a. At the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line;

b. Tapping directly into the lead service line; or

c. If the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.

4. A CWS or NTNCWS owner/operator shall collect each first draw tap sample from the same sampling site from which it collected a previous sample. If, for any reason, the CWS or NTNCWS owner/operator cannot gain entry to a sampling site in order to collect a follow-up tap sample, the CWS or NTNCWS owner/operator may collect the follow-up tap sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

5. A NTNCWS, or a CWS that meets the criteria of § 711(B)(7), that does not have enough taps that can supply first-draw samples, as defined in § 104, may apply to the Director in writing to substitute non-first-draw samples. Such water systems must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The Director has the discretion to waive the requirement for prior Director-approval of non-first-draw sample sites selected by the water system, either through these regulations or written notification to the water system.

C. Number of samples. CWS or NTNCWS owner/operator shall collect at least one sample during each sampling period specified in subsection (D) of this section from the number of sites listed in the first column below ("Standard Sampling"). A CWS or NTNCWS conducting reduced sampling under subsection (D)(4) of this section shall collect at least one sample from the number of sites specified in the second column (“Reduced Sampling”) below during each sampling period specified in subsection (D)(4) of this section. Such reduced sampling sites shall be representative of the sites required for standard sampling. A public water system that has fewer than five drinking

water taps, that can be used for human consumption meeting the sample site criteria of subsection (A) of this section to reach the required number of sample sites listed in subsection (C) of this section, must collect at least one sample from each tap and then must collect additional samples from those taps on different days during the sampling period to meet the required number of sites. Alternatively, the Director may allow those public water systems to collect a number of samples less than the number of sites specified in subsection (C) of this section, provided that 100 percent of all taps that can be used for human consumption are sampled. The Director must approve this reduction of the minimum number of samples in writing based on a request from the system or onsite verification by the Director. The Director may specify sampling locations when a water system is conducting reduced sampling. The table is as follows:

**TABLE 700.1 SAMPLING SIZE**

| System Size (# people served) | # of Sites (Standard Sampling) | # of Sites (Reduced Sampling) |
|---|---|---|
| >100,000 | 100 | 50 |
| 10,001 - 100,000 | 60 | 30 |
| 3,301 - 10,000 | 40 | 20 |
| 501 - 3,300 | 20 | 10 |
| 101 - 500 | 10 | 5 |
| ≤ 100 | 5 | 5 |

D. Sample Requirements

1. All large CWSs or NTNCWSs shall sample during two consecutive six-month periods.

2. All small and medium-size CWSs or NTNCWSs shall sample during each six-month sampling period until:

   a. The CWS or NTNCWS exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under § 706, in which case the water system shall continue sampling in accordance with subsection (D)(3) of this section, or

   b. The CWS or NTNCWS meets the lead or copper action levels during two consecutive six-month sampling periods, in which case the water system may reduce sampling in accordance with subsection (D)(5) of this section.

3. Sampling after installation of corrosion control and source water treatment.

   a. Any large CWS or NTNCWS which installs optimal corrosion control treatment pursuant to § 706(D)(4) shall sample during two consecutive six-month sampling periods by the date specified in § 706(D)(5).

   b. Any small or medium-size CWS or NTNCWS which installs optimal corrosion control treatment pursuant to § 706(E)(5) shall sample during two consecutive six-month sampling periods by the date specified in § 706(E)(6).

   c. Any CWS or NTNCWS which installs source water treatment pursuant to § 709(A)(3) shall sample during two consecutive six-month sampling periods by the date specified in § 709(A)(4).

4. Sampling after the Director specifies water quality parameter values for optimal corrosion control.

   After the Director specifies the value for water quality control parameters under § 705(F), the CWS or NTNCWS shall sample during each subsequent six-month sampling period, with the first sampling period to begin on the date the Director specifies the optimal values under § 705(F).

5. Reduced sampling:

a. A small or medium-size CWS or NTNCWS that meets the lead and copper action levels during each of two consecutive six-month sampling periods may reduce the number of samples in accordance with subsection (C) of this section, and reduce the frequency of sampling to once per year. A small or medium water system collecting fewer than five samples as specified in subsection (C) of this section, that meets the lead and copper action levels during each of two consecutive six-month sampling periods may reduce the frequency of sampling to once per year. In no case can the system reduce the number of samples required below the minimum of one sample per available tap. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month sampling period.

b. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Director under § 705(F) during each of two consecutive six-month sampling periods may reduce the frequency of sampling to once per year and reduce the number of lead and copper samples in accordance with subsection (C) of this section if it receives written approval from the Director. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month sampling period. The Director shall review sampling, treatment, and other relevant information submitted by the water system in accordance with § 712, and shall notify the system in writing when it determines the system is eligible to commence reduced sampling pursuant to this subsection. The Director shall review, and where appropriate, revise its determination when the system submits new sampling or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

c. A small or medium-size CWS or NTNCWS that meets the lead and copper action levels during three consecutive years of sampling may reduce the frequency of sampling for lead and copper from annually to once every three years. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Director under § 705(F) during three consecutive years of sampling may reduce the frequency of sampling from annually to once every three years if it receives written approval from the Director. The Director shall review sampling, treatment, and other relevant information submitted by the CWS or NTNCWS in accordance with § 712, and shall notify the water system in writing when it determines the water system is eligible to reduce the frequency of sampling to once every three years. The Director shall review, and where appropriate, revise the determination when the water system submits new sampling or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

d. A CWS or NTNCWS that reduces the number and frequency of sampling shall collect these samples from representative sites included in the pool of targeted sampling sites identified in subsection (A) of this section. A CWS or NTNCWS sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August or September unless the Director has approved a different sampling period in accordance with subsection (D)(5)(d)(i) of this section.

i. The Director, at his/her discretion, may approve a different period for conducting the lead and copper tap sampling for water systems collecting a reduced number of samples. Such a period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a NTNCWS that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the Director shall designate a period that represents a time of normal operation for the water system. This sampling shall begin during the period approved or designated by the Director in the calendar year immediately following the end of the second consecutive six-month sampling period for systems initiating annual sampling and during the three-year period following the end of the third consecutive calendar year of annual sampling for systems initiating triennial sampling.

ii. CWSs or NTNCWSs sampling annually, that have been collecting samples during the months of June through September and that receive Director approval to alter their sample collection period under subsection (D)(5)(d)(i) of this

section, must collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling. CWSs or NTNCWSs sampling triennially that have been collecting samples during the months of June through September, and receive Director approval to alter the sampling collection period as per subsection (D)(5)(d)(i) of this section, must collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling. Subsequent rounds of sampling must be collected annually or triennially, as required by this section. Small CWSs or NTNCWSs with waivers, granted pursuant to subsection (G) of this section, that have been collecting samples during the months of June through September and receive Director approval to alter their sample collection period under subsection (D)(5)(d)(i) of this section must collect their next round of samples before the end of the 9-year period.

e. Any CWS or NTNCWS that demonstrates for two consecutive 6-month sampling periods that the tap water lead level computed under § 703(A)(3) is less than or equal to 0.005 mg/L and the tap water copper level computed under § 703(A)(3)(a) is less than or equal to 0.65 mg/L may reduce the number of samples in accordance with subsection (C) of this section and reduce the frequency of sampling to once every three calendar years.

f. A small or medium-size CWS or NTNCWS subject to reduced sampling that exceeds the lead or copper action level shall resume sampling in accordance with subsection (D)(4) of this section and collect the number of samples specified for standard sampling under subsection (C) of this section. Such CWS or NTNCWS shall also conduct water quality parameter sampling in accordance with § 707(B), (C) or (D) (as appropriate) during the sampling period in which it exceeded that action level. Any CWS or NTNCWS may resume annual sampling for lead and copper at the tap at the reduced number of sites specified in subsection (C) of this section after it has completed two subsequent consecutive six-month rounds of sampling that meet the criteria of subsection (D)(5)(a) of this section and/or may resume triennial sampling for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of sampling that it meets the criteria of either subsection (D)(5)(c) or (D)(5)(e) of this section.

i. Any CWS or NTNCWS subject to the reduced sampling frequency that fails to meet the lead action level during any four-month sampling period or that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the Director under § 705(F) for more than nine days in any six-month period specified in § 707(D) shall conduct tap water sampling for lead and copper at the frequency specified in subsection (D)(4) of this section, collect the number of samples specified for standard sampling under subsection (C) of this section, and shall resume sampling for water quality parameters within the distribution system in accordance with § 707(D). This standard tap water sampling shall begin no later than the six-month period beginning January 1st of the calendar year following the lead action level exceedance or water quality parameter excursion. Such a water system may resume reduced sampling for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

A. The CWS or NTNCWS may resume annual sampling for lead and copper at the tap at the reduced number of sites specified in subsection (C) of this section after it has completed two subsequent six-month rounds of sampling that meet the criteria of subsection (D)(5)(b) of this section and the water system has received written approval from the Director that it is appropriate to resume reduced sampling on an annual frequency. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month sampling period.

B. The CWS or NTNCWS may resume triennial sampling for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of sampling that it meets the criteria of either subsection (D)(5)(c) or (D)(5)(e) of this section and the water system has received written approval from the Director that it is appropriate to resume triennial sampling.

C. The CWS or NTNCWS may reduce the number of water quality parameter tap water samples required in accordance with § 707(E)(1) and the frequency with which it collects such samples in accordance with § 707(E)(2). Such a CWS or NTNCWS may not resume triennial sampling for water quality parameters at the tap until it demonstrates, in accordance with the requirements of § 707(E)(2), that it has re-qualified for triennial sampling.

g. Any CWS or NTNCWS subject to a reduced sampling frequency under subsection (D)(5) of this section that either adds a new source of water or changes any water treatment shall inform the Director in writing in accordance with § 712(A)(3). The Director may require the CWS or NTNCWS to resume sampling in accordance with subsection (D)(4) of this section and collect the number of samples specified for standard sampling under subsection (C) of this section or take other appropriate steps such as increased water quality parameter sampling or re-evaluation of its corrosion control treatment given the potentially different water quality considerations.

E. Additional sampling by CWSs or NTNCWSs. The results of any sampling conducted in addition to the minimum requirements of this section shall be considered by the CWS or NTNCWS and the Director in making any determinations (i.e., calculating the 90th percentile lead or copper level) under this section.

F. Invalidation of lead or copper tap water samples

A sample invalidated under this subsection does not count toward determining lead or copper 90th percentile levels under § 703(A)(3) or toward meeting the minimum sampling requirements of subsection (C) of this section.

1. The Director may invalidate a lead or copper tap water sample at least if one of the following conditions is met.

a. The laboratory establishes that improper sample analysis caused erroneous results.

b. The Director determines that the sample was taken from a site that did not meet the site selection criteria of this section.

c. The sample container was damaged in transit.

d. There is substantial reason to believe that the sample was subject to tampering.

2. The CWS or NTNCWS must report the results of all samples to the Director and all supporting documentation for samples the water system believes should be invalidated.

3. To invalidate a sample under subsection (F)(1) of this section, the decision and the rationale for the decision must be documented in writing. The Director may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

4. The CWS or NTNCWS must collect replacement samples for any samples invalidated under this section if, after the invalidation of one or more samples, the water system has too few samples to meet the minimum requirements of subsection (C) of this section. Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the Director invalidates the sample or by the end of the applicable sampling period, whichever occurs later. Replacement samples taken after the end of the applicable sampling period shall not also be used to meet the sampling requirements of a subsequent sampling period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the sampling period.

G. Sampling waivers for small CWSs or NTNCWSs

Any small CWS or NTNCWS that meets the criteria of this subsection may apply to the Director to reduce the frequency of sampling for lead and copper under this section to once every nine years (i.e., a “full waiver”) if it meets all of the materials criteria specified in subsection (G)(1) of this section and all of the sampling criteria specified in subsection (G)(2) of this section. If these regulations permit, any small CWS or NTNCWS that meets the criteria in subsections (G)(1) and (2) of this section only for lead, or only for copper, may apply to the Director for a waiver to reduce the frequency of tap water sampling to once every nine years for that contaminant only (i.e., a “partial waiver”).

1. Materials criteria

The CWS or NTNCWS must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the water system, are free of lead-containing materials and/or copper-containing materials, as those terms are defined in this subsection, as follows:

a. Lead:

To qualify for a full waiver, or a waiver of the tap water sampling requirements for lead (i.e., a “lead waiver”), the water system must provide certification and supporting documentation to the Director that the water system is free of all lead-containing materials, as follows:

i. It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers; and

ii. It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to § 2521 of the NNSDWA.

b. Copper:

To qualify for a full waiver, or a waiver of the tap water sampling requirements for copper (i.e., a “copper waiver”), the water system must provide certification and supporting documentation to the Director that the water system contains no copper pipes or copper service lines.

2. Sampling criteria for waiver issuance

The CWS or NTNCWS must have completed at least one 6-month round of standard tap water sampling for lead and copper at sites approved by the Director and from the number of sites required by subsection (C) of this section and demonstrate that the 90th percentile levels for any and all rounds of sampling conducted since the water system became free of all lead-containing and/or copper-containing materials, as appropriate, meet the following criteria.

a. Lead levels. To qualify for a full waiver, or a lead waiver, the CWS or NTNCWS must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

b. Copper levels. To qualify for a full waiver, or a copper waiver, the CWS or NTNCWS must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

3. Director approval of waiver application

The Director shall notify the CWS or NTNCWS of its waiver determination, in writing, setting forth the basis of the decision and any condition of the waiver. As a condition of the waiver, the Director may require the water system to perform specific activities (e.g., limited sampling, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of lead or copper concentration of concern in tap water. The small CWS or NTNCWS must continue sampling for lead and copper at the tap as required by subsections (D)(1) through (D)(4) of this section, as appropriate, until it receives written notification from the Director that the waiver has been approved.

4. Sampling frequency for CWSs or NTNCWSs with waivers

a. A CWS or NTNCWS with a full waiver must conduct tap water sampling for lead and copper in accordance with subsection (D) (5) (d) of this section at the reduced number of sampling sites identified in subsection (C) of this section at least once every nine years and provide the materials certification specified in subsection (G) (1) of this section for both lead and copper to the Director along with the sampling results. Samples collected every nine years shall be collected no later than every ninth calendar year.

b. A CWS or NTNCWS with a partial waiver must conduct tap water sampling for the waived contaminant in accordance with subsection (D) (5) (d) of this section at the reduced

number of sampling sites specified in subsection (C) of this section at least once every nine years and provide the materials certification specified in subsection (G) (1) of this section pertaining to the waived contaminant along with the sampling results. Such a water system also must continue to monitor for the non-waived contaminant in accordance with requirements of subsections (D)(1) through (D)(5) of this section, as appropriate.

c. Any water system with a full or partial waiver shall notify the Director in writing in accordance with § 712(A)(3) of any upcoming long-term change in treatment or addition of a new source, as described in that section. The Director must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. The Director has the authority to require the water system to add or modify waiver conditions (e.g., require re-certification that the water system is free of lead-containing and/or copper-containing materials, require additional round(s) of sampling), if it deems such modifications are necessary to address treatment or source water changes at the water system.

d. If a CWS or NTNCWS with a full or partial waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, (e.g., as a result of new construction or repairs), the water system shall notify the Director in writing no later than 60 days after becoming aware of such a change.

5. Continued eligibility

If the CWS or NTNCWS continues to satisfy the requirements of subsection (G)(4) of this section, the waiver will be renewed automatically, unless any of the conditions listed in subsections (G)(5)(a) through (G)(5)(c) of this section occurs. A water system whose waiver has been revoked may re-apply for a waiver at such time as it again meets the appropriate materials and sampling criteria of subsections (G)(1) and (G)(2) of this section.

a. A CWS or NTNCWS with a full waiver or a lead waiver no longer satisfies the materials criteria of subsection (G)(1)(a) of this section or has a 90th percentile lead level greater than 0.005 mg/L.

b. A CWS or NTNCWS with a full waiver or a copper waiver no longer satisfies the materials criteria of subsection (G)(1)(b) of this section or has a 90th percentile copper level greater than 0.65 mg/L.

c. The Director notifies the CWS or NTNCWS, in writing, that the waiver has been revoked, setting forth the basis of the decision.

6. Requirements following waiver revocation

A CWS or NTNCWS whose full or partial waiver has been revoked by the Director is subject to the corrosion control treatment and lead and copper tap water sampling requirements, as follows:

a. If the CWS or NTNCWS exceeds the lead and/or copper action level, the water system must implement corrosion control treatment in accordance with the deadlines specified in § 706(E), and any other applicable requirements of this part.

b. If the CWS or NTNCWS meets both the lead and the copper action level, the water system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in subsection (C) of this section.

7. Pre-existing waivers

Small CWS or NTNCWS waivers approved by the Director in writing prior to the promulgation of these regulations shall remain in effect under the following conditions:

a. If the CWS or NTNCWS has demonstrated that it is both free of lead-containing and copper-containing materials, as required by subsection (G)(1) of this section and that its 90th percentile lead levels and 90th percentile copper levels meet the criteria of subsection (G)(2) of this section, the waiver remains in effect so long as the water system continues to meet the waiver eligibility criteria of subsection (G)(5) of this section. The first round of tap water sampling conducted pursuant

to subsection (G)(4) of this section shall be completed no later than nine years after the last time the water system has sampled for lead and copper at the tap.

b. If the CWS or NTNCWS has met the materials criteria of subsection (G)(1) of this section but has not met the sampling criteria of subsection (G)(2) of this section, the water system shall conduct a round of sampling for lead and copper at the tap demonstrating that it meets the criteria of subsection (G)(2) of this section no later than September 30, 2000. Thereafter, the waiver shall remain in effect as long as the water system meets the continued eligibility criteria of subsection (G)(5) of this section. The first round of tap water sampling conducted pursuant to subsection (G)(4) of this section shall be completed no later than nine years after the round of sampling conducted pursuant to subsection (G)(2) of this section.

**§ 705 DESCRIPTION OF CORROSION CONTROL TREATMENT REQUIREMENTS**

Each CWS or NTNCWS shall complete the corrosion control treatment requirements described below which are applicable to such CWS or NTNCWS under § 706.

A. CWS or NTNCWS recommendation regarding corrosion control treatment

1. Based upon the results of lead and copper tap sampling and water quality parameter sampling, small and medium-size CWS or NTNCWS exceeding the lead or copper action level shall recommend installation of one or more of the corrosion control treatments listed in subsection (C)(1) of this section which the CWS or NTNCWS believes constitutes optimal corrosion control for that CWS or NTNCWS.

2. The Director may require the CWS or NTNCWS to conduct additional water quality parameter sampling in accordance with § 707(B) to assist the Director in reviewing the CWS's or NTNCWS's recommendation.

B. Director-decision to require studies of corrosion control treatment (applicable to small and medium-size CWSs or NTNCWSs)

1. The Director may require any small and medium-size CWS or NTNCWS that exceeds the lead or copper action level to perform corrosion control studies under subsection (C) of this section to identify optimal corrosion control treatment for the CWS or NTNCWS.

C. Performance of corrosion control studies

1. Any CWS or NTNCWS performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment for that CWS or NTNCWS:

a. Alkalinity and pH adjustment;

b. Calcium hardness adjustment; and

c. The addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

2. The CWS or NTNCWS shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial- system tests, or analyses based on documented analogous treatments with other CWSs or NTNCWSs of similar size, water chemistry and distribution system configuration.

3. The CWS or NTNCWS shall measure the following water quality parameters in any tests conducted under this subsection before and after evaluating the corrosion control treatments listed above:

a. Lead;

b. Copper;

c. pH;

d. Alkalinity;

e. Calcium;

f. Conductivity;

g. Orthophosphate (when an inhibitor containing a phosphate compound is used);

h. Silicate (when an inhibitor containing a silicate compound is used); and

i. Water temperature.

4. The CWS or NTNCWS shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one of the following:

a. Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another CWS or NTNCWS with comparable water quality characteristics; and/or

b. Data and documentation demonstrating that the CWS or NTNCWS has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

5. The CWS or NTNCWS shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

6. On the basis of an analysis of the data generated during each evaluation, the CWS or NTNCWS shall recommend to the Director in writing the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that CWS or NTNCWS. The CWS or NTNCWS shall provide a rationale for its recommendation along with all supporting documentation specified in subsections (C)(1) through (5) of this section.

D. Director's designation of optimal corrosion control treatment

1. Based upon consideration of available information including, where applicable, studies performed under subsection (C) of this section and a CWS's or NTNCWS's recommended treatment alternative, the Director shall either approve the corrosion control treatment option recommended by the CWS or NTNCWS or designate alternative corrosion control treatment(s) from among those listed in subsection (C)(1) of this section. When designating optimal treatment, the Director shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes.

2. The Director shall notify the CWS or NTNCWS of the decision on optimal corrosion control treatment in writing and explain the basis for this determination. If the Director requests additional information to aid the review, the CWS or NTNCWS shall provide the information.

E. Installation of optimal corrosion control. Each CWS or NTNCWS shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the Director under subsection (D) of this section.

F. Director's review of treatment and specification of optimal water quality control parameters. The Director shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the CWS or NTNCWS and determine whether the CWS or NTNCWS has properly installed and operated the optimal corrosion control treatment designated by the Director in subsection (D) of this section. Upon reviewing the results of tap water and water quality parameter sampling by the CWS or NTNCWS, both before and after the CWS or NTNCWS installs optimal corrosion control treatment, the Director shall designate:

1. A minimum value or a range of values for pH measured at each entry point to the distribution system;

2. A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than 7.0, unless the Director determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the CWS or NTNCWS to optimize corrosion control;

3. If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, that the Director determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system;

4. If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples;

5. If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

The values for the applicable water quality control parameters listed above shall be those that the Director determines to reflect optimal corrosion control treatment for the CWS or NTNCWS. The Director may designate values for additional water quality control parameters to reflect optimal corrosion control for the CWS or NTNCWS. The Director shall notify the CWS or NTNCWS in writing of the determinations and explain the basis for the decisions.

G. Continued Operation and Sampling. All CWSs or NTNCWSs optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the Director under subsection (F) of this section, in accordance with this subsection for all samples collected under § 707(D)-(F). Compliance with the requirements of this subsection shall be determined every six months, as specified under § 707(D). A water system is out of compliance with the requirements of this subsection for a six-month period if it has excursions for any NNEPA-specified parameter on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the Director. Daily values are calculated as follows. The Director will have discretion to delete results of obvious sampling errors from this calculation.

1. On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous sampling, grab sampling, or a combination of both. If EPA has approved an alternative formula under 40 CFR § 142.16 in the state/tribe's application for a program revision submitted pursuant to 40 CFR § 142.12, the state/tribe's formula shall be used to aggregate multiple measurements taken at a sampling point for the water quality parameter in lieu of the formula in this subsection.

2. On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

3. On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

H. Modification of the Director's treatment decision

Upon the Director's initiative or in response to a request by a CWS or NTNCWS or other interested party, the Director may modify a determination of the optimal corrosion control treatment under subsection (D) of this section or optimal water quality control parameters under subsection (F) of this section.

A request for modification by a CWS or NTNCWS or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation.

The Director may modify a determination where the Director concludes that such change is necessary to ensure that the CWS or NTNCWS continues to optimize corrosion control treatment.

A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the Director's decision, and provide an implementation schedule for completing the treatment modifications.

I. Treatment decisions by EPA in lieu of the Director

Pursuant to the procedures in 40 CFR § 142.19, the EPA Regional Administrator may review treatment determinations made by the Director under subsections (D), (F), or (H) of this section and issue federal treatment determinations consistent with the requirements of those subsections where the Regional Administrator finds that:

1. The Director has failed to issue a treatment determination by the applicable deadlines contained in § 706;

2. The Director has abused his/her discretion in a substantial number of cases or in cases affecting a substantial population; or

3. The technical aspects of the Director's determination would be indefensible in an expected Federal enforcement action taken against a CWS or NTNCWS.

**§ 706 APPLICABILITY OF CORROSION CONTROL TREATMENT STEPS TO SMALL, MEDIUM-SIZE AND LARGE PUBLIC WATER SYSTEM**

A. Public water system, CWSs and NTNCWSs, shall complete the applicable corrosion control treatment requirements described in § 705 by the deadlines established in this section.

1. A large CWS or NTNCWS (serving >50,000 persons) shall complete the corrosion control treatment steps specified in subsection (D) of this section, unless it is deemed to have optimized corrosion control under subsection (B)(2) or (B)(3) of this section.

2. A small CWS or NTNCWS (serving ≤3,300 persons) and medium-size CWS or NTNCWS (serving >3,300 and ≤50,000 persons) shall complete the corrosion control treatment steps specified in subsection (E) of this section, unless it is deemed to have optimized corrosion control under subsection (B)(1), (B)(2), or (B)(3) of this section.

B. Any CWS or NTNCWS deemed to have optimized corrosion control under this section, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the Director determines appropriate to ensure optimal corrosion control treatment is maintained.

A CWS or NTNCWS is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the CWS or NTNCWS satisfies one of the following criteria:

1. A small or medium-size CWS or NTNCWS is deemed to have optimized corrosion control if the CWS or NTNCWS meets the lead and copper action levels during each of two consecutive six-month sampling periods conducted in accordance with § 704.

2. Any CWS or NTNCWS may be deemed, by the Director, to have optimized corrosion control treatment if the CWS or NTNCWS demonstrates to the satisfaction of the Director that it has conducted activities equivalent to the corrosion control steps applicable to such CWS or NTNCWS under this section.

If the Director makes this determination, a written notice explaining the basis for the decision will be provided and shall specify the water quality control parameters representing optimal corrosion control in accordance with § 705(F).

CWS or NTNCWS deemed to have optimized corrosion control under this subsection shall operate in compliance with the NNEPA-designated optimal water quality control parameters in accordance with § 705(G) and continue to conduct lead and copper tap and water quality parameter sampling in accordance with §§ 704(D)(4) and 707(D), respectively.

A CWS or NTNCWS shall provide the Director with the following information in order to support a determination under this subsection:

a. The results of all test samples collected for each of the water quality parameters in § 705(C)(3);

b. A report explaining the test methods used by the CWS or NTNCWS to evaluate the corrosion control treatments listed in § 705(C)(1), the results of all tests conducted, and the basis for the CWS or NTNCWS's selection of optimal corrosion control treatment;

c. A report explaining how corrosion control has been installed and how it is being maintained to insure minimal lead and copper concentrations at consumers' taps; and

d. The results of tap water samples collected in accordance with § 704 at least once every six months for one year after corrosion control has been installed.

3. Any CWS or NTNCWS is deemed to have optimized corrosion control if it submits results of tap water sampling conducted in accordance with § 704 and source water sampling conducted in accordance with § 708 that demonstrates for two consecutive six-month sampling periods

that the difference between the 90th percentile tap water lead level computed under § 703(A)(3), and the highest source water lead concentration, is less than the Practical Quantitation Level (PQL) for lead specified in Appendix C 701-C (A)(1)(b).

a. Those CWS or NTNCWS whose highest source water lead level is below the Method Detection Limit may also be deemed to have optimized corrosion control under this subsection if the 90th percentile tap water lead level is less than or equal to the PQL for lead for two consecutive 6-month sampling periods.

b. Any CWS or NTNCWS deemed to have optimized corrosion control in accordance with this subsection shall continue sampling for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in § 704(C) and collecting the samples at times and locations specified in § 704 (D)(5)(d).

Any such CWS or NTNCWS that has not conducted a round of sampling pursuant to § 704(D) since September 30, 1997, shall complete a round of sampling pursuant to this section no later than September 30, 2000.

c. Any CWS or NTNCWS deemed to have optimized corrosion control pursuant to this subsection shall notify the Director in writing pursuant to § 712(A)(3) of any upcoming long-term change in treatment or addition of new source as described in that section. The Director must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. The Director may require any such CWS or NTNCWS to conduct additional sampling or to–take other action the Director deems appropriate to ensure that such CWS or NTNCWS maintain minimal levels of corrosion in the distribution system.

d. Upon promulgation of these regulations, a CWS or NTNCWS is not deemed to have optimized corrosion control under this subsection, and shall implement corrosion control treatment pursuant to subsection (B)(3)(e) of this section unless it meets the copper action level.

e. Any CWS or NTNCWS triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this subsection shall implement corrosion control treatment in accordance with the deadlines in subsection (E) of this section.

Any such large CWS or NTNCWS shall adhere to the schedule specified in that subsection for medium-size CWS or NTNCWS, with the time periods for completing each step being triggered by the date the water system is no longer deemed to have optimized corrosion control under this subsection.

C. Any small or medium-size CWS or NTNCWS that is required to complete the corrosion control steps due to its exceedance of the lead or copper action level may cease completing the treatment steps whenever the CWS or NTNCWS meets both action levels during each of the two consecutive sampling periods conducted pursuant to § 704 and submits the results to the Director.

If any such CWS or NTNCWS, thereafter, exceeds the lead or copper action level during any sampling period, the CWS or NTNCWS shall recommence completion of the applicable treatment steps, beginning with the first treatment step which was not previously completed in its entirety.

The Director may require a CWS or NTNCWS to repeat treatment steps previously completed by the CWS or NTNCWS where the Director determines that this is necessary to implement properly the treatment requirements of this section.

The Director shall notify the CWS or NTNCWS in writing of such a determination and explain the basis for the decision.

The requirement for any small or medium-size CWS or NTNCWS to implement corrosion control treatment steps in accordance with subsection (E) of this section (including CWS or NTNCWSs deemed to have optimized corrosion control under subsection (B)(1) of this section) is triggered whenever any small- or medium-size CWS or NTNCWS exceeds the lead or copper action level.

D. Treatment steps and deadlines for large CWSs or NTNCWSs. Except as provided in subsection (B)(2) and (3) of this section, large CWSs or NTNCWSs shall complete the following corrosion control treatment steps (described in the referenced portions of §§ 705, 704, and 707) by the indicated dates.

1. Step 1: The CWS or NTNCWS shall conduct initial sampling §§ 704(D)(1) and 707(B) during two consecutive six-month sampling periods by January 1, 1993.

2. Step 2: The CWS or NTNCWS shall complete corrosion control studies (§ 705(C)) by July 1, 1994.

3. Step 3: The Director shall designate optimal corrosion control treatment (§ 705(D)) by January 1, 1995.

4. Step 4: The CWS or NTNCWS shall install optimal corrosion control treatment (§ 705(E)) by January 1, 1997.

5. Step 5: The CWS or NTNCWS shall complete follow-up sampling (§§ 704(D)(3) and 707(C)) by January 1, 1998.

6. Step 6: The Director shall review installation of treatment and designate optimal water quality control parameters (§ 705(F)) by July 1, 1998.

7. Step 7: The CWS or NTNCWS shall operate in compliance with the Director-specified optimal water quality control parameters (§ 705(G)) and continue to conduct tap sampling (§§ 704(D)(4) and 707(D)).

E. Treatment Steps and deadlines for small and medium-size CWSs or NTNCWSs. Except as provided in subsection (B) of this section, small and medium-size CWSs or NTNCWSs shall complete the following corrosion control treatment steps (described in the referenced portions of §§ 705, 704, and 707) by the indicated time periods.

1. Step 1: The CWS or NTNCWS shall conduct initial tap sampling (§§ 704(D)(1) and 707(B)) until the CWS or NTNCWS either exceeds the lead or copper action level or becomes eligible for reduced sampling under § 704(D)(5). A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment (§ 705(A)) within six months after the end of the sampling period during which it exceeds one the action levels.

2. Step 2: Within 12 months after the end of the sampling period during which a systems exceeds the lead or copper action level, the Director may require the system to perform corrosion control studies (§ 705(B)). If the Director does not require the CWS or NTNCWS to perform such studies, the Director shall specify optimal corrosion control treatment (§ 705(D)) within the following timeframes:

   a. For medium-size systems, within 18 months after the end of the sampling period during which such system exceeds the lead or copper action level.

   b. For small systems, within 24 months after the end of the sampling period during which such system exceeds the lead or copper action level.

3. Step 3: If the Director requires a CWS or NTNCWS to perform corrosion control studies under Step 2, the CWS or NTNCWS shall complete the studies (§ 705(C)) within 18 months after the Director requires that such studies be conducted.

4. Step 4: If the CWS or NTNCWS has performed corrosion control studies under Step 2, the Director shall designate optimal corrosion control treatment (§ 705(D)) within 6 months after completion of Step 3.

5. Step 5: The CWS or NTNCWS shall install optimal corrosion control treatment (§ 705(E)) within 24 months after the Director designates such treatment.

6. Step 6: The CWS or NTNCWS shall complete follow-up sampling (§§ 704(D)(3) and 707(C)) within 36 months after the Director designates optimal corrosion control treatment.

7. Step 7: The Director shall review the CWS’s or NTNCWS's installation of treatment and designate optimal water quality control parameters (§ 705(F)) within 6 months after completion of Step 6.

8. Step 8: The CWS or NTNCWS shall operate in compliance with the Director-designated optimal water quality control parameters (§ 705(G)) and continue to conduct tap sampling (§§ 704 (D)(4) and 707(D)).

## § 707 SAMPLING REQUIREMENTS FOR WATER QUALITY PARAMETERS

All large CWSs or NTNCWSs and all small and medium-size CWSs or NTNCWSs that exceed the lead or copper action level shall sample water quality parameters in addition to lead and copper in accordance with this section. The requirements of this section are summarized in the table at the end of this section.

A. General Requirements

1. Sample collection methods

a. Tap samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the CWS or NTNCWS, and seasonal variability. Tap sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under § 704(A). [Note: CWSs or NTNCWSs may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under § 404.]

b. Samples collected at the entry point(s) to the distribution CWS or NTNCWS shall be from locations representative of each source after treatment. If a CWS or NTNCWS draws water from more than one source and the sources are combined before distribution, the CWS or NTNCWS must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

2. Number of samples

a. Except as provided in subsection (C)(3) of this section, CWSs or NTNCWSs shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each sampling period specified under subsections (B) of this section from the following number of sites.

**TABLE 700.2 WATER QUALITY PARAMETER SAMPLING SITE**

| System size (# of people served) | # of sites for water quality parameters |
|---|---|
| >100,000 | 25 |
| 10,001 to 100,000 | 10 |
| 3,301 to 10,000 | 3 |
| 501 to 3,300 | 2 |
| 101 to 500 | 1 |
| ≤100 | 1 |

b. CWSs or NTNCWSs shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each sampling period specified in subsection (B) of this section. During each sampling period specified in subsections (C) through (E) of this section, CWSs or NTNCWSs shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

B. Initial sampling. All large CWSs or NTNCWSs shall measure the applicable water quality parameters as specified below at taps and at each entry point to the distribution system during each six-month sampling period specified in § 704(D)(2). All small and medium-size CWSs or NTNCWSs shall measure the applicable water quality parameters at the locations specified below during each six-month sampling period specified in § 704(D)(2) during which the CWS or NTNCWS exceeds the lead or copper action level.

1. At taps:

a. pH;

b. Alkalinity;

c. Orthophosphate, when an inhibitor containing a phosphate compound is used;

d. Silica, when an inhibitor containing a silicate compound is used;

e. Calcium;

f. Conductivity; and

g. Water temperature.

2. At each entry point to the distribution system: all of the applicable parameters listed in subsection (B)(1) of this section.

C. Sampling after installation of corrosion control. Any large CWS or NTNCWS which installs optimal corrosion control treatment pursuant to § 706(D)(4) shall measure the water quality parameters at the locations and frequencies specified below during each six-month sampling period specified in § 704(D)(3)(a). Any small or medium-size CWS or NTNCWS which installs optimal corrosion control treatment shall conduct such sampling during each six-month sampling period specified in § 704(D)(3)(b) in which the CWS or NTNCWS exceeds the lead or copper action level.

1. At taps, two samples for:

a. pH;

b. Alkalinity;

c. Orthophosphate, when an inhibitor containing a phosphate compound is used;

d. Silica, when an inhibitor containing a silicate compound is used; and

e. Calcium, when calcium carbonate stabilization is used as part of corrosion control.

2. Except as provided in subsection (C)(3) of this section, at each entry point to the distribution system, at least one sample no less frequently than every two weeks (biweekly) for:

a. pH;

b. When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and

c. When a corrosion inhibitor is used as part of the optimal corrosion control, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable).

3. Any ground water system can limit entry point sampling described in subsection (C)(2) of this section to those entry points that are representative of water quality and treatment conditions throughout the water system. If water from untreated ground water sources mixes with water from treated ground water sources, the water system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any sampling under this subsection, the water system shall provide to the Director written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the water system.

D. Sampling after the Director specifies water quality parameter values for optimal corrosion control. After the Director specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under § 705(F), all large CWSs or NTNCWSs shall measure the applicable water quality parameters in accordance with subsection (C) of this section and determine compliance with the requirements of § 705(G) every six months with the first six-month period to begin on either January 1 or July 1, whichever comes first, after the Director specifies the optimal values under § 705(F). Any small or medium-size CWS or NTNCWS shall conduct such sampling during each six-month period specified in this subsection in which the CWS or NTNCWS exceeds the lead or copper action level. For any such small and medium-size CWSs or NTNCWSs that is subject to

a reduced sampling frequency pursuant to § 704 (D)(5) at the time of the action level exceedance, the start of the applicable six-month period under this subsection shall coincide with the start of the applicable sampling period under § 704 (D)(5). Compliance with Director-designated optimal water quality parameter values shall be determined as specified under § 705(G).

E. Reduced Sampling

1. Any CWS or NTNCWS that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month sampling periods under subsection (D) of this section shall continue sampling at the entry point(s) to the distribution system as specified in subsection (C)(2) of this section. Such CWS or NTNCWS may collect two tap samples for applicable water quality parameters from the following reduced number of sites during each six-month sampling period.

**TABLE 700.3 REDUCED SAMPLING**

| System size (# of people served) | Reduced # of sites for water quality parameters |
|---|---|
| >100,000 | 10 |
| 10,001 to 100,000 | 7 |
| 3,301 to 10,000 | 3 |
| 501 to 3,300 | 2 |
| 101 to 500 | 1 |
| ≤100 | 1 |

2. a. Any CWS or NTNCWS that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Director under § 705(F) during three consecutive years of sampling may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (E)(1) of this section from every six months to annually. This sampling begins during the calendar year immediately following the end of the sampling period in which the third consecutive year of six-month sampling occurs. Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Director under §§705 (F) during three consecutive years of annual sampling under this subsection may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in subsection (E)(1) of this section from annually to every three years. This sampling begins no later than the third calendar year following the end of the sampling period in which the third consecutive year of sampling occurs.

b. A CWS or NTNCWS may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in subsection (E)(1) of this section to every three years if it demonstrates during two consecutive sampling periods that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead specified in Appendix C -Lead/Copper, that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L for copper in § 703(A)(2), and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Director under § 705(F). Sampling conducted every three years shall be done no later than every third calendar year.

3. A CWS or NTNCWS that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

4. Any CWS or NTNCWS subject to reduced sampling frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the Director under § 705(F) for more than nine days in any six-month period specified in § 705(G) shall resume distribution system tap water sampling in accordance with the number and frequency requirements in subsection (D) of this section. Such a water system may resume annual sampling for water quality parameters at the tap at the reduced number of sites

specified in subsection (E)(1) of this section after it has completed two subsequent consecutive six-month rounds of sampling that meet the criteria of that subsection and/or may resume triennial sampling for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of sampling that it meets the criteria of either subsection (E)(2)(a) or (E)(2)(b) of this section.

F. Additional sampling by CWSs or NTNCWSs. The results of any sampling conducted in addition to the minimum requirements of this section shall be considered by the public water system and the Director in making any determinations (i.e., determining concentrations of water quality parameters) under this section or § 705.

**TABLE 700.4 SUMMARY SAMPLING REQUIREMENTS FOR WATER QUALITY PARAMETERS[1]**

| SAMPLING PERIOD | PARAMETERS[2] | LOCATION | FREQUENCY |
|---|---|---|---|
| Initial Sampling | pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature | Taps and at entry point(s) to distribution system. | Every 6 months |
| After installation of Corrosion Control | pH, alkalinity, orthophosphate or silica[3], calcium[4] | Taps | Every 6 months |
| | pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]. | Entry point(s) to distribution system. | No less frequently than every two weeks. |
| After Director Specifies Parameter Values for Optimal Corrosion Control | pH, alkalinity, orthophosphate or silica[3], calcium[4] | Taps | Every 6 months |
| | pH, alkalinity dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]. | Entry point(s) to distribution system[6]. | No less frequently than every two weeks. |
| Reduced Sampling | pH, alkalinity, orthophosphate or silica[3], calcium[4] | Taps | Every 6 months annually[7] or every 3 years[8] reduced number of sites. |
| | pH, alkalinity dosage rate and concentration (if alkalinity adjustment as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]. | Entry point(s) to distribution system[6]. | No less frequently than every two weeks. |

[1] Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.
[2] Small and medium-size CWS or NTNCWSs have to sample for water quality parameters only during sampling periods in which the CWS or NTNCWS exceeds the lead or copper action level.
[3] Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing a silicate compound is used.
[4] Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.
[5] Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.
[6] Ground water systems may limit sampling to representative locations throughout the water system.
[7] Water systems may reduce frequency of sampling for water quality parameters at the tap from every six months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of sampling.
[8] Water systems may further reduce the frequency of sampling for water quality parameters at the tap from annually to once every 3 years if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of annual sampling. Water systems may accelerate to triennial sampling for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of water quality parameters designated by the Director under § 705(F) as representing optimal corrosion control during two consecutive six-month sampling periods.

## § 708 SAMPLING REQUIREMENTS FOR LEAD AND COPPER IN SOURCE WATER

A. Sample location, collection methods, and number of samples

1. A CWS or NTNCWS that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with § 704 shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

a. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point). The water system shall take one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

b. Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a sampling point). The water system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

NOTE: For the purposes of this subsection, surface water systems include water systems with a combination of surface and ground sources.

c. If a water system draws water from more than one source and the sources are combined before distribution, the water system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

d. The Director may reduce the total number of samples which must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/L, then either:

i. A follow-up sample shall be taken and analyzed within 14 days at each sampling point included in the composite; or

ii. If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the water system may use these instead of resampling.

2. Where the results of sampling indicate an exceedance of maximum permissible source water levels established under § 709 (B)(4), the Director may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point. If a Director-required confirmation sample is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the Director-specified maximum permissible levels. Any sample value below the detection limit shall be considered to be zero. Any value above the detection limit but below the PQL shall either be considered as the measured value or be considered as one-half the PQL.

B. Sampling frequency after CWS or NTNCWS exceeds tap water action level. Any CWS or NTNCWS which exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system no later than six months after the end of the sampling period during which the lead or copper action level was exceeded. For sampling periods that are annual or less frequent, the end of the sampling period is September 30th of the calendar year in which the sampling occurs, or if the Director has established an alternate sampling period, the last day of that period.

C. Sampling frequency after installation of source water treatment. Any CWS or NTNCWS which installs source water treatment pursuant to § 709(A)(3) shall collect an additional source water sample from each entry point to the distribution system during two consecutive six-month sampling periods by the deadline specified in § 709(A)(4).

D. Sampling frequency after the Director specifies maximum permissible source water levels or determines that source water treatment is not needed.

1. A CWS or NTNCWS shall sample at the frequency specified below in cases where the Director specifies maximum permissible source water levels under § 709(B)(4) or determines that the public water system is not required to install source water treatment under § 709(B)(2).

a. A CWS or NTNCWS using only groundwater shall collect samples once during the three-year compliance period (as that term is defined in § 104) in effect when the applicable Director determination under subsection (D)(1) of this section is made. Such water system shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year.

b. A CWS or NTNCWS using surface water (or a combination of surface and groundwater) shall collect samples once during each calendar year, the first annual sampling period to begin on year in which the applicable Director determination is made under subsection (D)(1) of this section.

2. A CWS or NTNCWS is not required to conduct source water sampling for lead and/or copper if the water system meets the action level for the specific contaminant in tap water samples during the entire source water sampling period applicable to the water system under subsection (D)(1)(a) or (b) of this section.

E. Reduced sampling frequency

1. A CWS or NTNCWS using only ground water may reduce the sampling frequency for lead and copper in source water to once during each nine-year compliance cycle (as that term is defined in § 104) provided that the samples are collected no later than every ninth calendar year and if the water system meets one of the following criteria:

a. The water system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the Director in § 709(B)(4) during at least three consecutive compliance periods under subsection (D)(1) of this section; or

b. The Director has determined that source water treatment is not needed and the water system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under subsection (D)(1) of this section, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

2. A CWS or NTNCWS using surface water (or a combination of surface water and ground water) may reduce the sampling frequency in subsection (D)(1) of this section to once during each nine-year compliance cycle (as that term is defined in § 104) provided that the samples are collected no later than every ninth calendar year and if the water system meets one of the following criteria:

a. The CWS or NTNCWS demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the Director in § 709(B)(4) for at least three consecutive years; or

b. The Director has determined that source water treatment is not needed and the CWS or NTNCWS demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

3. A CWS or NTNCWS that uses a new source of water is not eligible for reduced sampling for lead and/or copper until concentrations in samples collected from the new source during three consecutive sampling periods are below the maximum permissible lead and copper concentrations specified by the Director in § 709(A)(5).

**§ 709 SOURCE WATER TREATMENT REQUIREMENTS**

CWSs or NTNCWSs shall complete the applicable source water sampling and treatment requirements (described in the referenced portions of subsection (B) of this section, and in §§ 704 and 708) by the following deadlines:

A. Deadlines for Completing Source Water Treatment Steps:

1. Step 1: A CWS or NTNCWS exceeding the lead or copper action level shall complete lead or copper source water sampling (§ 708(B)) and make a treatment recommendation to the Director (§ 709(B)(1)) no later than 180 days after the end of the sampling period during which the lead or copper action level was exceeded.

2. Step 2: The Director shall make a determination regarding source water treatment (§ 709(B)(2)) within 6 months after submission of sampling results under Step 1.

3. Step 3: If the Director requires installation of source water treatment, the CWS or NTNCWS shall install the treatment (§ 709(B)(3)) within 24 months after completion of Step 2.

4. Step 4: The CWS or NTNCWS shall complete follow-up tap water sampling (§ 704(D)(3)) and source water sampling (§ 708(C)) within 36 months after completion of Step 2.

5. Step 5: The Director shall review the CWS's or NTNCWS's installation and operation of source water treatment and specify maximum permissible source water levels (§ 709(B)(4)) within 6 months after completion of Step 4.

6. Step 6: The public water system shall operate in compliance with the maximum permissible lead and copper source water levels (§ 709(B)(4)) and continue source water sampling (§ 708(D)).

B. Description of Source Water Treatment Requirements:

1. CWS or NTNCWS treatment recommendation. Any CWS or NTNCWS which exceeds the lead or copper action level shall recommend in writing to the Director the installation and operation of one of the source water treatments listed in subsection (B)(2) of this section. A CWS or NTNCWS may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

2. Director determination regarding source water treatment. The Director shall complete an evaluation of the results of all source water samples submitted by the CWS or NTNCWS to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the Director determines that treatment is needed, the Director shall either require installation and operation of the source water treatment recommended by the CWS or NTNCWS (if any) or require the installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening, or coagulation/filtration.

   If the Director requests additional information to aid in his/her review, the CWS or NTNCWS shall provide the information by the date specified by the Director in his/her request. The Director shall notify the system in writing of the determination and set forth the basis for his/her decision.

3. Installation of source water treatment. Each CWS or NTNCWS shall properly install and operate the source water treatment designated by the Director under subsection (B)(2) of this section.

4. Director review of source water treatment and specification of maximum permissible source water levels. The Director shall review the source water samples taken by the CWS or NTNCWS both before and after the system installs source water treatment, and determine whether the CWS or NTNCWS has properly installed and operated the source water treatment designated by the Director. Based upon this review, the Director shall designate the maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment properly operated and maintained. The Director shall notify the CWS or NTNCWS in writing and explain the basis for the decision.

5. Continued operation and maintenance. Each CWS or NTNCWS shall maintain lead and copper levels below the maximum permissible concentrations designated by the Director at each sampling

point sampled in accordance with § 708. The CWS or NTNCWS is out of compliance with this subsection if the level of lead or copper at any sampling point is greater than the maximum permissible concentration designated by the Director.

6. Modification of the Director treatment decisions. Upon the Director's own initiative or in response to a request by a CWS or NTNCWS or other interested party, the Director may modify the determination of the source water treatment under subsection (B)(2) of this section, or maximum permissible lead and copper concentrations for finished water entering the distribution system under subsection (B)(4) of this section. A request for modification by a CWS or NTNCWS or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Director may modify a determination where the Director concludes that such change is necessary to ensure that the CWS or NTNCWS continues to minimize lead and copper concentrations in source water. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the Director's decision, and provide an implementation schedule for completing the treatment modifications.

7. Treatment decisions by EPA in lieu of the Director. Pursuant to the procedures in 40 CFR § 142.19, the EPA Regional Administrator may review treatment determinations made by the Director under subsections (B)(2), (B)(4), or (B)(6) of this section and issue Federal treatment determinations consistent with the requirements of those subsections where the Administrator finds that:

   a. The Director has failed to issue a treatment determination by the applicable deadlines contained in § 709(A);

   b. The Director has abused his/her discretion in a substantial number of cases or in cases affecting a substantial population; or

   c. The technical aspects of the Director's determination would be indefensible in an expected Federal enforcement action taken against a system.

**§ 710 LEAD SERVICE LINE REPLACEMENT REQUIREMENTS**

A. CWS or NTNCWSs that fail to meet the lead action level in tap samples taken pursuant to § 704 (D)(3), after installing corrosion control and/or source water treatment (whichever sampling occurs later), shall replace lead service lines in accordance with requirements of this section. If a CWS or NTNCWS is in violation of § 706 or § 709 for failure to install source water or corrosion control treatment, the Director may require the public water system to commence lead service line replacement under this section after the date by which the CWS or NTNCWS was required to conduct sampling under § 704(D)(3) has passed.

B. 1. A CWS or NTNCWS shall replace annually at least 7% of the initial number of lead service lines in the distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The CWS or NTNCWS shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the water system, based on a materials evaluation, including the evaluation required under § 704(A) and relevant legal authorities (e.g., contracts, local ordinances) regarding the portion owned by the water system. The first year of lead service line replacement shall begin on the date the action level was exceeded in tap sampling referenced in subsection (A) of this section. The first year of lead service line replacement shall begin on the first day following the end of the sampling period in which the action level was exceeded under subsection (A) of this section. If sampling is required annually or less frequently, the end of the sampling period is September 30th of the calendar year in which the sampling occurs. If the Director has established an alternate sampling period, then the end of the sampling period will be the last day of that period.

2. Any water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by subsection (F) of this section shall update it inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under subsection (C) of this section. The system will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year (7 percent lead service line replacement is based on a 15-year replacement program, so for example, systems resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13). For those systems that have completed a 15-year lead service line replacement program, the

Director will determine a schedule for replacing or retesting lines that were previously tested out under the replacement program when the system re-exceeds the action level.

C. A CWS or NTNCWS is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to § 704(B)(3), is less than or equal to 0.015 mg/L.

D. A CWS or NTNCWS shall replace that portion of the lead service line that it owns. In cases where the water system does not own the entire lead service line, the water system shall notify the owner of the line, or the owner's authorized agent, that the water system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A water system is not required to bear the cost of replacing the privately-owned portion of the line, nor is it required to replace the privately-owned portion where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion would be precluded by tribal, local or common law. A water system that does not replace the entire length of the service line also shall complete the following tasks.

1. At least 45 days prior to commencing with the partial replacement of a lead service line, the water system shall provide notice to the resident(s) of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead. The Director may allow the water system to provide notice under the previous sentence less than 45 days prior to commencing partial lead service line replacement where such replacement is in conjunction with emergency repairs. In addition, the water system shall inform the resident(s) served by the line that the water system will, at the water system's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed under § 704(B)(3), within 72 hours after the completion of the partial replacement of the service line. The water system shall collect the sample and report the results of the analysis to the owner and the resident(s) served by the line within three business days of receiving the results. Mailed notices post-marked within three business days of receiving the results shall be considered "on time."

2. The water system shall provide the information required by subsection (D)(1) of this section to the residents of individual dwellings by mail or by other methods approved by the Director. In instances where multi-family dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

E. The Director shall require a CWS or NTNCWS to replace lead service lines on a shorter schedule than that required by this section, taking into account the number of lead service lines in the CWS or NTNCWS, where such a shorter replacement schedule is feasible. The Director shall make this determination in writing and notify the CWS or NTNCWS of the findings within 6 months after the CWS or NTNCWS is triggered into lead service line replacement based on sampling referenced in subsection (A) of this section.

F. Any CWS or NTNCWS may cease replacing lead service lines whenever first draw samples collected pursuant to § 704(B)(2) meet the lead action level during each of two consecutive sampling periods and the CWS or NTNCWS submits the results to the Director. If the first draw tap samples collected in any such public water system thereafter exceeds the lead action level, the public water system shall recommence replacing lead service lines, pursuant to subsection (B) in this section.

G. To demonstrate compliance with subsections (A) through (D) of this section, a CWS or NTNCWS shall report to the Director the information specified in § 712(E).

**§ 711 PUBLIC EDUCATION AND SUPPLEMENTAL SAMPLING REQUIREMENTS**

All water systems must deliver a consumer notice of lead tap water sampling results to persons served by the water system at sites that are tested, as specified in subsection (D) of this section. A water system that exceeds the lead action level based on tap water samples collected in accordance with § 704 shall deliver the public education materials contained in subsection (A) of this section in accordance with the requirements in subsection (B) of this section. Water systems that exceed the lead action level must sample the tap water of any customer who requests it in accordance with subsection (C) of this section.

A. Content of written public education materials

1. Community water systems and non-transient non-community water systems. Water systems must include the following elements in printed materials (e.g., brochures and pamphlets) in the same order as listed below. In addition, language in subsections (A)(1)(a) through (b)

and (A)(1)(c) of this section must be included in the materials, exactly as written, except for the text in brackets in these subsections for which the water system must include system-specific information. Any additional information presented by a water system must be consistent with the information below and be in plain language that can be understood by the general public. Water systems must submit all written public education materials to the Director prior to delivery. The Director may require the system to obtain approval of the content of written public materials prior to delivery.

a. IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [INSERT NAME OF WATER SYSTEM] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.

b. Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother’s bones, which may affect brain development.

c. Sources of lead

i. Explain what lead is.

ii. Explain possible sources of lead in drinking water and how lead enters drinking water. Include information on home/building plumbing materials and service lines that may contain lead.

iii. Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

d. Discuss the steps the consumer can take to reduce their exposure to lead in drinking water.

i. Encourage running the water to flush out the lead.

ii. Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

iii. Explain that boiling water does not reduce lead levels.

iv. Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.

v. Suggest that parents have their child’s blood tested for lead.

e. Explain why there are elevated levels of lead in the system’s drinking water (if known) and what the water system is doing to reduce the lead levels in homes/buildings in this area.

f. For more information call us at (928) 871-7755 or visit our website at www.navajopublicwater.org. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA’s website at http://www.epa.gov/lead or contact your health care provider.

2. Community water systems. In addition to including the elements specified in subsection (A)(1) of this section, community water systems must:

a. Tell consumers how to get their water tested.

b. Discuss lead in plumbing components and the difference between low lead and lead free.

B. Delivery of public education materials

1. For public water systems serving a large proportion of non-English speaking consumers, as determined by the Director, the public education materials must contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

2. A community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with § 704, and that is not already conducting public education tasks under this section, must conduct the public education tasks under this section within 60 days after the end of the sampling period of in which the exceedance occurred.

a. Deliver printed materials meeting the content requirements of subsection (A) of this section to all bill paying customers.

b.

i. Contact customers who are most at risk by delivering education materials that meet the content requirements of subsection (A) of this section to local public health agencies even if they are not located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users. The water system must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community based organizations serving target populations, which may include or organizations outside the service area of the water system. If such lists are provide, systems must deliver education materials that meet the content requirements of subsection (A) of this section to all organizations on the provided list.

ii. Contact customers who are most at risk by delivering materials that meet the content requirements of subsection (A) of this section to the following organizations listed in 1 through 6 that are located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users:

A. Public and private schools or school boards.
B. Women, Infants, and Children (WIC) and Head Start programs.
C. Public and private hospitals and medical clinics.
D. Pediatricians.
E. Family planning clinics.
F. Local welfare agencies.

iii. Make a good faith effort to locate the following organizations within the service area and deliver materials that meet the content requirements of subsection (A) of this section to them, along with an informational notice that encourages distribution to all potentially affected customers or users. The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area:

A. Licensed childcare centers
B. Public and private preschools
C. Obstetricians-Gynecologist and Midwives.

c. No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written except for the text in brackets for which the water system must include system-specific information: [INSERT NAME OF WATER SYSTEM] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call [INSERT NAME OF WATER SYSTEM] [or visit (INSERT YOUR WEB SITE HERE)]. The message or delivery mechanism can be modified in consultation with the Director; specifically, the Director may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

d. Post material meeting the content requirements of subsection (A) of this section on the water system's Web site if the system serves a population greater than 100,000.

e. Submit a press release to newspaper, television and radio stations.

f. In addition to subsection (B)(2)(a) through (e) of this section, systems must implement at least three activities from one or more categories listed below. The educational content and selection of these activities must be determined in consultation with the Director.

i. Public Service Announcements

ii. Paid advertisements

iii. Public Area Information Displays

iv. E-mails to customers

v. Public Meetings

vi. Household deliveries

vii. Targeted Individual Customer Contact

viii. Direct material distribution to all multi-family homes and institutions

ix. Other methods approved by the Director

g. For systems that are required to conduct sampling annually or less frequently, the end of the sampling period is September 30th of the calendar year in which the sampling occurs, or, if the Director has established an alternate sampling period, the last day of that period.

3. As long as a community water system exceeds the action level, it must repeat the activities pursuant to subsection (B)(2) of this section as described in subsections (B)(3)(a) through (d) of this section.

a. a community water system shall repeat the tasks contained in subsection (B)(2)(a), (b), (f) of this section every 12 months.

b. A community water system shall repeat the tasks contained in subsection (B)(2)(c) of this section with each billing cycle.

c. A community water system serving a population greater than 100,000 shall post and retain material on a publicly accessible Web site pursuant to subsection (B)(2)(d) of this section.

d. The community water system shall repeat the task in subsection (B)(2)(e) of this section twice every 12 months on a schedule agreed upon with the Director. The Director can allow activities in subsection (B)(2) of this section to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the Director in advance of the 60-day deadline.

4. Within 60 days after the end of the sampling period in which the exceedance occurred (unless it already is repeating public education tasks pursuant to subsection (B)(5) of this section), a non-transient non-community water system shall deliver the public education materials specified by subsection (A) of this section as follows:

a. Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

b. Distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the non-transient non-community water system. The Director may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

c. For systems that are required to conduct sampling annually or less frequently, the end of the sampling period is September 30th of the calendar year in which the sampling occurs, or, if the Director has established an alternate sampling period, the last day of that period.

5. A non-transient non-community water system shall repeat the tasks contained in subsection (B)(4) of this section at least once during each calendar year in which the system exceeds the lead action level. The 60-day requirement of subsection (B)(4) may be extended if needed for implementation purposes; however, this extension must be approved in writing by the Director in advance of the 60-day deadline.

6. A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month sampling period conducted pursuant to § 704. Such a system shall recommence public education in accordance with this section if it subsequently exceeds the lead action level during any sampling period.

7. A community water system may apply to the Director, in writing (unless the Director has waived the requirement for prior Director-approval), to use only the text specified subsection (A)(1) of this section in lieu of the text in subsections (A)(1) and (A)(2) of this section and to perform the tasks listed in subsection (B)(4) and (B)(5) of this section in lieu of the tasks in subsection (B)(2) and (B)(3) of this section if:

a. The system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices; and

b. The system provides water as part of the cost of services provided and does not separately charge for water consumption.

8. A community water system serving 3,300 or fewer people may limit certain aspects of their public education programs as follows:

a. With respect to the requirements of subsection (B)(2)(f) of this section, a system serving 3,300 or fewer must implement at least one of the activities list in that subsection.

b. With respect to the requirements of subsection (B)(2)(b) of this section, a system serving 3,300 or fewer people may limit the distribution of the public education materials required under that subsection to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

c. With respect to the requirements of subsection (B)(2)(e) of this section, the Director may waive this requirement for systems serving 3,300 or fewer persons as long as system distributes notices to every household served by the system.

C. Supplemental sampling and notification of results. A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with § 704 shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system required to collect and analyze the sample itself.

D. Notification of results

1. Reporting requirement. All water systems must provide a notice of the individual tap results from the lead tap water sampling carried out under the requirements of § 704 to the persons served by the water system at the specific sampling site from which the sample was taken (e.g., the occupants of the residence where the tap was tested).

2. Timing of notification. A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system learns of the tap sampling results.

3. Content. The consumer notice must include the results of lead tap water sampling for the tap that was tested, an explanation of the health effects of lead, list steps consumers can take to reduce exposure to lead in drinking water and contact information for the water utility. The notice must also provide the maximum contaminant level goal and the action level for lead and the definitions for these two terms from § 104.

4. Delivery. The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the Director. For example, upon approval by the Director, a non-transient non-community water system could post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

**§ 712 REPORTING REQUIREMENTS**

All CWSs or NTNCWSs s shall report all of the following information to the Director in accordance with this section.

A. Reporting requirements for tap water sampling for lead and copper and for water quality parameter sampling.

1. Except as provided in subsection (A)(1)(h) of this section, a water system shall report the information specified below for all tap water samples specified in § 704 and for all water quality parameter samples specified in § 707 within the first 10 days following the end of each applicable sampling period specified in §§ 704 and 707 (i.e., every six months, annually, every 3 years, or every 9 years).

a. The results of all tap samples for lead and copper including the location of each site and the criteria under § 704(A)(3), (4), (5), (6), and/or (7) under which the site was selected for the public water system's sampling pool;

b. Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to § 704(F)(2);

c. [Reserved];

d. The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each sampling period (calculated in accordance with § 703(A)(3), unless the Director calculates the water system’s 90th percentile lead and copper levels under subsection (H) of this section);

e. With the exception of initial tap sampling conducted pursuant to § 704(D)(2), the public water system shall designate any site which was not sampled during previous sampling periods, and include an explanation of why sampling sites have changed;

f. The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under § 707(B) - (E);

g. The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under § 707(B) - (E);

h. A water system shall report the results of all water quality parameter samples collected under § 707(C)-(F) during each six-month sampling period specified in § 707(D) within the first 10 days following the end of the sampling period unless the Director has specified a more frequent reporting requirement.

2. For a NTNCWS, or a CWS meeting the criteria of § 711(C)(7)(a) and (b), that does not have enough taps that can provide first-draw samples, the water system must either:

a. Provide written documentation to the Director identifying standing times and locations for enough non-first-draw samples to make up its sampling pool under § 704(B)(5) by the start of the first applicable sampling period under § 704(D) that commences after promulgation of these regulations, unless the Director has waived prior Director- approval of non-first-draw sample sites selected by the water system pursuant to § 704(B)(5); or

b. If the Director has waived prior approval of non-first-draw sample sites selected by the water system, identify, in writing, each site that did not meet the six-hour minimum standing time and the length of standing time for that particular substitute sample collected pursuant to § 704(B)(5) and include this information with the lead and copper tap sample results required to be submitted pursuant to subsection (A)(1)(a) of this section.

3. At a time specified by the Director, or if no specific time is designated by the Director, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system deemed to have optimized corrosion control under § 706(B)(3), or a water system subject to a sampling waiver pursuant to § 704(G), shall submit written documentation to the Director describing the change or addition. The Director must review and approve the addition of a new source or long-term change in treatment before it is implements by the water system. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (e.g., alum to ferric chloride), and switching corrosion inhibitor products (e.g., orthophosphate to blended phosphate). Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes.

4. Any small water system applying for a sampling waiver under § 704(G), or subject to a waiver granted pursuant to § 704(G)(3), shall provide the following information to the Director in writing by the specified deadline:

   a. By the start of the first applicable sampling period in § 704(D), any small water system applying for a sampling waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of § 704(G)(1) and (2).

   b. No later than nine years after the sampling previously conducted pursuant to § 704(G)(2) or § 704(G)(4)(a), each small water system desiring to maintain its sampling waiver shall provide the information required by § 704(G)(4)(a) and (b).

   c. No later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper-containing material, as appropriate, each small water system with a sampling waiver shall provide written notification to the Director, setting forth the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the water system and what corrective action, if any, the water system plans to remove these materials.

   d. By October 10, 2000, any small water system with a waiver granted prior to the promulgation of these regulations and that has not previously met the requirements of § 704(G)(2) shall provide the information required by that subsection.

5. Each ground water system that limits water quality parameter sampling to a subset of entry points under § 707(C)(3) shall provide, by the commencement of such sampling, written correspondence to the Director that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the water system.

B. Source water sampling reporting requirements

1. A public water system shall report the sampling results for all source water samples collected in accordance with § 708 within the first 10 days following the end of each source water sampling period (i.e., annually, per compliance period, per compliance cycle) specified in § 708.

2. With the exception of the first round of source water sampling conducted pursuant to § 708(B), the water system shall specify any site which was not sampled during previous sampling periods, and include an explanation of why the sampling point has changed.

C. Corrosion control treatment reporting requirements. By the applicable dates under § 706, public water systems shall report the following information:

1. For public water systems demonstrating that they have already optimized corrosion control, information required in § 706(B)(2) or (3).

2. For public water systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under § 705(A).

3. For public water systems required to evaluate the effectiveness of corrosion control treatments under § 705(C), the information required by that subsection.

4. For public water systems required to install optimal corrosion control designated by the Director under § 705(D), a letter certifying that the public water system has completed installing that treatment.

D. Source water treatment reporting requirements. By the applicable dates in § 709, public water systems shall provide the following information to the Director:

1. If required under § 709(B)(1), their recommendation regarding source water treatment;

2. For public water systems required to install source water treatment under § 709(B)(2), a letter certifying that the public water system has completed installing the treatment designated by the Director within 24 months after the Director designated the treatment.

E. Lead service line replacement reporting requirements. Public water systems shall report the following information to the Director to demonstrate compliance with the requirements of § 710:

1. No later than 12 months after the end of a sampling period in which a system exceeds the lead action level in sampling referred to in § 710(A), the system must submit written documentation to the Director of the material evaluation conducted as required in § 704(A), identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and provide the system's schedule for annually replacing at least 7 percent of the initial number of lead services lines in its distribution system.

2. No later than 12 months after the end of a sampling period in which a system exceeds the lead action level in sampling referred to in § 710(A), and every 12 months thereafter, the system shall demonstrate to the Director in writing that the system has either:

a. Replaced in the previous 12 months at least 7% of the initial lead service lines (or a greater number of lines specified by the Director under § 710(E)) in its distribution system, or;

b. Conducted sampling which demonstrates that the lead concentration in all service lines samples from an individual line(s), taken pursuant to § 704(B)(3), is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced and/or which meet the criteria in § 710(C) shall equal at least 7% of the initial number of lead lines identified under subsection (A) of this section (or the percentage specified by the Director under § 710(E)).

3. The annual letter submitted to the Director under subsection (E)(2) of this section shall contain the following information:

a. The number of lead service lines scheduled to be replaced during the previous year of the public water system's replacement schedule;

b. The number and location of each lead service line replaced during the previous year of the public water system's replacement schedule;

c. If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.

4. Any water system which collects lead service line samples following partial lead service line replacement required by §710 shall report the results to the Director within the first ten days of the month following the month in which the water system receives the laboratory results, or as specified by the Director. The Director may eliminate this requirement to report these sampling results. Water systems shall also report any additional information as specified by the Director, and in a time and manner prescribed by the Director, to verify that all partial lead service line replacement activities have taken place.

F. Public education program reporting requirements

1. Any water system that is subject to the public education requirements in § 711 shall, within ten days after the end of each period in which the water system is required to perform public education in accordance with § 711(C), send written documentation to the Director that contains:

a. A demonstration that the system has delivered the public education materials that meet the content requirements in § 711(A) and the delivery requirements in § 711(B); and

b. A list of all the newspapers, radio stations, television stations, and facilities and organizations to which the water system delivered public education materials during the period in which the water system was required to perform public education tasks.

2. Unless required by the Director, a water system that previously has submitted the information required by subsection (F)(1)(b) of this section need not resubmit the information required by subsection (F)(1)(b) of this section, as long as there have been no changes in the distribution list and the water system certifies that the public education materials were distributed to the same list submitted previously.

3. No later than 3 months following the end of the sampling period, each system must mail a sample copy of the consumer notification of tap results to the Director along with a certification that the notification has been distributed in a manner consistent with the requirements of § 711(D).

G. Reporting of additional sampling data. Any CWS or NTNCWS which collects sampling data in addition to that required by this part shall report the results to the Director within the first ten days following the end of the applicable sampling period under §§ 704, 707, and 708 during which the samples are collected.

H. Reporting of 90th percentile lead and copper concentrations where the Director calculates a water system's 90th percentile concentrations. A water system is not required to report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each sampling period, as required by subsection (A)(1)(d) of this section if:

1. The Director has previously notified the water system that it will calculate the water system's 90th percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to subsection (H)(2)(a) of this section, and has specified a date before the end of the applicable sampling period by which the water system must provide the results of lead and copper tap water samples;

2. The water system has provided the following information to the Director by the date specified in subsection (H)(1) of this section:

a. The results of all tap samples for lead and copper including the location of each site and the criteria under § 704(A)(3), (4), (5), (6), and/or (7) under which the site was selected for the water system's sampling pool, pursuant to subsection (A)(1)(a) of this section; and

b. An identification of sampling sites utilized during the current sampling period that were not sampled during previous sampling periods, and an explanation why sampling sites have changed; and

3. The Director has provided the results of the 90th percentile lead and copper calculations, in writing, to the water system before the end of the sampling period.

**§ 713 RECORDKEEPING REQUIREMENTS**

Any CWS or NTNCWS subject to the requirements of this part, Part VII-Lead and Copper, shall retain on its premises original records of all sampling data and analyses, reports, surveys, letter, evaluations, schedules, Director-determinations, and any other information required by §§ 706 through 708. Each public water system shall retain the records required by this section for no fewer than 12 years.

# PART VIII
# GENERAL REQUIREMENTS FOR SURFACE WATER TREATMENT

## § 801 PURPOSE

These regulations establish criteria under which filtration is required as a treatment technique for public water systems supplied by a surface water source and public water systems supplied by a groundwater source under the direct influence of surface water. In addition, these regulations establish treatment technique requirements in lieu of MCLs for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, and turbidity.

## § 802 GENERAL REQUIREMENTS

A. Each public water system with a surface water source or a groundwater source under the direct influence of surface water must provide treatment of that source water that complies with these treatment technique requirements. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

1. At least 99.9% (3-log) removal and/or inactivation of *Giardia lamblia* cysts between a point where the raw water is not subject to re-contamination by surface water runoff and a point downstream before or at the first customer; and

2. At least 99.99% (4-log) removal and/or inactivation of viruses between a point where the raw water is not subject to re-contamination by surface water runoff and a point downstream before or at the first customer.

B. A public water system using a surface water source or a groundwater source under the direct influence of surface water is considered to be in compliance with the requirements of subsection (A) of this section if:

1. It meets the requirements for avoiding filtration specified in § 803 and the disinfection requirements in § 804(A) or

2. It meets the filtration requirements in § 805 and the disinfection requirements in § 804(B).

C. Each public water system using a surface source or a groundwater source under the direct influence of surface water must be operated by qualified personnel who meet the requirements specified Part XIV.

D. Additional requirements for systems serving at least 10,000 people. In addition to complying with requirements in this section, systems serving at least 10,000 people must also comply with the requirements in Part XIII.

E. Additional requirements for systems serving fewer than 10,000 people. In addition to complying with requirements in this section, systems serving fewer than 10,000 people must also comply with the requirements in Part 2100 of these regulations.

## § 803 CRITERIA FOR AVOIDING FILTRATION

A public water system that uses a surface water source must meet all of the conditions of subsections (A) and (B) of this section, and is subject to subsection (C)(2) of this section, unless the Director has determined, in writing pursuant to § 2535 of the NNSDWA, that filtration is required. A public water system that uses a groundwater source under the direct influence of surface water must meet all of the conditions of subsections (A) and (B) of this section and is subject to subsection (C)(2) of this section, beginning 18 months after the Director determines that it is under the direct influence of surface water or beginning immediately, if the Administrator has already made that determination, unless the Director has determined, in writing pursuant to § 2535 of the NNSDWA, that filtration is required. Within 18 months of the failure of a public water system using surface water or a groundwater source under the direct influence of surface water to meet any one of the requirements of subsections (A) and (B) of this section, the public water system must have installed filtration and meet the criteria for filtered public water systems specified in § 804(B) and § 805.

A. Source Water Quality Conditions

1. The fecal coliform concentration must be equal to or less than 20/100 ml, or the total coliform concentration must be equal to or less than 100/100 ml (measured as specified in Appendix D § 801-D(A)(1) and (2) and (B)(1)), in representative samples of the source water

immediately prior to the first or only point of disinfectant application in at least 90% of the measurements made for the 6 previous months that the public water system served water to the public on an ongoing basis. If a public water system measures both fecal and total coliforms, the fecal coliform criterion, but not the total coliform criterion, in this subsection must be met.

2. The turbidity level cannot exceed 5 NTU (measured as specified in Appendix D § 801-D(A)(1) and (B)(2)) in representative samples of the source water immediately prior to the first or only point of disinfectant application unless:

   a. The Director determines that any such event was caused by circumstances that were unusual and unpredictable; and

   b. As a result of any such event, there have not been more than two events in the past 12 months that the public water system served water to the public, or more than five events in the past 120 months the public water system served water to the public, in which the turbidity level exceeded 5 NTU. An "event" is a series of consecutive days during which at least one turbidity measurement each day exceeds 5 NTU.

B. Site-Specific Conditions

1. a. The public water system must meet the requirements of § 804(A)(1) at least 11 of the 12 previous months that the public water system served water to the public, on an ongoing basis, unless the public water system fails to meet the requirements during 2 of the 12 previous months that the public water system served water to the public, and the Director determines that at least one of these failures was caused by circumstances that were unusual and unpredictable.

   b. The public water system must meet the requirements of § 804(A)(2) at all times that the system serves water to the public.

   c. The public water system must meet the requirements of § 804(A)(3) at all times that the system serves water to the public unless the Director determines that any such failure was caused by circumstances that were unusual and unpredictable.

   d. The public water system must meet the requirements of § 804(A)(4) on an ongoing basis unless the Director determines that failure to meet these requirements was not caused by a deficiency in treatment of the source water.

2. The public water system must maintain a watershed control program which minimizes the potential for contamination by *Giardia lamblia* cysts and viruses in the source water. The Director must determine whether the watershed control program is adequate to meet this goal. The adequacy of a program to limit potential contamination by *Giardia lamblia* cysts and viruses must be based on: the comprehensiveness of the watershed review; the effectiveness of the public water system's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the public water system has maximized land ownership and/or controlled land use within the watershed. At a minimum, the watershed control program must:

   a. Characterize the watershed hydrology and land ownership;

   b. Identify watershed characteristics and activities which may have an adverse effect on source water quality; and

   c. Monitor the occurrence of activities which may have an adverse effect on source water quality.

   The public water system must demonstrate through ownership and/or written agreements with landowners within the watershed that it can control all human activities which may have an adverse impact on the microbiological quality of the source water. The public water system must submit an annual report to the Director that identifies any special concerns about the watershed and how they are being handled; describes activities in the watershed that affect water quality; and projects what adverse activities are expected to occur in the future and describes how the public water system expects to address them. For public water systems using a groundwater source under the direct influence of surface water, an approved wellhead protection program developed by the NNEPA may be used, if the Director deems it appropriate, to meet these requirements.

3. The public water system must be subject to an annual on-site inspection to assess the watershed control program and disinfection treatment process. Either the Director or a party approved by the Director must conduct the on-site inspection. The inspection must be conducted by competent individuals such as sanitary and civil engineers, sanitarians, or technicians who have experience and knowledge about the operation and maintenance of a public water system, and who have a sound understanding of public health principles and waterborne diseases. A report of the on-site inspection summarizing all findings must be prepared every year and forwarded to the Director. The on-site inspection must indicate to the Director's satisfaction that the watershed control program and disinfection treatment process are adequately designed and maintained. The on-site inspection must include:

   a. A review of the effectiveness of the watershed control program;

   b. A review of the physical condition of the source intake and how well it is protected;

   c. A review of the system's equipment maintenance program to ensure there is low probability for failure of the disinfection process;

   d. An inspection of the disinfection equipment for physical deterioration;

   e. A review of operating procedures;

   f. A review of data records to ensure that all required tests are being conducted and recorded and disinfection is effectively practiced; and

   g. Identification of any improvements which are needed in the equipment, system maintenance and operation, or data collection.

4. The public water system must not have been identified as a source of a waterborne disease outbreak, or if it has been so identified, the system must have been modified sufficiently to prevent another such occurrence, as determined by the Director.

5. The public water system must comply with the MCL for *E.coli* in § 205(B) and (C) and at least 11 months of the 12 previous months that the system served water to the public, on an ongoing basis, unless the Director determines that failure to meet this requirement was not caused by a deficiency in treatment of the source water.

6. The water system must comply with the requirements for total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide in Part XI of these regulations.

C. Treatment Technique Violations

1. A public water system is in violation of a treatment technique requirement if the system:

   a. fails to meet any one of the criteria in subsections (A) and (B) of this section and/or which the Director has determined that filtration is required, in writing, pursuant to § 2535 of the NNSDWA, and

   b. fails to install filtration as required in the introductory paragraph of this section.

2. A public water system that has not installed filtration is in violation of a treatment technique requirement if:

   a. The turbidity level (measured as specified in § Appendix D § 801-D(A)(1) and (B)(2)) in a representative sample of the source water immediately prior to the first or only point of disinfection application exceeds 5 NTU; or

   b. The system is identified as a source of a waterborne disease outbreak.

**§ 804 DISINFECTION**

A public water system that uses a surface water source and does not provide filtration treatment must provide the disinfection treatment specified in subsection (A) of this section unless the Director determines, in writing, that filtration is required pursuant to § 2535 of the NNSDWA. A public water system that uses a groundwater source under the direct influence of surface water and does not provide filtration treatment must provide disinfection treatment specified in subsection (A) of this section

18 months after the Director determines that the groundwater source is under the influence of surface water, or beginning immediately, if the administrator has already made that determination, unless the Director has determined in writing that filtration is required pursuant to §2535 of the NNSDWA. If the Director has determined that filtration is required, the public water system must comply with any interim disinfection requirements the Director deems necessary before filtration is installed. A public water system that uses a surface water source that provides filtration treatment must provide the disinfection treatment specified in subsection (B) of this section beginning when filtration is installed. A public water system that uses a groundwater source under the direct influence of surface water and provides filtration treatment must provide disinfection treatment as specified in subsection (B) of this section beginning when filtration is installed. Failure to meet any requirement specified in this introductory subsection is a treatment technique violation.

A. Disinfection requirements for public water systems that do not provide filtration. Each public water system that does not provide filtration treatment must provide disinfection treatment as follows:

1. The disinfection treatment must be sufficient to ensure at least 99.9% (3-log) inactivation of *Giardia lamblia* cysts and 99.99% (4-log) inactivation of viruses, every day that the system serves water to the public, except any one day each month. Each day a system serves water to the public, the public water system must calculate the CT value(s) from the system's treatment parameters, using the procedure specified in Appendix D § (801-D)(B)(3), and determine whether this value(s) is sufficient to achieve the specified inactivation rates for *Giardia lamblia* cysts and viruses. If a system uses a disinfectant other than chlorine, the system may demonstrate to the Director, through the use of a Director-approved protocol for on-site disinfection challenge studies or other information satisfactory to the Director, that $CT_{99.9}$ values other than those specified in Appendix D: Tables 800-D-10 and 800-D-11 or other operational parameters are adequate to demonstrate that the system is achieving minimum inactivation rates required by subsection (A)(1) of this section.

2. The disinfection system must have either:

   a. redundant components, including an auxiliary power supply with automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system, or

   b. automatic shut-off of water delivery to the distribution system whenever there is less than 0.2 mg/L of residual disinfectant concentration in the water. If the Director determines that automatic shut-off would cause unreasonable risk to health or interfere with fire protection, the public water system must comply with subsection (A)(2)(a) of this section.

3. The residual disinfectant concentration in the water entering the distribution system, measured as specified in Appendix D § 801-D(A)(2) and (B)(5), cannot be less than 0.2 mg/L for more than 4 hours.

4. a. The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in Appendix D § 801-D(A)(2) and (B)(6), cannot be undetectable in more than 5% of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as heterotrophic plate count (HPC) as specified in Appendix D § 801-D (A)(1), is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the values "V" in the following formula cannot exceed 5% in one month, for any two consecutive months.

$$V = \frac{c+d+e}{a+b} \times 100$$

where:
a = number of instances where the residual disinfectant concentration is measured;
b = number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;
c = number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;
d = number of instances where the residual disinfectant concentration is measured but not detected and where the HPC is >500/ml; and
e = number of instances where the residual disinfectant concentration is not measured and HPC

is >500/ml.

b. If the Director determines, based on site-specific considerations, that a public water system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Appendix D § 801-D (A)(1) and that the system is providing adequate disinfection in the distribution system, the requirements of subsection (A)(4)(a) of this section do not apply to that system.

B. Disinfection requirements for public water systems which provide filtration. Each public water system that provides filtration treatment must provide disinfection treatment as follows.

1. The disinfection treatment must be sufficient to ensure that the total treatment processes of that public water system achieve at least 99.9% (3-log) inactivation and/or removal of *Giardia lamblia* cysts and at least 99.99% (4-log) inactivation and/or removal of viruses, as determined by the Director.

2. The residual disinfectant concentration in the water entering the distribution system, measured as specified in Appendix D § 801-D(A)(2) and (C)(2), cannot be less than 0.2 mg/L for more than 4 hours.

3. a. The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in Appendix D § 801-D(A)(2) and (C)(3), cannot be undetectable in more than 5% of the samples each month, for any two consecutive months that the system serves water to the public. Water in the distribution system with a heterotrophic bacteria concentration less than or equal to 500/ml, measured as HPC as specified in Appendix D § 801-D(A)(1), is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Thus, the value "V" in the following formula cannot exceed 5% in one month, for any two consecutive months.

$$V = \frac{c+d+e}{a+b} \times 100$$

where:
a = number of instances where the residual disinfectant concentration is measured;
b = number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;
c = number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;
d = number of instances where no residual disinfectant concentration is detected and where the HPC is >500/ml; and
e = number of instances where the residual disinfectant concentration is not measured and HPC is >500/ml.

b. If the Director determines, based on site-specific considerations, that a public water system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified in Appendix D § 801-D(A)(1) and that the system is providing adequate disinfection in the distribution system, the requirements of subsection (B)(3)(a) of this section do not apply.

**§ 805 FILTRATION**

A public water system that uses a surface water source or a groundwater source under the direct influence of surface water, and does not meet all of the criteria in § 803(A) and (B) for avoiding filtration, must provide treatment consisting of both disinfection, as specified in § 804 (B), and filtration treatment which complies with the requirements of subsections (A), (B), (C), or (D) of this section within 18 months of the failure to meet any one of the criteria for avoiding filtration in § 803(A) and (B). Failure to meet any requirement specified in this introductory subsection is a treatment technique violation.

A. Conventional filtration treatment or direct filtration

1. For public water systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.5 NTU in at least 95% of the measurements taken each month, measured as specified in Appendix D § 801-D(A)(1) and (C)(1), except that if the Director determines that the system

is capable of achieving at least 99.9 % removal and/or inactivation of *Giardia lamblia* cysts at some turbidity level higher than 0.5 NTU in at least 95% of the measurements taken each month, the Director may substitute this higher turbidity limit for that system. However, in no case may the Director approve a turbidity limit that allows more than 1 NTU in more than 5% of the samples taken each month, measured as specified in Appendix D § 801-D(A)(1) and (C)(1).

2. The turbidity level of representative samples of a public water system's filtered water must at no time exceed 5 NTU measured as specified in Appendix D § 801-D(A)(1) and (C)(1).

3. Public water systems serving at least 10,000 people must meet the turbidity requirements in § 1305(A).

4. Beginning January 14, 2005, systems serving fewer than 10,000 people must meet the turbidity requirements in §§ 2106(A)-(D).

B. Slow sand filtration

1. For public water systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95% of the measurements taken each month, measured as specified in Appendix D § 801-D(A)(1) and (C)(1), except that if the Director determines there is no significant interference with disinfection at a higher turbidity level, the Director may substitute this higher turbidity limit for that system.

2. The turbidity level of representative samples of a public water system's filtered water must at no time exceed 5 NTU, measured as specified in Appendix D § 801-D(A)(1) and (C)(1).

C. Diatomaceous earth filtration

1. For public water systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95% of the measurements taken each month, measured as specified in Appendix D § 801-D(A)(1) and (C)(1).

2. The turbidity level of representative samples of a public water system's filtered water must at no time exceed 5 NTU, measured as specified in Appendix D § 801-D(A)(1) and (C)(1).

D. Other filtration technologies

A public water system may use a filtration technology not listed in subsections (A)-(C) of this section if it demonstrates to the Director, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of § 804(B), consistently achieves 99.9% removal and/or inactivation of *Giardia lamblia* cysts and 99.99% removal and/or inactivation of viruses. For a system that makes this demonstration, the requirements of subsection (B) of this section apply. Public water systems serving at least 10,000 people must meet the requirements for other filtration technologies in § 1305(B). Beginning January 14, 2005, systems serving fewer than 10,000 people must meet the requirements for other filtration technologies in §§ 2106(A)-(D).

**§ 806 REPORTING AND RECORDKEEPING REQUIREMENTS**

A. A public water system that uses a surface water source and does not provide filtration treatment must report monthly to the Director the information specified in this subsection (A), unless the Director has determined in writing that filtration is required pursuant to § 2535 of the NNSDWA, in which case the Director may specify alternative reporting requirements, as appropriate, until filtration is in place. A public water system that uses a groundwater source under the direct influence of surface water and does not provide filtration treatment must report monthly to the Director the information specified in this subsection (A) 6 months after the Director determines that the groundwater source is under the direct influence of surface water, or beginning immediately, if the Administrator has already made that determination unless the Director has determined, in writing, that filtration is required pursuant to § 2535 of the NNSDWA, in which case the Director may specify alternative reporting requirements, as appropriate, until filtration is in place.

1. Source water quality information must be reported to the Director within 10 days after the end of each month that the system serves water to the public. Information that must be reported includes:

a. The cumulative number of months for which results are reported.

b. The number of total coliform samples analyzed during the month, the dates of sample collection, and the dates when the turbidity level exceeded 1 NTU.

c. The number of samples during the month that tested positive for total coliforms or *E.coli*.

d. The cumulative number of total coliform samples during the previous six months that the system served water to the public.

e. The cumulative number of samples that were total coliform positive or *E.coli* positive during the previous six months that the system served water to the public.

f. The percentage of samples that were total coliform positive or *E.coli* positive during the previous six months that the system served water to the public.

g. The maximum turbidity level measured during the month, the date(s) of occurrence for any measurement(s) which exceeded 5 NTU, and the date(s) that the occurrence(s) was reported to the Director.

h. For the first 12 months of recordkeeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after one year of recordkeeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 12 months that the system served water to the public.

i. For the first 120 months of recordkeeping, the dates and cumulative number of events during which the turbidity exceeded 5 NTU, and after 10 years of recordkeeping for turbidity measurements, the dates and cumulative number of events during which the turbidity exceeded 5 NTU in the previous 120 months that the system served water to the public.

2. Disinfection information specified in Appendix D § 801-D(B) must be reported to the Director within 10 days after the end of each month that the system serves water to the public. Information that must be reported includes:

a. For each day, the lowest measurement of residual disinfectant concentration (in mg/L) in water entering the distribution system.

b. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/L and when the Director was notified of the occurrence.

c. The daily residual disinfectant concentration(s) (in mg/L) and disinfectant contact time(s) (in minutes) used for calculating the CT value(s).

d. If chlorine is used, the daily measurement(s) of pH of disinfected water following each point of chlorine disinfection.

e. The daily measurement(s) of water temperature in $^{o}$C following each point of disinfection.

f. The daily $CT_{calc}$ and $CT_{calc}/CT_{99.9}$ values for each disinfectant measurement or sequence and the sum of all $CT_{calc}/CT_{99.9}$ values (($CT_{calc}/CT_{99.9}$)) before or at the first customer.

g. The daily determination of whether disinfection achieves adequate *G.lamblia* cysts and virus inactivation, i.e., whether ($CT_{calc}/CT_{99.9}$) is at least 1.0 or, where disinfectants other than chlorine are used, other indicator conditions that the Director determines are appropriate, are met.

h. The following information on the samples taken in the distribution system in conjunction with total coliform sampling pursuant to § 804:

i. Number of instances where the residual disinfectant concentration is measured;

ii. Number of instances where the residual disinfectant concentration is not

measured but heterotrophic bacteria plate count (HPC) is measured;

iii. Number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

iv. Number of instances where residual disinfectant concentration is detected and where HPC is >500/ml;

v. Number of instances where the residual disinfectant concentration is not measured and HPC is >500/ml;

vi. For the current and previous month that the system served water to the public, the value of "V" in the following formula:

$$V = \frac{c+d+e}{a+b} \times 100$$

where

a = the value in subsection (A)(2)(h)(1) of this section,
b = the value in subsection (A)(2)(h)(2) of this section,
c = the value in subsection (A)(2)(h)(3) of this section,
d = the value in subsection (A)(2)(h)(4) of this section, and
e = the value in subsection (A)(2)(h)(5) of this section.

vii. If the Director determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory under the requisite time and temperature conditions specified by Appendix D § 801-D(A)(1) and that the system is providing adequate disinfection in the distribution system, the requirements of subsection (A)(2)(h)(1)-(6) of this section do not apply to that system.

i. A system need not report the data listed in subsections (A)(2)(a)-(c-f) of this section if all data listed in subsections (A)(2)(a)-(h) of this section remain on file at the system, and the Director determines that:

i. The system has submitted to the Director all the information required by subsections (A)(2)(a)-(h) of this section for at least 12 months; and

ii. The Director has determined that the system is not required to provide filtration treatment.

3. No later than ten days after the end of each federal fiscal year (September 30), each system must provide to the Director a report which summarizes its compliance with all watershed control program requirements specified in § 803(B)(2).

4. No later than ten days after the end of each federal fiscal year (September 30), each system must provide to the Director a report of the on-site inspection conducted during that year pursuant to § 803(B)(3), unless the on-site inspection was conducted by the Director. If the inspection was conducted by the Director, the Director must provide a copy of his/her report to the public water system.

5. a. Each system, upon discovering that a waterborne disease outbreak potentially attributable to that system has occurred, must report that occurrence to the Director as soon as possible, but no later than by the end of the next business day.

b. If at any time the turbidity exceeds 5 NTU, the system must consult with the NNEPA-PWSSP as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under § 605(B)(3).

c. If at any time the residual falls below 0.2 mg/L in the water entering the distribution system, the system must notify the Director as soon as possible, but no later than by the end of the next business day. The system also must notify the Director by the end of the next business day whether or not the residual was restored to at least 0.2 mg/L within 4 hours.

B. A public water system that uses a surface water source or a groundwater source under the direct

influence of surface water and provides filtration treatment must report monthly to the Director the information specified in this subsection (B) when filtration is installed,

1. Turbidity measurements as required by Appendix D § 801-D(C)(1) must be reported within 10 days after the end of each month that the system serves water to the public. Information that must be reported includes:

   a. The total number of filtered water turbidity measurements taken during the month.

   b. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in § 805 for the filtration technology being used.

   c. The date and value of any turbidity measurements taken during the month which exceed 5 NTU.

2. Disinfection information specified in Appendix D § 801-D(C) must be reported to the Director within 10 days after the end of each month that the system serves water to the public. Information that must be reported includes:

   a. For each day, the lowest measurement of residual disinfectant concentration in mg/L in water entering the distribution system.

   b. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.2 mg/L and when the Director was notified of the occurrence.

   c. The following information on the samples taken in the distribution system in conjunction with total coliform sampling pursuant to § 804:

      i. Number of instances where the residual disinfectant concentration is measured;

      ii. Number of instances where the residual disinfectant concentration is not measured but heterotrophic bacteria plate count (HPC) is measured;

      iii. Number of instances where the residual disinfectant concentration is measured but not detected and no HPC is measured;

      iv. Number of instances where no residual disinfectant concentration is detected and where HPC is > 500/ml;

      v. Number of instances where the residual disinfectant concentration is not measured and HPC is >500/ml;

      vi. For the current and previous month that the system serves water to the public, the value of "V" in the following formula:

$$V = \frac{c+d+e}{a+b} \times 100$$

where
a = the value in subsection (B)(2)(c)(1) of this section,
b = the value in subsection (B)(2)(c)(2) of this section,
c = the value in subsection (B)(2)(c)(3) of this section,
d = the value in subsection (B)(2)(c)(4) of this section, and,
e = the value in subsection (B)(2)(c)(5) of this section.

      vii. If the Director determines, based on site-specific considerations, that a system has no means for having a sample transported and analyzed for HPC by a certified laboratory within the requisite time and temperature conditions specified by Appendix D § 801-D (A)(1) and that the system is providing adequate disinfection in the distribution system, the requirements of subsection (B)(2)(c)(1)-(6) of this section do not apply.

   d. A system need not report the data listed in subsections (B)(2)(a) of this section

if all data listed in subsections (B)(2)(a)-(c) of this section remain on file at the system and the Director determines that the system has submitted all the information required by subsections (B)(2)(a)-(c) of this section for at least 12 months.

3. a. Each system, upon discovering that a waterborne disease outbreak potentially attributable to that system has occurred, must report that occurrence to the Director as soon as possible, but no later than by the end of the next business day.

b. If at any time the turbidity exceeds 5 NTU, the water system must consult with the NNEPA-PWSSP as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under § 605(B)(3).

c. If at any time the residual falls below 0.2 mg/L in the water entering the distribution system, the system must notify the Director as soon as possible, but no later than by the end of the next business day. The system also must notify the Director by the end of the next business day whether or not the residual was restored to at least 0.2 mg/L within 4 hours.

**§ 807 RECYCLE PROVISIONS**

A. Applicability

All Part VIII systems that employ conventional filtration or direct filtration treatment and that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements in subsections (B) through (D) of this section.

B. Reporting

A public water system subject to this section as provided in subsection (A) must notify the Director in writing by December 8, 2003, if the system recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification must include, at a minimum, the information specified in subsections (B)(1) and (2) of this section.

1. A plant schematic showing the origin of all flows which are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are re-introduced back into the treatment plant.

2. Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year (gpm), design flow for the treatment plant (gpm), and Director-approved operating capacity for the plant where the Director has made such determinations.

C. Treatment technique requirement

By June 8, 2004, any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of a system’s existing conventional or direct filtration system as defined in § 104 or at an alternate location approved by the Director. If capital improvements are required to modify the recycle location to meet this requirement, all capital improvements must be completed no later than June 8, 2006.

D. Recordkeeping

The system must collect, and retain on file, recycle flow information specified in subsections (D)(1) through (6) of this section for review and evaluation by the Director, beginning June 8, 2004.

1. Copy of the recycle notification and information submitted to the Director under subsection (B) of this section.

2. List of all recycle flows and the frequency with which they are returned.

3. Average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes.

4. Typical filter run length and a written summary of how filter run length is determined.

5. The type of treatment provided for the recycle flow.
6. Data on the physical dimensions of the equalization and/or treatment units, typical and

maximum hydraulic loading rates, type of treatment chemicals used and average dose and frequency of use and frequency at which solids are removed if applicable.

# PART IX
# USE OF NON-CENTRALIZED TREATMENT DEVICES

## § 901 CRITERIA AND PROCEDURES FOR PUBLIC WATER SYSTEMS USING POINT-OF-ENTRY DEVICES

A. Public water systems may use point-of-entry devices to comply with MCLs only if they meet the requirements of this section.

B. It is the responsibility of the public water system to operate and maintain the point-of-entry treatment system.

C. The public water system must develop and obtain the Director's approval for a sampling plan before point-of-entry devices are installed for compliance. Under the plan approved by the Director, point-of-entry devices must provide health protection equivalent to central water treatment. "Equivalent" means that the water would meet all Navajo Nation Primary Drinking Water Regulations and would be of acceptable quality similar to water distributed by a well-operated central treatment plant. In addition to the VOCs, sampling must include physical measurements and observations such as total flow treated and mechanical condition of the treatment equipment.

D. Effective technology must be properly applied under a plan approved by the Director and the microbiological safety of the water must be maintained.

1. The Director shall require adequate certification of performance, field testing and, if not included in the certification process, a rigorous engineering design review of the point-of-entry devices.

2. The design and application of the point-of-entry devices must consider the tendency for increase in heterotrophic bacteria concentrations in water treated with activated carbon. It may be necessary to use frequent backwashing, post-contactor disinfection, and Heterotrophic Plate Count sampling to ensure that the microbiological safety of the water is not compromised.

E. All consumers shall be protected. Every building connected to the system must have a point-of-entry device installed, maintained, and adequately sampled. The Director must be assured that every building is subject to treatment and sampling, and that the rights and responsibilities of the public water system customer convey with title upon sale of property.

## § 902 USE OF OTHER NON-CENTRALIZED TREATMENT DEVICES

A. Public water systems shall not use bottled water or point-of-use devices to achieve compliance with an MCL. Bottled water or point-of-use devices may be used only on a temporary basis to avoid an unreasonable risk to health.

## § 903 BOTTLED WATER

A. All sources within the Navajo Nation and treatment technologies which are used in the manufacturing of bottled water shall be permitted in accordance with the Part XVI of these regulations.

B. If an out-of-Navajo Nation source of water is used by a bottled water manufacturing plant located within the Navajo Nation, that source must be approved by the Director prior to use.

C. Bottled water systems shall obtain operating permits in accordance with § 109 of these regulations.

D. All the requirements related to drinking water quality, sampling, monitoring, sanitary survey, reporting and record keeping applicable to a public water system shall apply to bottled water system as well.

# PART X
# TREATMENT TECHNIQUES

**§ 1001 GENERAL REQUIREMENTS**

These regulations establish treatment techniques in lieu of MCLs for specified contaminants and are considered part of the NNPDWR.

**§ 1002 TREATMENT TECHNIQUES FOR ACRYLAMIDE AND EPICHLOROHYDRIN**

Each public water system must certify annually in writing to the Director (using third party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

A. Acrylamide=0.05% dosed at 1 ppm (or equivalent)

B. Epichlorohydrin=0.01% dosed at 20 ppm (or equivalent)

Certifications can rely on manufacturers or third parties as approved by the Director.

# PART XI
# DISINFECTANT RESIDUALS, DISINFECTION BYPRODUCTS AND DISINFECTION BYPRODUCT PRECURSORS

**§ 1101 PURPOSE**

A. The requirements of this part constitute NNPDWRs and outline the Disinfectant Residuals, Disinfection Byproducts and Disinfection Byproduct Precursors regulations.

1. The regulations in this part establish criteria under which CWSs and NTNCWSs that add a chemical disinfectant to the water in any part of the drinking water treatment process must modify their practices to meet MCLs and MRDLs in §§ 207 and 208, respectively, and must meet the treatment technique requirements for disinfection byproduct precursors in § 1106.

2. The regulations in this part establish criteria under which TNCWSs that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the MRDL for chlorine dioxide in § 208.

3. EPA has established MCLs for TTHM and HAA5 and treatment technique requirements for disinfection byproduct precursors to limit the levels of known and unknown disinfection byproducts which may have adverse health effects. These disinfection byproducts may include chloroform; bromodichloromethane; dibromochloromethane; bromoform; dichloroacetic acid; and trichloroacetic acid.

**§ 1102 COMPLIANCE DATES**

Notwithstanding the provisions of § 107, this part applies only to CWSs and NTNCWSs.

A. Compliance dates

1. CWSs and NTNCWSs. Unless otherwise noted, systems must comply with the requirements of this part. CWSs and NTNCWSs that are subject to Part VIII and that serve 10,000 or more persons must comply with this part upon the effective date of these regulations. CWSs and NTNCWSs that are subject to Part VIII and that serve fewer than 10,000 persons and CWSs and NTNCWSs using only ground water not under the direct influence of surface water must comply with this part beginning January 01, 2004.

2. TNCWSs that are subject to Part VIII, that serve 10,000 or more persons and that use chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this part. TNCWSs that are subject to Part VIII, that serve fewer than 10,000 persons and that use chlorine dioxide as a disinfectant or oxidant and TNCWSs, using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this part beginning January 01, 2004.

B. Each CWS and NTNCWS regulated under § 1101 of this section must be operated by qualified personnel who meet the requirements specified in § 1400 of these regulations and are included in a NNEPA register of qualified operators.

C. Control of disinfectant residuals. Notwithstanding the MRDLs in § 208, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

**§ 1103 MONITORING REQUIREMENTS**

A. General requirements

1. Systems must take all samples during normal operating conditions.

2. Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with Director approval in accordance with criteria developed under 40 CFR § 142.16(h)(5).

3. Failure to monitor in accordance with the monitoring plan required under subsection (F) of this section is a monitoring violation.

4. Failure to monitor will be treated as a violation for the entire period covered by the

annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

5. Systems may use only data collected under the provisions of this part to qualify for reduced monitoring.

B. Monitoring requirements for disinfection byproducts

1. TTHMs and HAA5

a. Routine monitoring. Systems must monitor at the frequency indicated in the following table:

**TABLE 1100.1 ROUTINE MONITORING FREQUENCIES FOR TTHM AND HAA5**

| Type of System | Minimum monitoring frequency | Sample location in the distribution system |
|---|---|---|
| Part VIII - Surface Water Treatment system serving at least 10,000 persons. | Four water samples per quarter per treatment plant. | At least 25 percent of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods.[1] |
| Part VIII - Surface Water Treatment system serving from 500 to 9,999 persons. | One water sample per quarter per treatment plant. | Locations representing maximum residence time.[1] |
| Part VIII - Surface Water Treatment system serving fewer than 500 persons. | One sample per year per treatment plant during month of warmest water temperature. | Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in subsection (B)(1)(d) of this section. |
| System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons. | One water sample per quarter per treatment plant[2]. | Locations representing maximum residence time.[1] |
| System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons. | One sample per year per treatment plant [2] during month of warmest water temperature. | Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets criteria in subsection (B)(1)(d) of this section for reduced monitoring. |

[1] If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.
[2] Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with Director approval in accordance with criteria developed under 40 CFR § 142.16(h)(5).

b. Systems may reduce monitoring, except as otherwise provided, in accordance with the following table:

**TABLE 1100.2 REDUCE MONITORING FREQUENCY FOR TTHN AND HAA5**

| Type of system | Minimum monitoring frequency | Sample location in the distribution system |
|---|---|---|
| Part VIII-General Requirements for Surface Water Treatment system serving at least 10,000 persons which has a source water annual average Total Organic Carbon, "TOC", level, before any treatment, ≤4.0 mg/L. | TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L. | One sample per treatment plant per quarter at distribution system location reflecting maximum residence time. |
| Part VIII-General Requirements for Surface Water Treatment system serving from 500 to 9,999 persons which has a source water annual average TOC level, before any treatment, ≤4.0 mg/L. | TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L. | One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature. NOTE: Any Part VIII-Surface Water Treatment system serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year. |
| System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons. | TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L. | One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature |
| System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons. | TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L for two consecutive years OR TTHM annual average ≤0.020 mg/L and HAA5 annual average ≤0.015 mg/L for one year. | One sample per treatment plant per three year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring. |

c. Monitoring requirements for source water TOC. In order to qualify for reduced monitoring in TTHM and HAA5 under paragraph (B)(1)(b) of this section, Part VIII systems not monitoring under the provisions of subsection (D) of this section must take monthly TOC samples every 30 days at a location prior to any treatment, beginning April 1, 2008 or earlier, if specified by the Director. In addition to meeting other criteria for reduced monitoring in paragraph (B)(1)(b) of this section, the source water TOC running annual average must be ≤4.0mg/L on a continuing basis at each treatment plant. To reduce or remain on reduced monitoring for TTHM and HAA5 under paragraph (B)(1)(b) of this section, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

d. Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060mg/L and 0.045mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (B)(1)(a) of this section (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the system exceeds 0.060mg/L or 0.045mg/L for TTHMs and HAA5s, respectively. For systems using only ground water not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080mg/L or the HAA5 annual average is >0.060mg/L, the system must go to the increased monitoring identified in paragraph (B)(1)(a) of this section (sample location column) in the quarter immediately following the monitoring period in which the system exceeds 0.080mg/L or 0.060 mg/L for TTHMs or HAA5 respectively.

e. Systems on increased monitoring may return to routine monitoring if, after at least one year of monitoring, their TTHM annual average is ≤0.060 mg/L and their HAA5 annual average is ≤0.045 mg/L.

f. The Director may return a system to routine monitoring at the Director's discretion.

2. Chlorite. CWS and NTNCWS water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

a. Routine monitoring

i. Daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by subsection (B)(2)(b) of this section, in addition to the sample required at the entrance to the distribution system.

ii. Monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under subsection (B)(2)(b) of this section to meet the requirement for monitoring in this subsection.

b. Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

c. Reduced monitoring

i. Chlorite monitoring at the entrance to the distribution system required by subsection (B)(2)(a)(i) of this section may not be reduced.

ii. Chlorite monitoring in the distribution system required by subsection (B)(2)(a)(ii) of this section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under subsection (B)(2)(a)(ii) of this section has exceeded the chlorite MCL and the system has not been required to conduct monitoring under subsection (B)(2)(b) of this section. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under subsection (B)(2)(a)(ii) of this section exceeds the chlorite MCL or the system is required to conduct monitoring under subsection (B)(2)(b) of this section, at which time the system must revert to routine monitoring.

3. Bromate

a. Routine monitoring. CWS and NTNCWS systems using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. Systems must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

b. Reduced monitoring

i. Until March 31, 2009, systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system's average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is ≥0.05 mg/L, the system must resume routine monitoring required by subsection (B)(3)(a) of this section in the following month.

ii. Beginning April 1, 2009, systems may no longer use the provision of paragraph (B)(3)(b)(i) of this section to qualify for reduced monitoring. A system required to analyze for bromate may reduce monitoring from monthly to quarterly if the system's running annual average bromate concentration is ≤0.0025mg/L based on monthly bromate measurements under paragraph (B)(3)(a) of this section for the most recent four quarters, with samples analyzed using Method 317.0 Revision 2.0, 326.0, or 321.8. If a system has qualified for reduced bromate monitoring under paragraph (B)(3)(b)(i) of this section, that system may remain on reduced monitoring as long as the running annual average or quarterly bromate samples are ≤0.0025mg/L based on samples analyzed using Method 317.0 Revision 2.0, 326.0, or 321.8. If the running annual average bromate concentration is >0.0025mg/L, the system must resume routine monitoring required by paragraph (B)(3)(a) of this section.

C. Monitoring requirements for disinfectant residuals

1. Chlorine and chloramines

a. Routine monitoring. Beginning on the effective date of Part XXVII, as established in § 2701 (C), CWS and NTNCWS systems that use chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled as specified in § 2704 through § 2708. Part VIII systems may use the results of residual disinfectant concentration sampling conducted under Appendix D § 801-D (B) for unfiltered systems or Appendix D § 801-D(C) for systems which filter, in lieu of taking separate samples.

b. Reduced monitoring. Monitoring may not be reduced.

2. Chlorine dioxide

a. Routine monitoring. CWS, NTNCWS, and TNCWS systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by subsection (C)(2)(b) of this section, in addition to the sample required at the entrance to the distribution system.

b. Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three (3) chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three (3) samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

c. Reduced monitoring. Chlorine dioxide monitoring may not be reduced.

D. Monitoring requirements for disinfection byproduct precursors (DBPP)

1. Routine monitoring. Part VIII systems which use conventional filtration treatment (as defined in § 104) must monitor each treatment plant for Total Organic Carbon, "TOC", no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. All systems required to monitor under this subsection (D)(1) must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

2. Reduced monitoring. Part VIII systems with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following

the quarter when the annual average treated water TOC ≥2.0 mg/L.

E. Bromide. Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

F. Monitoring plans. Each system required to monitor under this part must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the Director and the general public no later than 30 days following the applicable compliance dates in § 1102 (A). All Part VIII systems serving more than 3,300 people must submit a copy of the monitoring plan to the Director no later than the date of the first report required under § 1105. The Director may also require the plan to be submitted by any other system. After review, the Director may require changes in any plan elements. The plan must include at least the following elements.

1. Specific locations and schedules for collecting samples for any parameters included in this part.

2. How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.

3. If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under the provisions Part XIX, the sampling plan must reflect the entire distribution system.

**§ 1104 COMPLIANCE REQUIREMENTS**

A. General requirements

1. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system’s failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2. All samples taken and analyzed under the provisions of this part must be included in determining compliance, even if that number is greater than the minimum required.

3. If, during the first year of monitoring under § 1103, any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

B. Disinfection byproducts

1. TTHMs and HAA5

a. For systems monitoring quarterly, compliance with MCLs in § 207 must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by § 1103(B)(1).

b. For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under the provisions of § 1103(B)(1) does not exceed the MCLs in § 207. If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the results of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring must calculate compliance by including the sample which triggered the increased monitoring plus the following three quarters of monitoring.

c. If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 603, in addition to reporting to the Director pursuant to § 1105.

d. If a public water system fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter period must be based on an average of the available data.

2. Bromate. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by § 1103(B)(3). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 603, in addition to reporting to the Director pursuant to § 1105. If a public water system fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

3. Chlorite. Compliance must be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by § 1103(B)(2)(a)(ii) and § 1103(B)(2)(b). If the arithmetic average of any three sample set exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 603, in addition to reporting to the Director pursuant to § 1105.

C. Disinfectant residuals

1. Chlorine and chloramines

a. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under § 1103(C)(1). If the average of quarterly averages covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and must notify the public pursuant to § 603, in addition to reporting to the Director pursuant to § 1105.

b. In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to § 1105 must clearly indicate which residual disinfectant was analyzed for each sample.

2. Chlorine dioxide

a. Acute violations. Compliance must be based on consecutive daily samples collected by the system under § 1103(C)(2). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and must take immediate corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks in § 603 in addition to reporting to the Director pursuant to § 1105. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system must notify the public of the violation in accordance with the provisions for acute violations under § 603 in addition to reporting to the Director pursuant to § 1105.

b. Nonacute violations. Compliance must be based on consecutive daily samples collected by the system under § 1103(C)(2). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for nonacute health risks in § 603 in addition to reporting to the Director pursuant to §1105. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system must notify the public of the violation in accordance with the provisions for nonacute violations under § 603 in addition to reporting to the Director pursuant to § 1105.

D. Disinfection byproduct precursors (DBPP). Compliance must be determined as specified by § 1106(C). Systems may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in § 1106(B)(2) and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to § 1106(B)(3) and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date. For systems required to meet Step 1 TOC removals, if the value calculated under § 1106(C)(1)(d) is less than 1.00, the system is in violation of the treatment technique requirements and must notify the public pursuant to Part VI of these regulations, in

addition to reporting to the Director pursuant to § 1105.

**§ 1105 REPORTING AND RECORDKEEPING REQUIREMENTS**

A. Systems required to sample quarterly or more frequently must report to the Director within 10 days after the end of each quarter in which samples were collected, notwithstanding the provisions of § 502. Systems required to sample less frequently than quarterly must report to the Director within 10 days after the end of each monitoring period in which samples were collected.

B. Disinfection byproducts. Systems must report the information specified in the following table:

| Type of system | Report requirements[1] |
|---|---|
| System monitoring for TTHM and HAA5 under the requirements of § 1103(B) on a quarterly or more frequent basis. | 1. The number of samples taken during the last quarter.<br>2. The location, date, and result of each sample taken during the last monitoring period.<br>3. The arithmetic average of all samples taken in the last quarter.<br>4. The annual arithmetic average of the quarterly arithmetic averages of this section for the last four quarters.<br>5. Whether, based on § 1104(B)(1), the MCL was violated. |
| System monitoring for TTHMs and HAA5 under the requirements of § 1103(B) less frequently than quarterly (but at least annually). | 1. The number of samples taken during the last year.<br>2. The location, date, and result of each sample taken during the last monitoring period.<br>3. The arithmetic average of all samples taken over the last year.<br>4. Whether, based on § 1104(B)(1), the MCL was violated. |
| System monitoring for TTHMs and HAA5 under the requirements of § 1103(B) less frequently than annually. | 1. The location, date, and result of each sample taken.<br>2. Whether, based on § 1104(B)(1), the MCL was violated. |
| System monitoring for chlorite under the requirements of § 1103(B). | 1. The number of entry point samples taken each month for the last 3months.<br>2. The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter.<br>3. For each month in the reporting period, the arithmetic average of all samples taken in each three samples set taken in the distribution system.<br>4. Whether, based on § 1104(B)(3), the MCL was violated, and in which month, and how many times it was violated each month. |
| System monitoring for bromate under the requirements of § 1103(B) | 1. The number of samples taken during the last quarter.<br>2. The location, date, and result of each sample taken during the last quarter.<br>3. The arithmetic average of the monthly arithmetic averages of all samples taken in the last year.<br>4. Whether, based on § 1104(B)(2), the MCL was violated. |

[1] The Director may choose to perform calculations and determine whether the MCL was exceeded, in lieu of having the system report that information.

C. Disinfectants. Systems must report the information specified in the following table:

| Type of system | Report requirements[1] |
|---|---|
| System monitoring for chlorine or chloramines under the requirements of § 1103(C). | 1. The number of samples taken during each month of the last quarter.<br>2. The monthly arithmetic average of all samples taken in each month for the last 12 months.<br>3. The arithmetic average of the monthly averages for the last 12 months.<br>4. Whether, based on § 1104(C)(1), the MRDL was violated. |
| System monitoring for chlorine dioxide under the requirements of § 1103(C). | 1. The dates, results, and locations of samples taken during the last quarter.<br>2. Whether, based on § 1104(C)(2), the MRDL was violated.<br>3. Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute. |

[1] The Director may choose to perform calculations and determine whether the MRDL was exceeded, in lieu of having the system report that information.

D. Disinfection byproduct precursors and enhanced coagulation or enhanced softening. Systems must report the information specified in the following table:

| Type of system | Report requirements[1] |
|---|---|
| System monitoring monthly or quarterly for TOC under the requirements of § 1103(D) and required to meet the softening requirements in § 1106(B)(2) or (3). | 1. The number of paired (source water and treated water, prior to continuous enhanced coagulation or enhanced disinfection) samples taken during the last quarter.<br>2. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.<br>3. For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal.<br>4. Calculations for determining compliance with the TOC percent removal requirements, as provided in § 1106(C)(1).<br>5. Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in § 1106(B) for the last four quarters. |
| System monitoring monthly or quarterly for TOC under the requirements of §1103(D) and meeting one or more of the alternative compliance criteria in §1106(A)(2) or (3). | 1. The alternative compliance criterion that the system is using.<br>2. The number of paired samples taken during the last quarter.<br>3. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.<br>4. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in § 1106(A)(2)(a) or 8 or of treated water TOC for systems meeting the criterion in §1106(A)(2)(b).<br>5. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in § 1106(A)(2)(e) or of treated water SUVA for systems meeting the criterion in §1106(A)(2)(f).<br>6. The running annual average of source water alkalinity for systems meeting the criterion in § 1106(A)(2)(c) and of treated water |

| | |
|---|---|
| | alkalinity for systems meeting the criterion in § 1106(A)(3)(a).<br>7. The running annual average for both TTHM and HAA5 for systems meeting the criterion in § 1106(A)(2)(c) or (d).<br>8. The running annual average of the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criterion in § 1106(A)(3)(b).<br>9. Whether the system is in compliance with the particular alternative compliance criterion in § 1106(A)(2) or (3). |

[1] The Director may choose to perform calculations and determine whether the treatment technique was met, in lieu of having the system report that information.

**§ 1106 TREATMENT TECHNIQUE FOR CONTROL OF DISINFECTION BYPRODUCT (DBP) PRECURSORS**

A. Applicability

1. Part VIII systems using conventional filtration treatment (as defined in § 104) must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in subsection (B) of this section unless the system meets at least one of the alternative compliance criteria listed in subsection (A)(2) or (A)(3) of this section.

2. Alternative compliance criteria for enhanced coagulation and enhanced softening systems. Part VIII systems using conventional filtration treatment may use the alternative compliance criteria in subsections (A)(2)(a) through (f) of this section to comply with this section in lieu of complying with subsection (B) of this section. Systems must still comply with monitoring requirements in § 1103(D).

   a. The system’s source water TOC level, measured according to Appendix E § 1101-E(D)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

   b. The system's treated water TOC level, measured according to Appendix E § 1101-E(D)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

   c. The system's source water TOC level, measured as required by Appendix E § 1101-E (D)(3), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to Appendix E § 1101-E(D)(1), is greater than 60 mg/L (as $CaCO_3$), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in § 1101(B), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in § 1101(B) to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the Director for approval not later than the effective date for compliance in § 1101(B). These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation NNPDWR.

   d. The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

   e. The system's source water SUVA, prior to any treatment and measured monthly according to Appendix E § 1101-E(D)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

   f. The system's finished water SUVA, measured monthly according to Appendix E § 1101-E(D)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

3. Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by subsection (B)(2) of this section may use the alternative compliance criteria in subsections (A)(3)(a) and (b) of this section in lieu of complying with subsection (B) of this section. Systems must still comply with monitoring requirements in § 1103(D).

a. Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as $CaCO_3$), measured monthly according to Appendix E § 1101-E(D)(1) and calculated quarterly as a running annual average.

b. Softening that results in removing at least 10 mg/L of magnesium hardness (as $CaCO_3$), measured monthly according to Appendix E-1103-E(D)(6) and calculated quarterly as an annual running average.

B. Enhanced coagulation and enhanced softening performance requirements

1. Systems must achieve the percent reduction of TOC specified in subsection (B)(2) of this section between the source water and the combined filter effluent, unless the Director approves a system's request for alternate minimum TOC removal (Step 2) requirements under subsection (B)(3) of this section.

2. Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with Appendix E § 1101-E(D). Systems practicing softening are required to meet the Step 1 TOC reductions in the far-right column (Source water alkalinity >120 mg/L) for the specified source water TOC:

Step 1: Required Removal of TOC by Enhanced Coagulation and Enhanced Softening for Part VIII General Requirements for Surface Water Treatment Systems Using Conventional Treatment [1,2]

| Source-water TOC, mg/L | Source water alkalinity, mg/L as $CaCO_3$ | | |
|---|---|---|---|
| | 0-60 (%) | ≤60-120 (%) | >120[3] (%) |
| >2.0-4.0 | 35.0 | 25.0 | 15.0 |
| >4.0-8.0 | 45.0 | 35.0 | 25.0 |
| >8.0 | 50.0 | 40.0 | 30.0 |

[1] Systems meeting at least one of the conditions in subsection (A)(2)(a)-(f) of this section are not required to operate with enhanced coagulation.
[2] Softening systems meeting one of the alternative compliance criteria in subsection (A)(3) of this section are not required to operate with enhanced softening.
[3] Systems practicing softening must meet the TOC removal requirements in this column.

3. Part VIII conventional treatment systems that cannot achieve the Step 1 TOC removals required by subsection (B)(2) of this section due to water quality parameters or operational constraints must apply to the Director, within three months of failure to achieve the TOC removals required by subsection (B)(2) of this section, for approval of alternative minimum TOC (Step 2) removal requirements submitted by the system. If the Director approves the alternative minimum TOC removal (Step 2) requirements, the Director may make those requirements retroactive for the purposes of determining compliance. Until the Director approves the alternate minimum TOC removal (Step 2) requirements, the system must meet the Step 1 TOC removals contained in subsection (B)(2) of this section.

4. Alternate minimum TOC removal (Step 2) requirements. Applications made to the Director by enhanced coagulation systems for approval of alternative minimum TOC removal (Step 2) requirements under subsection (B)(3) of this section must include, as a minimum, results of bench- or pilot-scale testing conducted under subsection (B)(4)(a) of this section and used to determine the alternate enhanced coagulation level.

a. Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in subsections (B)(4)(a) through (e) of this section such that an incremental addition of 10 mg/L of alum (as aluminum or equivalent amount of ferric salt) results in a TOC removal of <0.3 mg/L. The percent removal of TOC at this point on the “TOC removal versus coagulant dose” curve is then defined as the minimum TOC removal required for the system. Once approved by the Director, this minimum requirement supersedes the minimum TOC removal required by the table in subsection (B)(2) of this section. This requirement will be effective until such time as the Director approves a new value based on the results of a new bench- and pilot-scale test. Failure to achieve Director-set alternative minimum TOC removal levels is a violation of NNPDWR.

b. Bench- or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/L increments of alum (as aluminum or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

Enhanced Coagulation Step 2 target pH

| Alkalinity (mg/L as $CaCO_3$) | Target pH |
|---|---|
| 0-60 | 5.5 |
| >60-120 | 6.3 |
| >120-240 | 7.0 |
| >240 | 7.5 |

c. For waters with alkalinities of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (as aluminum or equivalent addition of iron coagulant) is reached.

d. The system may operate at any coagulant dose or pH necessary (consistent with other NNPDWRs) to achieve the minimum TOC percent removal approved under subsection (B)(3) of this section.

e. If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the Director for a waiver of enhanced coagulation requirements.

C. Compliance calculations

1. Part VIII systems other than those identified in subsection (A)(2) or (A)(3) of this section must comply with requirements contained in subsection (B)(2) or (B)(3) of this section. Systems must calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

a. Determine actual monthly TOC percent removal, equal to:

(1- (treated water TOC/source water TOC)) x 100

b. Determine the required monthly TOC percent removal (from either the table in subsection (B)(2) or (B)(3) of this section).

c. Divide the value in subsection (C)(1)(a) of this section by the value in subsection (C)(1)(b) of this section.

d. Add together the results of subsection (C)(1)(c) of this section for the last 12 months and divide by 12.

e. If the value calculated in subsection (C)(1)(d) of this section is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

2. Systems may use the provisions in subsections (C)(2)(a) through (e) of this section in lieu of the calculations in subsection (C)(1)(a) through (e) of this section to determine compliance with TOC percent removal requirements.

a. In any month that the system's treated or source water TOC level, measured according to Appendix E § 1101-E(D)(3), is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (C)(1)(c) of this section) when calculating compliance under the provisions of subsection (C)(1) of this section.

b. In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as $CaCO_3$), the system may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (C)(1)(c) of this section) when calculating compliance under the provisions of subsection (C)(1) of this section.

c. In any month that the system's source water SUVA, prior to any treatment and measured according to Appendix E § 1101-E (D)(4), is ≤2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (C)(1)(c) of this section) when calculating compliance under the provisions of subsection (C)(1) of this section.

d. In any month that the system's finished water SUVA, measured according to Appendix E § 1101-E(D)(4), is ≤2.0 L/mg-m, the system may assign a monthly value of 1.0 (in

lieu of the value calculated in subsection (C)(1)(c) of this section) when calculating compliance under the provisions of subsection (C)(1) of this section.

e. In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/L (as $CaCO_3$), the system may assign a monthly value of 1.0 (in lieu of the value calculated in subsection (C)(1)(c) of this section) when calculating compliance under the provisions of subsection (C)(1) of this section.

3. Part VIII systems using conventional treatment may also comply with the requirements of this section by meeting the criteria in subsection (A)(2) or (3) of this section.

D. Treatment technique requirements for DBP precursors. The Administrator identifies the following as treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems: For Part VIII systems using conventional treatment, enhanced coagulation or enhanced softening.

# PART XII
# CONSUMER CONFIDENCE REPORT

**§ 1201 PURPOSE**

This part establishes the minimum requirements for the content of annual reports, called “Consumer Confidence Reports” that Community Water Systems (CWSs) must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner. Appendix F provides suggested value conversions, regulated contaminants and language for preparing Consumer Confidence Reports. References in this part to section numbers are to the NNPDWR, unless otherwise indicated.

**§ 1202 APPLICABILITY**

A. Notwithstanding the provisions of § 107, this part applies only to CWSs.

B. For the purposes of this part, customers are defined as billing units or service connection to which water is delivered by a community water system.

C. For the purposes of this part, detected means: At or above the levels prescribed by § 405(C) for inorganic contaminants, at or above the levels prescribed by § 409(F)for the contaminants listed in § 204(A)(1), at or above the levels prescribed by § 410(C)(2) for the contaminants listed in § 204(A)(2), at or above the levels prescribed by Appendix E-1101-E(B)(2)(d) for the contaminants or contaminant groups listed in §207, and at or above the levels prescribed by § 411(B) for radioactive contaminants.

**§ 1203 EFFECTIVE DATES**

A. The regulations in this part shall take effect upon approval by the Navajo Nation Resources Committee.

B. Each existing CWS must deliver its first report pursuant to these regulations by July 1, 2003, and subsequent reports by July 1 annually thereafter. The first report must contain data collected during or prior to calendar year 2003 as prescribed in § 1204(D)(3). Each report thereafter must contain data collected during or prior to the previous calendar year.

C. A new CWS must deliver its first report by July 1 of the year after its first full calendar year in operation and annually thereafter.

D. A CWS that sells water to another CWS must deliver the applicable information required in § 1204 to the consecutive system:

1. no later than April 1, 2003, and by April 1 annually thereafter; or

2. on a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

**§ 1204 CONTENTS OF THE REPORTS**

A. Each CWS must provide to its customers an annual report that contains the information specified in this section and § 1205.

B. Information on the source of the water delivered

1. Each report must identify the source(s) of the water delivered by the CWS by providing information on:

a. The type of the water source: e.g., surface water, ground water; and

b. The commonly used name (if any) and location of the body (or bodies) of water.

2. If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the PWSSP, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the PWSSP or written by the operator.

C. Definitions

1. Each report must include the following definitions:

a. Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

b. Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

2. A report for a CWS operating under a variance or an exemption issued under §§ 601, 602 or 603 of the Navajo Nation Safe Drinking Water Act must include the following definition: Variances and Exemptions: PWSSP or EPA permission not to meet a MCL or a treatment technique under certain conditions.

3. A report that contains data on contaminants that EPA regulates using any of the following terms must include the applicable definitions:

a. Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

b. Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

c. Maximum residual disinfectant level goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

d. Maximum residual disinfectant level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

4. A report that contains information regarding a Level 1 or Level 2 Assessment required under Part XXVII of these regulations must include the applicable definitions:

a. Level 1 Assessment: a Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

b. Level 2 Assessment: a Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E.coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

D. Information on Detected Contaminants

1. This subsection specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except Cryptosporidium). It applies to:

a. Contaminants subject to a MCL, action level, maximum residual disinfectant level, or treatment technique (regulated contaminants).

2. The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results which a CWS chooses to include in its report must be displayed separately.

3. The data must be derived from data collected to comply with EPA and PWSSP monitoring and analytical requirements during calendar year 2002 for the first report and subsequent calendar years thereafter, except that:

a. Where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) must include the date and results of the most recent sampling and the report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than 5 years need be included.

4. For detected regulated contaminants (listed in Appendix F to these regulations), the table(s) must contain:

a. The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix F to these regulations);

b. The MCLG for that contaminant expressed in the same units as the MCL;

c. If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definitions for treatment technique and/or action level, as appropriate, specified in paragraph (C)(3) of this section;

d. For contaminants subject to a MCL, except turbidity and *E.coli*, the highest contaminant level used to determine compliance with a NNPDWR and the range of detected levels, as follows:

i. When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL.

ii. When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL. For the MCLs for TTHM and HAA5 in § 207(B)(2), systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all sampling points expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the systems must include the locational running annual averages for all locations that exceed the MCL.

iii. When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all sampling points: the average and range of detection expressed in the same units as the MCL. The system is required to include individual sample results for the IDSE conducted under Part XXII of these regulations when determining the range of TTHM and HAA5 results to be reported in the annual consumer confidence report for the calendar year that the IDSE samples were taken.

Note to paragraph (D)(4)(d): When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix F of these regulations.

e. For turbidity:

i. When it is reported pursuant to § 206: the highest average monthly value.

ii. When it is reported pursuant to the requirements of § 803: the highest monthly value. The report should include an explanation of the reasons for measuring turbidity.

iii. When it is reported pursuant to § 805, § 1305 or § 2106(B): the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in § 805, or § 1305 or § 2106(B) for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

f. For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

g. For *E.coli* analytical results under Part XXVII: the total number of positive samples.

h. The likely source(s) of detected contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one or more of the typical sources for that contaminant listed in Appendix F that is most applicable to the system.

5. If a CWS distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, systems could produce separate reports tailored to include data for each service area.

6. The table(s) must clearly identify any data indicating violations of MCLs, MRDLs, or treatment techniques and the report must contain a clear and readily understandable explanation of the violation including: the length of the violation, the potential adverse health effects, and actions taken by the system to address the violation. To describe the potential health effects, the system must use the relevant language of Appendix F.

7. For detected unregulated contaminants for which monitoring is required (except Cryptosporidium), the table(s) must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

E. Information on Cryptosporidium, radon, and other contaminants

1. If the system has performed any monitoring for *Cryptosporidium*, including monitoring performed to satisfy the requirements of 40 CFR § 141.143, which indicates that *Cryptosporidium* may be present in the source water or the finished water, the report must include:

   a. A summary of the results of the monitoring; and

   b. An explanation of the significance of the results.

2. If the system has performed any monitoring for radon which indicates that radon may be present in the finished water, the report must include:

   a. The results of the monitoring; and

   b. An explanation of the significance of the results.

3. If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, NNEPA strongly encourages systems to report any results which may indicate a health concern. To determine if results may indicate a health concern, NNEPA recommends that systems find out if EPA or NNEPA has proposed a NPDWR or a NNPDWR, respectively, or issued a health advisory for that contaminant by calling the PWSSP at (928) 871-7755 and/or the EPA Safe Drinking Water hotline at (800) 426-4791. NNEPA considers detects above a proposed MCL or health advisory level to indicate possible health concerns. For such contaminants, NNEPA recommends that the report include:

   a. The results of the monitoring; and

   b. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

F. Compliance with NNPDWR. In addition to the requirements of paragraph (D)(6), the report must note any violation that occurred during the year covered by the report of a requirement listed below, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation.

1. Monitoring and reporting of compliance data;

2. Filtration and disinfection prescribed by Part VIII-General Requirements for Surface Water Treatment. For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes which constitutes a violation, the report must include the following language as part of the explanation of potential adverse health effects: “Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.”

3. Lead and copper control requirements prescribed by Part VII (Lead and Copper). For systems that fail to take one or more actions prescribed by §§ 704(B), 705, 706, 707, or 708, the report must include the applicable language of Appendix F for lead, copper, or both.

4. Treatment techniques for Acrylamide and Epichlorohydrin prescribed by Part X-Treatment Techniques. For systems that violate the requirements of Part X, the report must include the relevant language from Appendix F.

5. Recordkeeping of compliance data.

6. Violation of the terms of a variance, an exemption, or an administrative or judicial order.

G. Variances and Exemptions. If a system is operating under the terms of a variance or an exemption issued under §§ 601, 602 or 603 of Navajo Nation Safe Drinking Water Act, the report must contain:

1. An explanation of the reasons for the variance or exemption;

2. The date on which the variance or exemption was issued;

3. A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and

4. A notice of any opportunity for public input in the review, or renewal, of the variance or exemption.

H. Additional information

1. The report must contain a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water, including bottled water. This explanation may include the language of paragraphs (H)(1)(a) through (c) or systems may use their own comparable language. The report also must include the language of paragraph (H)(1)(d) of this section.

a. The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

b. Contaminants that may be present in source water include:

i. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

ii. Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

iii. Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.

iv. Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.

v. Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

c. In order to ensure that tap water is safe to drink, NNEPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

d. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the PWSSP at (928) 871-7755.

2. The report must include the telephone number of the owner, operator, or designee of the CWS as a source of additional information concerning the report.

3. The report must contain information in the Navajo language regarding the importance of the report or contain a telephone number or address and a statement in Navajo that residents may contact the system at that number or address to obtain a translated copy of the report or assistance with a Navajo interpretation of the report.

4. The report must include information (e.g., time and place of regularly scheduled board or chapter meetings) about opportunities for public participation in decisions that may affect the quality of the water.

5. The systems may include such additional information as they deem necessary for public education consistent with, and not detracting from, the purpose of the report.

6. Systems required to comply with Part XXV

   a. Any groundwater system that receives notice from the Director of a significant deficiency or notice from a laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the Director under § 2503(D) must inform its customers of any significant deficiency that is uncorrected at the time of the next report or of any fecal indicator-positive groundwater source sample in the next report. The system must continue to inform the public annually until the Director determines that particular significant deficiency is corrected or the fecal contamination in the groundwater source is addressed under § 2504(A). Each report must include the following elements.

      i. The nature of the particular significant deficiency or the source of the fecal contamination (if the source is known) and the date the significant deficiency was identified by the Director of the dates of the fecal indicator-positive groundwater source samples.

      ii. If the fecal contamination in the groundwater source has been addressed under § 2504(A) and the date of such action;

      iii. For each significant deficiency or fecal contamination in the groundwater source that has not been addressed under § 2504(A), the Director-approved plan and schedule for correction, including interim measures, progress to date and any interim measures completed; and

      iv. If the system receives notice of a fecal indicator-positive groundwater source sample that is not invalidated by the Director under § 2502(D), the potential health effects using the health effects language of Appendix F.

   b. If directed by the Director, a system with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected and the data of correction under (H)(6)(A) of this section.

7. Systems required to comply with Part XXVII

   a. Any system required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an E.coli MCL violation must include in the report the text found in subsection (H)(7)(a)(i) and subsection (H)(7)(a)(ii) and (iii) of this section as appropriate, filling in the blanks accordingly and the text found in subsections (H)(7)(a)(iv)(A) and (B) of this section if appropriate.

      i. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

      ii. During the past year, we were required to conduct [INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s). {INSERT NUMBER OF LEVEL 1 ASSESSMENTS] Level 1 assessment(s) were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

      iii. During the past year, [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were required to be completed for our water system. [INSERT NUMBER OF LEVEL 2 ASSESSMENTS] Level 2 assessments were completed. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

      iv. Any system that has failed to complete all the required assessments or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate:

A. During the past year, we failed to conduct all of the required assessment(s).
B. During the past year, we failed to correct all identified defects that were found during the assessment.

b. Any system required to conduct a Level 2 assessment due to an *E.coli* MCL violation must include in the report the text found in subsections (H)(7)(b)(i) and (ii) of this section, filling in the blanks accordingly and the text found in subsections (H)(7)(b)(iii)(A) and (B) of this section, if appropriate.

i. *E.coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a great health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E.coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

ii. We are required to complete a Level 2 assessment because we found *E.coli* in our water system. In addition, we were required to take [INSERT NUMBER OF CORRECTIVE ACTIONS] corrective actions and we completed [INSERT NUMBER OF CORRECTIVE ACTIONS] of these actions.

iii. Any system that has failed to complete the required assessment or correct all identified sanitary defects, is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate.

A. We failed to conduct the required assessment.
B. We failed to correct all sanitary defects that were identified during the assessment that we conducted.

c. If a system detects E.coli and has violated the E.coli MCL, in addition to completing the table as required in paragraph (D)(4) of this section, the system must include one or more of the following statements to describe any noncompliance, as applicable:

i. We had an *E.coli*-positive repeat sample following a total coliform-positive routine sample.

ii. We had a total coliform-positive repeat sample following an *E.coli*-positive routine sample.

iii. We failed to take all required repeat samples following an *E.coli*-positive routine sample.

iv. We failed to test for *E.coli* when any repeat sample tests positive for total coliform.

d. If a system detects *E.coli* and has not violated the *E.coli* MCL, in addition to completing table as required in paragraph (D)(4) of this section, the system may include a statement that explains that although they have detected *E.coli*, they are not in violation of the *E.coli* MCL.

**§ 1205 REQUIRED ADDITIONAL HEALTH INFORMATION**

A. All reports must prominently display the following language:

"Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791)."

B. Ending in the report due by July 1, 2001, a system which detects arsenic at levels above 0.025 mg/L, but below the 0.05 mg/L, and beginning in the report due by July 1, 2002, a system that detects arsenic above 0.005 mg/L and up to and including 0.010 mg/L:

1. Must include in its report a short informational statement about arsenic, using language such as: “While your drinking water meets EPA’s standard for arsenic, it does contain low levels of arsenic. EPA’s standard balances the current understanding of arsenic’s possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.”

2. May write its own educational statement, but only in consultation with the Director.

C. A system that detects nitrate at levels above 5 mg/L, but below the MCL:

1. Must include a short informational statement about the impacts of nitrate on children, using language such as: “Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.”

2. May write its own educational statement, but only in consultation with the Director.

D. Systems that detect lead above the action level in more than 5%, and up to and including 10%, of homes sampled:

1. Must include a short informational statement about the special impact of lead on children, using language such as: “Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791) or the PWSSP at (928) 871-7755.”

2. May write its own educational statement, but only in consultation with the Director.

E. CWSs that detect TTHM above 0.080 mg/L, but below the MCL in § 210, as an annual average, monitored and calculated under the provisions of § 413, must include health effects language for TTHMs prescribed by Appendix F.

F. Beginning in the report due by July 1, 2002 and ending January 22, 2006, a CWS that detects arsenic above 0.010 mg/L and up to and including 0.05 mg/L must include the arsenic health effects language prescribed by Appendix F.

**§ 1206 REPORT DELIVERY AND RECORDKEEPING**

A. Except as provided in subsection (G) of this section, each CWS must mail or otherwise directly deliver one copy of the report to each customer.

B. The system must make a good faith effort to reach consumers who do not get water bills, using means recommended by the Director. NNEPA expects that an adequate good faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good faith effort to reach consumers would include a mix of methods appropriate to the particular system, such as: Posting the reports on the Internet; mailing to postal patrons; advertising the availability of the report in the news media; publication in a local newspaper; posting in public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by single-biller customers such as apartment buildings or large private employers; delivery to community, including chapter, organizations.

C. No later than the date the system is required to distribute the report to its customers, each CWS must mail a copy of the report to the Director, followed within 3 months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the Director.

D. No later than the date the system is required to distribute the report to its customers, each CWS must deliver the report to any other agency or clearinghouse identified by the Director.

E. Each CWS must make its reports available to the public upon request.

F. The Director may waive the requirement of subsection (A) of this section for CWSs serving fewer than 10,000 persons. Written requests to the Director must be made and the determination will be sent to the CWS owner/operator.

1. Such systems must:

   a. Publish the reports in one or more local newspapers serving the area in which the system is located;

   b. Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the Director; and

   c. Make the reports available to the public upon request.

2. Systems serving 500 or fewer persons may forego the requirements of paragraphs (F)(1)(a) and (b) of this section if they provide notice at least once per year to their customers by mail, door-to-door delivery or by posting in an appropriate location that the report is available upon request.

G. Any system subject to this part must retain copies of its Consumer Confidence Report for no fewer than 3 years.

# PART XIII
# ENHANCED SURFACE WATER TREATMENT

**§ 1301 APPLICABILITY**

The requirements of this part constitute a primary drinking water regulation. These regulations establish requirements for filtration and disinfection that are in addition to criteria under which filtration and disinfection are required under Part VIII - General Requirements for Surface Water Treatment. The requirements of this part are applicable to Part VIII systems serving at least 10,000 people, beginning January 01, 2002 unless otherwise specified in this part.

**§ 1302 GENERAL REQUIREMENTS**

A. The regulations in this part establish or extend treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella, Cryptosporidium*, and turbidity.

B. Each Part VIII systems serving at least 10,000 people must provide treatment of its source water that complies with these treatment technique requirements and is in addition to those requirements identified in §§ 801 and 802.

C. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

1. At least 99 percent (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to re-contamination by surface water runoff and a point downstream before or at the first customer for filtered water systems, or *Cryptosporidium* control under the watershed control plan for unfiltered water systems.

2. Compliance with the profiling and benchmark requirements under the provisions of § 1304.

D. A public water system subject to the requirements of this part is considered to be in compliance with the requirements of paragraphs (A)-(C) of this section if:

1. It meets the requirements for avoiding filtration in §§ 803 and 1303 and the disinfection requirements in §§ 804 and 1304; or

2. It meets the applicable filtration requirements in either §§ 805 or 1305 and the disinfection requirements in §§ 804 and 1304.

E. Systems will not be permitted to begin construction of uncovered finished water storage facilities. The provisions for the review of the design and construction of public water systems, including the final inspection prior to operation, are addressed in § 1500 of these regulations.

F. Part VIII systems that did not conduct optional monitoring under § 1304 because they served fewer than 10,000 persons when such monitoring was required, but serve more than 10,000 persons prior to January 14, 2005 must comply with §§ 1301, 1302, 1303, 1305, 1306, and 1307. These systems must also consult with the Director to establish a disinfection benchmark. A public water system that decides to make a significant change to its disinfection practice, as described in § 1304(C)(1)(a) through (d) must consult with the Director prior to making such change.

**§ 1303 CRITERIA FOR AVOIDING FILTRATION**

In addition to the requirements of § 803, a public water system subject to the requirements of this part that does not provide filtration must meet all of the conditions of paragraphs (A) and (B) of this section.

A. Site-specific conditions. In addition to site-specific conditions in § 803(B), systems must maintain the watershed control program under § 803(B)(2) to minimize the potential for contamination by *Cryptosporidium oocysts* in the source water. The watershed control program must, for *Cryptosporidium:*

1. Identify watershed characteristics and activities which may have an adverse effect on source water quality; and

2. Monitor the occurrence of activities which may have an adverse effect on source water quality.

B. During the onsite inspection conducted under the provisions of § 803(B)(3), the Director must determine whether the watershed control program established under § 803(B)(2) is adequate to limit potential contamination by *Cryptosporidium oocysts*. The adequacy of the program must be based on the comprehensiveness of the watershed review; the effectiveness of the water system's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the water system has maximized land ownership and/or controlled land use within the watershed.

**§ 1304 DISINFECTION PROFILING AND BENCHMARKING**

A. Determination of systems required to profile. A public water system subject to the requirements of this part must determine its TTHM annual average using the procedure in subsection (A)(1) of this section and its HAA5 annual average using the procedure in subsection (A)(2) of this section. The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring.

1. The TTHM annual average must be the annual average during the same period as is used for the HAA5 annual average.

   a. Those water systems that collected data under the provisions of the Information Collection Rule must use the results of the samples collected during the last four quarters of required monitoring under 40 CFR § 141.142.

   b. Those systems that use "grandfathered" HAA5 occurrence data that meet the provisions of subsection (A)(2)(b) of this section must use TTHM data collected at the same time under the provisions of §§ 210 and 413.

   c. Those systems that use HAA5 occurrence data that meet the provisions of subsection (A)(2)(c)(i) of this section must use TTHM data collected at the same time under the provisions of §§ 210 and 413.

2. The HAA5 annual average must be the annual average during the same period as is used for the TTHM annual average.

   a. Those systems that collected data under the provisions of the Information Collection Rule must use the results of the samples collected during the last four quarters of required monitoring under 40 CFR § 141.142.

   b. Those systems that have collected four quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in §§ 210 and 413 and handling and analytical method requirements of 40 CFR § 141.142(b)(1) may use those data to determine whether the requirements of this section apply.

   c. Those water systems that have not collected four quarters of HAA5 occurrence data that meets the provisions of either subsection (A)(2)(a) or (b) of this section must either:

      i. Conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in §§ 210 and 413 and handling and analytical method requirements of 40 CFR § 141.142(b)(1) to determine the HAA5 annual average and whether the requirements of subsection (B) of this section apply. This monitoring must be completed so that the applicability determination can be made; or

      ii. Comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with subsection (B) of this section.

3. The system may request that the Director approve a more representative annual data set than the data set determined under subsection (A)(1) or (2) of this section for the purpose of determining applicability of the requirements of this section.

4. The Director may require that a system use a more representative annual data set than the data set determined under subsection (A)(1) or (2) of this section for the purpose

of determining applicability of the requirements of this section.

5. The system must submit data to the Director on the schedule in subsections (A)(5)(a) through (e) of this section.

   a. Those systems that collected TTHM and HAA5 data under the provisions of the Information Collection Rule, as required by subsections (A)(1)(a) and (A)(2)(a) of this section, must submit the results of the samples collected during the last 12 months of required monitoring under 40 CFR § 141.142.

   b. Those systems that have collected four consecutive quarters of HAA5 occurrence data that meets the routine monitoring sample number and location for TTHM in §§ 210 and 413 and handling and analytical method requirements of 40 CFR § 141.142(b)(1), as allowed by subsections (A)(1)(b) and (A)(2)(b) of this section, must submit those data to the Director. Until the Director has approved the data, the water system must conduct monitoring for HAA5 using the monitoring requirements specified under subsection (A)(2)(c) of this section.

   c. Those systems that conduct monitoring for HAA5 using the monitoring requirements specified by subsections (A)(1)(c) and (A)(2)(c)(i) of this section, must submit TTHM and HAA5 data not later than March 31, 2000.

   d. Those systems that elect to comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with this section, as allowed under subsections (A)(2)(c)(ii) of this section, must notify the Director in writing of their election.

   e. If the system elects to request that the Director approve a more representative annual data set than the data set determined under subsection (A)(2)(a) of this section, the water system must submit this request in writing.

6. Any system having either a TTHM annual average ≥0.064 mg/L or an HAA5 annual average ≥0.048 mg/L during the period identified in subsections (A)(1) and (2) of this section must comply with subsection (B) of this section.

B. Disinfection profiling

1. Any system that meets the criteria in subsection (A)(6) of this section must develop a disinfection profile of its disinfection practice for a period of up to three years.

2. The system must monitor daily for a period of 12 consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the $CT_{99.9}$ values in Appendix D - Tables 800-D-4 to 800-D-11, as appropriate, through the entire treatment plant. This water system must begin this monitoring not later than April 01, 2000, pursuant to 40 CFR § 141.172(b)(2). As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system must conduct the monitoring in subsections (B)(2)(a) through (d) of this section. A system with more than one point of disinfectant application must conduct the monitoring in subsections (B)(2)(a) through (d) of this section for each disinfection segment. The system must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in Appendix D § 801-D(A), as follows:

   a. The temperature of the disinfected water must be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.

   b. If the system uses chlorine, the pH of the disinfected water must be measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.

   c. The disinfectant contact time(s) (“T”) must be determined for each day during peak hourly flow.

   d. The residual disinfectant concentration(s) (“C”) of the water before or at the first customer and prior to each additional point of disinfection must be measured each day during peak hourly flow.

3. In lieu of the monitoring conducted under the provisions of subsection (B)(2) of this section to develop the disinfection profile, the system may elect to meet the

requirements of subsection (B)(3)(a) of this section. In addition to the monitoring conducted under the provisions of subsection (B)(2) of this section to develop the disinfection profile, the water system may elect to meet the requirements of subsection (B)(3)(b) of this section.

a. A system that has three years of existing operational data may submit those data, a profile generated using those data, and a request that the Director approve use of those data in lieu of monitoring under the provisions of subsection (B)(2) of this section not later than March 31, 2000. The Director must determine whether these operational data are substantially equivalent to data collected under the provisions of subsection (B)(2) of this section. These data must also be representative of *Giardia lamblia* inactivation through the entire treatment plant and not just of certain treatment segments. Until the Director approves this request, the water system is required to conduct monitoring under the provisions of subsection (B)(2) of this section.

b. In addition to the disinfection profile generated under subsection (B)(2) of this section, a PWS that has existing operational data may use those data to develop a disinfection profile for additional years. Such systems may use these additional yearly disinfection profiles to develop a benchmark under the provisions of subsection (C) of this section. The Director must determine whether these operational data are substantially equivalent to data collected under the provisions of subsection (B)(2) of this section. These data must also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

4. The system must calculate the total inactivation ratio as follows:

a. If the system uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the methods in subsection (B)(4)(a)(i) or (B)(4)(a)(ii) of this section.

i. Determine one inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow.

ii. Determine successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the water system must calculate the total inactivation ratio by determining ($CT_{calc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine ($\Sigma$ ($CT_{calc}/CT_{99.9}$).

b. If the system uses more than one point of disinfectant application before the first customer, the system must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CT_{calc}/CT_{99.9}$) value of each segment and ($\Sigma(CT_{calc}/CT_{99.9})$) must be calculated using the method in subsection (B)(4)(a) of this section.

c. The system must determine the total logs of inactivation by multiplying the value calculated in subsection (B)(4)(a) or (b) of this section by 3.0.

5. A system that uses either chloramines or ozone for primary disinfection must also calculate the logs of inactivation for viruses using a method approved by the Director.

6. The system must retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the Director for review as part of sanitary surveys conducted by the Director.

C. Disinfection benchmarking

1. Any system required to develop a disinfection profile under the provisions of subsections (A) and (B) of this section and that decides to make a significant change to its disinfection practice must consult with the Director prior to making such change. Significant changes to disinfection practice are:

a. Changes to the point of disinfection;

b. Changes to the disinfectant(s) used in the treatment plant;

c. Changes to the disinfection process; and

d. Any other modification identified by the Director.

2. Any system that is modifying its disinfection practice must calculate its disinfection benchmark using the procedure specified in subsections (C)(2)(a) through (b) of this section.

a. For each year of profiling data collected and calculated under subsection (B) of this section, the system must determine the lowest average monthly *Giardia lamblia* inactivation in each year of profiling data. The system must determine the average *Giardia lamblia* inactivation for each calendar month for each year of profiling data by dividing the sum of daily *Giardia lamblia* of inactivation by the number of values calculated for that month.

b. The disinfection benchmark is the lowest monthly average value (for water systems with one year of profiling data) or average of lowest monthly average values (for systems with more than one year of profiling data) of the monthly logs of *Giardia lamblia* inactivation in each year of profiling data.

3. A system that uses either chloramines or ozone for primary disinfection must also calculate the disinfection benchmark for viruses using a method approved by the Director.

4. The system must submit information in subsections (C)(4)(a) through (c) of this section to the Director as part of its consultation process.

a. A description of the proposed change;

b. The disinfection profile for *Giardia lamblia* (and, if necessary, viruses) under subsection (B) of this section and benchmark as required by subsection (C)(2) of this section; and

c. An analysis of how the proposed change will affect the current levels of disinfection.

**§ 1305 FILTRATION**

A public water system subject to the requirements of this part that does not meet all of the criteria in this part and Part VIII for avoiding filtration must provide treatment consisting of both disinfection, as specified in § 804(B), and filtration treatment which complies with the requirements of subsection (A) or (B) of this section or § 805(B) or (C) by December 31, 2001.

A. Conventional filtration treatment or direct filtration

1. For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system’s filtered water must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in Appendix D § 801-D(A) and (C).

2. The turbidity level of representative samples of a system's filtered water must at no time exceed 1 NTU, measured as specified in Appendix D § 801-D(A) and (C).

3. A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the Director.

B. Filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration. A system may use a filtration technology not listed in subsection (A) of this section or in § 805(B) or (C) if it demonstrates to the Director, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of § 804(B), consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium oocysts*, and the Director approves the use of the filtration technology. For

each approval, the Director will set turbidity performance requirements that the system must meet at least 95 percent of the time and that the system may not exceed at any time at a level that consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts, 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium oocysts.*

**§ 1306 FILTRATION SAMPLING REQUIREMENTS**

A. Monitoring requirements for systems using filtration treatment. In addition to monitoring required by Appendix D, a system subject to the requirements of this part that provides conventional filtration treatment or direct filtration must conduct continuous monitoring of turbidity for each individual filter using an approved method in Appendix D § 801-D(A) and must calibrate turbidimeters using the procedure specified by the manufacturer. Systems must record the results of individual filter monitoring every 15 minutes.

B. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

**§ 1307 REPORTING AND RECORDKEEPING REQUIREMENTS**

In addition to the reporting and recordkeeping requirements in § 806, a system subject to the requirements of this part that provides conventional filtration treatment or direct filtration must report monthly to the Director the information specified in subsections (A) and (B) of this section beginning the first of the month following the month that these regulations become effective. In addition to the reporting and recordkeeping requirements in § 806, a water system subject to the requirements of this part that provides filtration approved under § 1305(B) must report monthly to the Director the information specified in subsection (A) of this section beginning the first of the month following the month that these regulations become effective. The reporting in subsection (A) of this section is in lieu of the reporting specified in § 806(B)(1).

A. Turbidity measurements as required by § 1305 must be reported within 10 days after the end of each month that the system serves water to the public. Information that must be reported includes:

1. The total number of filtered water turbidity measurements taken during the month.

2. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in § 1305(A) or (B).

3. The date and value of any turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration, or which exceed the maximum level set by the Director under § 1305(B).

B. Systems must maintain the results of individual filter monitoring taken under § 1306 for at least three years. Water systems must report that they have conducted individual filter turbidity monitoring under § 1306 within 10 days after the end of each month the system serves water to the public. Systems must report individual filter turbidity measurement results taken under § 1306 within 10 days after the end of each month the system serves water to the public only if measurements demonstrate one or more of the conditions in subsections (B)(1) through (4) of this section. Systems that use lime softening may apply to the Director for alternative exceedance levels for the levels specified in subsections (B)(1) through (4) of this section if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

1. For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

2. For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at the end of the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system must report the filter number, the turbidity, and the

date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

3. For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

4. For any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must arrange for the conduct of a comprehensive performance evaluation by the Director or a third party approved by the Director no later than 30 days following the exceedance and have the evaluation completed and submitted to the Director no later than 90 days following the exceedance.

C. Additional Reporting Requirements

1. If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must inform the Director as soon as possible, but no later than the end of the next business day.

2. If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the Director under § 1305(B) for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system must inform the Director as soon as possible, but no later than the end of the next business day.

# PART XIV
# PUBLIC WATER SYSTEM OPERATOR CERTIFICATION

**§ 1401 PURPOSE**

All public water system operators shall be certified by the Director pursuant to § 2539 of the Navajo Nation Safe Drinking Water Act (NNSDWA). Public water system owners shall ensure that their systems are supervised by adequately trained and certified operators, pursuant to the regulations of this part. The possession of adequate training and maintenance of certification by public water system operators protect the public health by improving the operation and maintenance of public water system and by promoting the provision of safe drinking water.

**§ 1402 OPERATOR CERTIFICATION**

A. Owners of all public water systems shall place the direct supervision of that public water system, including each treatment plant and/or distribution system that comprises that public water system, under the responsible charge of an operator(s) holding a valid certification at or above the level required for the public water system, as provided in § 1404.

B. Operator(s) in responsible charge must hold, at a minimum, a valid certification at or above the level required for their public water system, including each treatment plant and distribution system, as provided in § 1404.

C. All operating personnel making process control/system integrity decisions about water quality or quantity that effect public health must be certified in accordance with this part.

D. The owner of a public water system shall ensure that for each operating shift, a certified operator is designated and is on-site or able to be contacted as needed in order to initiate any necessary action in a timely manner.

**§ 1403 GENERAL REQUIREMENTS**

A. The owner of a public water system shall ensure that the person in responsible charge of the system, for each operating shift, is a certified operator and is certified at or above the level of the public water system, as provided in § 1404.

1. A person in charge of a public water system, in the absence of the principal certified operator, shall be certified at a level no lower than one level below the level of the public water system.

2. [Reserved]

3. If a certified operator is in direct responsible charge of more than one public water system, the certified operator shall be certified at or above the level of the public water system with the highest level.

B. The public water system owner shall notify the Director of the name of any person replacing the currently certified operator within 10 business days of the change. The owner shall notify the Director in writing within 10 business days of the date a public water system ceases operation.

C. There are four levels of public water systems, with Level 4 being the classification for the most complex. The Director shall classify each system pursuant to the criteria listed in § 1404, and may increase the classification of a public water system to a higher level for the following reasons:

1. The public water system has special design features that make it more difficult to operate than usual;

2. The source water is unusually difficult to treat; or

3. The public water system poses potential risk to public health.

The Director shall notify the owner in writing of any proposed change in classification. The owner may respond to any change in classification within 30 days of notification, and the Director shall consider and respond to such comments before making a final decision as to classification. Fora multi-facility, each component system shall be classified according to its own complexity and also to the total population or population equivalent served.

D. A certified operator may operate any water system of the same level for which the operator is certified or of any lower level.

E. NNEPA will consider that a system has an appropriately certified operator when the operator:

1. holds a valid certification equal to or greater than that required for the classification of the treatment facility and/or distribution system, as specified in these regulations;

2. demonstrates competency through knowledge, skills, and abilities to operate the system in compliance with the NNPDWR; and

3. is on-site during a specified operating shift, or is able to be contacted as needed in order to initiate any necessary action in a timely manner.

**§ 1404 CLASSIFICATION OF PUBLIC WATER SYSTEMS**

A. NNEPA will classify water distribution systems according to the following classification system:

1. Water Distribution System:

| Level | Population/System Characteristics |
|---|---|
| Level 1 | Population <3,300, Groundwater Disinfection by hypochlorite only |
| Level 2 | 3,301 - 10,000 population served, or Gaseous and other Chlorine Disinfectant, or 5 or more Pressure Zones, or Recycled Water Distribution, or System is Blending Sources to meet MCL |
| Level 3 | 10,001 - 25,000 population served |
| Level 4 | 25,001 population served |

2. Water Treatment Plant:

a. NNEPA will classify all water treatment plants using a point system as explained in the table below. Systems that score less than or equal to 14 points will only require distribution certification.

| Level | Points |
|---|---|
| Level 1 (Basic) | 15-30 |
| Level 2 (Intermediate) | 31-55 |
| Level 3 (Advanced Intermediate) | 56-75 |
| Level 4 (Advanced) | ≥76 |

B. The points assigned to each water treatment plant for each system characteristic are as follows:

| **SYSTEM CHARACTERISTICS** | **POINTS** |
|---|---|
| Population | 1 per 1,000 |
| Maximum Design Capacity | 1 per 0.5 MGD up to 10 |
| Groundwater Source without coliform (total, fecal or e. *coli*) presence | 2 |
| Groundwater Source with coliform (total, fecal or e. coli) presence | 5 |
| GWUDI Source | 8 |
| Surface Source | 10 |

| | |
|---|---|
| **AVERAGE RAW WATER QUALITY VARIATION:** | |
| Little or no variation - only treatment is disinfection | 0 |
| Minor variation - e.g. “High quality” surface source appropriate for slow sand filtration | 2 |
| Requires moderate variation in chemical feed, dosage changes made; monthly(3pts), weekly (4pts), or daily (5pts) | 3-5 |
| Variation significant enough to require pronounced and/or very frequent changes (more than daily) | 6 |
| Severe variation - source subject to non-point discharges, agricultural/urban storm runoff, flooding | 7 |
| Raw water quality subject to agricultural or municipal waste point discharges | 8 |
| Raw water quality subject to recreational use (boating fishing, etc.) | 6 |
| Raw water quality subject to periodic serious industrial waste pollution | 10 |
| Taste and/or odor for which treatment process adjustment are routinely made | 2 |
| Color levels >NNSDWS | 3 |
| Iron and/or manganese levels > NNSDWS | 2 |
| Algal growths for which treatment process adjustments are routinely made | 3 |
| **CHEMICAL TREATMENT ADDITION PROCESS:** | |
| Fluoridation | 5 |
| **DISINFECTION** | |
| If a disinfectant/oxidizer is generated on-site, add 1 point to the point value shown | |
| Hypochlorite Liquid or Solid | 5 |
| Chlorine Gas | 8 |
| Chlorine Dioxide | 10 |
| Chloramine | 10 |
| Ozone | 10 |
| UV Irradiation | 2 |
| Potassium permanganate | 4 |
| pH Adjustment (Calcium carbonate, carbon dioxide, hydrochloric acid, calcium oxide, calcium hydroxide, sodium hydroxide, sulfuric acid, other) | 4 |
| Stability or Corrosion Control (calcium oxide, calcium hydroxide, sodium carbonate, sodium hexametaphosphate, other) | 10 |
| **COAGULATION AND FLOCCULATION PROCESS** | |
| Rapid Mix (mechanical, injection and in-line blenders) | 2 |
| Primary coagulant addition | 6 |
| Coagulant aid / flocculant chemical addition (in addition to primary coagulant use) | 2 |
| Flocculation | 2 |
| Filter aid addition (non-ionic/anionic polymers) | 2 |

| | |
|---|---|
| **CLARIFICATION/SEDIMENTATION PROCESS** | |
| Sedimentation (plain, tube, or plate) | 4 |
| Contact adsorption | 6 |
| Upflow Clarification | 8 |
| Horizontal-flow (rectangular basins) | 5 |
| Horizontal-flow (round basins) | 7 |
| Other clarification process (air floatation, ballasted clarification, etc.) | 6 |
| **FILTRATION PROCESS** | |
| Granular Media filtration < 3gpm/sq. ft. | 10 |
| Granular media filtration > 3gpm/sq. ft. | 20 |
| Direct filtration | 5 |
| **MEMBRANE FILTRATION** | |
| for compliance with a NNPDWR | 10 |
| for compliance with a NNSDWR | 6 |
| Diatomaceous earth (pre-coat filtration) | 10 |
| Cartridge/bag | 5 |
| Gravity Sand Filter | 5 |
| Pressure or greensand filtration | 20 |
| Biologically active filter | 15 |
| Pre-filtration (staged cartridges, pressure sand w/o coagulation, etc.): add one point per stage to max of 3 points. | 1-3 |
| **OTHER TREATMENT PROCESSES** | |
| $O_2$ (aeration) | 3 |
| Packed tower aeration | 5 |
| Air stripping | 5 |
| Ion exchange softening | 5 |
| Lime-soda ash softening (includes: chemical addition, mixing/flocculation/clarification/filtration - do not add points for these processes separately) | 20 |
| Granular Activated Carbon (do not assign points when included as a bed layer in another filter) | 5 |
| Powdered activated carbon | 2 |
| Activated Alumina | 5 |
| Chemical Precipitation | 15 |
| **BLENDING SOURCES WITH SIGNIFICANTLY DIFFERENT WATER QUALITY:** | |
| to achieve compliance with a NNPDWR | 4 |
| to achieve compliance with a NNSDWR | 2 |
| Reservoir management employing chemical addition | 2 |

| | |
|---|---|
| Electrodialysis | 15 |
| Other: including but not limited to POE and POU devices, various adsorption technologies, ion-exchange for Arsenic removal. | 2-15 |
| **RESIDUALS DISPOSAL** | |
| Discharge to surface, sewer, or equivalent | 1 |
| Discharge to lagoon/drying bed, with no recovery/recycling - e.g. downstream outfall | 1 |
| On-site disposal, land application | 1 |
| Backwash recovery/recycling: discharge to basin or lagoon and then to source | 3 |
| Backwash recovery/recycling: discharge to basin or lagoon and then to plant intake | 5 |
| **FACILITY CHARACTERISTICS** | |
| Instrumentation - Use of SCADA or similar instrumentation systems to provide data, with: | |
| Monitoring/alarm only, no process operation | 0 |
| Limited process operation - e.g. remote shutdown capability | 1 |
| Moderate process operation | 2 |
| Extensive or total process operation | 4 |
| Design limitation regarding: clearwell, pumps, storage, etc. | 1-5 |

C. Levels of required training and certification

1. Operators certified at Level 1 shall receive training to include, but not limited to, General Operation/Maintenance, Security and Safety, Drinking Water Regulations, Sampling and Basic Distribution System.

2. Operators certified at Level 2 shall receive training to include, but not limited to, General Operation and Maintenance, Backflow Prevention and Cross Contamination (Optional), Treatment-Disinfection/Fluoridation, Security and Safety, Water Quality Parameters and Sampling, and Drinking Water Regulations.

3. Operators certified at Level 3 shall receive training to include, but not limited to, Advanced Operation and Maintenance, Backflow Prevention/Cross Contamination, Treatment-Disinfection and Fluoridation Instrumentation, Security, Safety and Administrative Procedures, Water Quality Parameters and Sampling, SCADA or similar instrumentation systems, Drinking Water Regulations and Compliance.

4. Operators certified at Level 4 shall receive training to include, but not limited to, Advanced Operation and Maintenance, Backflow Prevention and Cross Contamination, Treatment-Disinfection and Fluoridation, Surface Water Treatment Plant Processes and Operation Security, Safety and Administrative Procedures, Water Quality Parameters and Sampling, SCADA or similar instrumentation systems, Drinking Water Regulations and Compliance.

**§ 1405 CERTIFICATION REQUIREMENTS**

To be certified, an applicant shall:

A. Meet the experience and educational requirements in § 1409; and

B. Pass a written examination for the level in which application is made as specified in § 1410, or

C. Meet the reciprocity requirements in § 1407, in lieu of § 1405(B).

**§ 1406 APPLICATION FOR CERTIFICATION**

A. Any person who requires a certification shall complete, sign and submit to the Director an application for certification, on a form provided by the Director, together with fees required in § 1416. Applications must be received by the Director no later than 30 calendar days prior to the date of examination, if applicable.

B. Prior to submitting to the Director an application for certification, an operator shall successfully meet the educational, experience and training requirements stipulated in § 1409, prior to application.

C. Each application submitted will be reviewed for completeness by the Director within 30 days of its receipt, or such longer time as the Director may deem necessary. The Director may also request additional information from the applicant when necessary to clarify or supplement previously submitted material. Request for such information will not render an application incomplete.

**§ 1407 RECIPROCITY**

A. The Director may issue a certificate without examination to an applicant who holds a certificate issued by another state, territory, the District of Columbia, tribal government, federal entity, or organization if the criteria in subsection (C) of this section are met and upon the completion of the additional training specified in subsection (E) of this section.

B. An operator who is certified in another jurisdiction and requests a Navajo Nation certificate shall submit to the Director an application and a notarized copy of his/her current certificate with the appropriate fee, as specified in § 1416. All fees are non-refundable.

C. The criteria for issuing a Navajo Nation certificate are as follows:

1. The certificate from another jurisdiction must be current and valid for the particular type of public water system and level for which application is made;

2. The certificate from another jurisdiction must be issued under laws in compliance with § 1419 (a) of the SDWA Amendments of 1996 (Pub. L. 104-182); and

3. The applicant shall meet the experience and education requirements in § 1409.

D. The application requesting a certificate will not be considered until all information, documentation, and fees are received by the Director. A determination will be made within 30 days thereof. If the application is approved, a certificate will be issued. If the application is disapproved, the Director will notify the applicant in writing that he/she will be afforded an opportunity to take the Navajo Nation certification examination. All application fees will be used to defray, in whole or in part, the cost to the applicant of taking the next examination.

E. In addition to meeting the criteria specified in subsection (C) of this section, the applicant shall attend a full day of training pertaining specifically to the requirements of the NNSDWA and the NNPDWR following receipt of a letter from the Director approving certification.

F. Certification by reciprocity is based upon the validity of the original certificate issued by another jurisdiction under laws in compliance with § 1419 (a) of the SDWA Amendments of 1996 (Pub. L. 104-182). The suspension or revocation of the original certificate upon which reciprocity is granted shall be reported to the Director by the certified operator within 10 working days of his/her notification by the certifying agency. Failure to report to the Director shall constitute fraud, deceit or misrepresentation and may result in suspension or revocation of the certificate pursuant to § 1414(B) and in any other enforcement action deemed appropriate by the Director.

**§ 1408 (RESERVED)**

**§ 1409 EXPERIENCE AND EDUCATION**

A. To determine whether an applicant has adequate experience required for certification at a particular level, the Director shall consider the following:

1. Years of experience at a lower level; and

2. Previous operational experience, including experience in another jurisdiction or related field. The applicant shall have acquired at least 6 months of operational experience within

the 5-year period preceding the date of application.

B. The Director shall not certify an applicant at more than one level higher than the level of the highest level water system at which the applicant has at least 1 year of experience.

C. For the purposes of this Part, a “qualifying discipline” means engineering, biology, chemical sciences, or a closely related technical or scientific discipline. The Director may require that the applicant provide transcripts or certificates to verify completion of the education requirements.

D. For the purposes of this Part, “qualifying experience” means experience directly in the field for which application is made. The fields of qualifying experience are water treatment and distribution.

E. An applicant shall meet the following requirements for admission to a certification examination:

1. For Level 1, at least:

   a. high school graduation or equivalent and one year of qualifying experience in the operation of a Level 1 or higher utility; or

   b. Two years or more of post-secondary education in a qualifying discipline.

2. For Level 2, at least:

   a. High school graduation or the equivalent and 2 years of qualifying experience, including one year as a Level 1 certified operator; or

   b. Two years of post-secondary education in a qualifying discipline and 1 year of qualifying experience, including 6 months as a certified Level 1 operator; or

   c. A bachelor’s degree in a qualifying discipline and 6 months of qualifying experience.

3. For Level 3, at least:

   a. High school graduation or the equivalent and 3 years of qualifying experience, including 1 year as a Level 2 certified operator; or

   b. Two years of postsecondary education in a qualifying discipline, and 2 years of qualifying experience, including 1 year as a Level 2 certified operator; or

   c. A bachelor’s degree in a qualifying discipline and 18 months qualifying experience, including 1 year as a Level 2 certified operator.

4. For Level 4, at least:

   a. High school graduation or the equivalent and 4 years of qualifying experience, including 1 year as a Level 3 certified operator; or

   b. Two years of post-secondary education in a qualifying discipline and 3 years of qualifying experience, including 1 year as a certified Level 3 operator; or

   c. A bachelor’s degree in a qualifying discipline, and 30 months of qualifying experience, including 1 year as a certified Level 3 operator.

F. Professional Development Hours (PDH) will be credited to certified operators who attend training that addresses compliance issues relating to the NNSDWA and regulations. Such training may be offered by the Association of Boards of Certification (ABC) or other as approved by the Director.

**§ 1410 EXAMINATION**

A. Certification examinations will be given by the PWSSP under the authority of the Director. The examination shall be used to determine knowledge, ability and judgment of the applicant for a specific level of certification.

B. A score of 70% is required for certification. All examinations will be graded and applicants will be notified of the results within 30 days of examination date. Examination papers will not be returned to the applicant, but may be reviewed by the applicant at the PWSSP office. Under no circumstances shall the exams be viewed immediately after the examination or at the site of examination.

C. Examinations for certification will be scheduled at such times and locations as the Director deems appropriate.

D. If an applicant does not pass an examination for certification, the applicant may re-apply and re-test after 30 days from the date of the last attempted examination.

**§ 1411 EXAMINATION APPEAL PROCESS**

A. All applicants with a score from 65% to 69% will be allowed to appeal an exam score by sending a letter of appeal to the Director within 30 days of receiving the notice of exam results.

B. The Director will schedule a date for the applicant to review the graded exam and to indicate which questions are being appealed. The applicant will be given adequate time to specify the reason for the appeal. References are encouraged to be cited and supporting documentation may be submitted to substantiate claims that examination questions are flawed or ambiguous.

C. The Director will designate a proctor to oversee the appeal session. The proctor is prohibited from discussing any exam issues or to assist in the appeal of any missed questions.

D. At the end of the appeal session, the proctor will collect the examination, the answer sheet, the appeal form, and any notes or scratch paper. The proctor will also review any reference material brought to the appeal session to ensure that no notes or comments pertaining to examination questions have been added to or written upon these materials. The applicant will be allowed to leave with only the reference material that he/she brought to the session.

E. The Director will review the appeal and the supporting documentation submitted by the appellant and will make a determination within 30 days of the appeal. All decisions will be final, and no further appeals will be allowed.

**§ 1412 RENEWAL OF CERTIFICATES**

A. If the Director renews a certificate, the renewed certificate shall be valid for a period of 3 years. A renewal application and a fee, set by the Director, payable to the Navajo Nation Public Water System Supervision Program shall be submitted at least 30 days prior to the expiration of each certificate. The request for renewal shall be approved by the Director provided that the criteria in subsections (B) or (C) of this section are met.

B. Renewal will require that each certified operator be credited with having obtained 35 PDHs in the 3-year period preceding the date on which the renewal application is due. Documentation of each training credit shall be on a form provided by the PWSSP and verification shall be provided in writing by the operator’s supervisor or the entity that provided the education or training.

C. A certified operator may renew a certificate by taking and passing an examination for the same level and classification, in lieu of meeting the requirements specified in subsection (B) of this section.

**§ 1413 AN EXPIRED CERTIFICATE**

A. A certificate shall expire on the expiration date printed on the certificate, unless renewed before the expiration date pursuant to § 1412.

B. Expired certificates may be reinstated without penalty upon application within 30 days of the date of expiration. An expired certificate which has not been reinstated within the 30 day period may be reinstated for the same level without examination within 90 days of the certificate expiration date if the certificate holder files the appropriate application, meets the requirements of renewal in § 1412 and submits payment for renewal fees specified in § 1416 plus $10.00 per month late fee for each month or portion thereof beyond the expiration date.

C. If an expired certificate is not renewed within 90 days of the certificate expiration date, the certificate shall not be reinstated. The certificate holder may re-apply and be re-examined as a new applicant.

**§ 1414 SUSPENSION AND REVOCATION**

A. The Director may suspend or revoke any or all certificate(s) held by a certified operator as stipulated under this section.

B. The Director shall suspend or revoke certification under the following circumstances:

1. The certificate-holder has been found by tribal, federal or state court to have violated laws applicable to drinking water systems;

2. The certificate-holder obtained a certificate through the use of fraud, deceit or misrepresentation;

3. The certificate-holder has prepared a false or fraudulent report or record regarding the operation or management of a drinking water system; or

4. The certificate-holder has violated any other law that poses a risk to the health and safety of the public served by the drinking water system.

C. When the Director contemplates the suspension or revocation of a certificate, the Director shall serve upon the certificate-holder an initial order pursuant to the Uniform Rules § 304(A), containing a statement:

1. That the Director has sufficient evidence which, if not rebutted or explained, will justify the Director in suspending or revoking the certificate;

2. That indicates the general nature of the evidence; and

3. That unless the certificate-holder within 30 days after the date of issuance of the initial order requests a hearing pursuant to Uniform Rules § 305, the Director will take the contemplated action and judicial review will not be available. If the certificate-holder requests a hearing, the Director shall designate a Hearing Official and a Hearing Clerk and a hearing shall be held pursuant to Uniform Rules Subpart 3(C). Judicial review of the final order shall be available pursuant to Uniform Rules § 332.

4. Notwithstanding Uniform Rules § 304(B)(3), an order suspending or revoking a certificate need not specify a schedule for compliance.

D. If any certificate held by an operator is suspended or revoked by the Navajo Nation, a letter by the operator to request re-application and re-examination may be submitted to the Director for consideration upon the expiration of the action and in accordance with the final determination of the suspension or revocation.

1. The Director shall make a determination and respond in writing within 30 days of such request to permit or deny re-application and re-certification. The Director may request additional information to evaluate the severity of the violation that led to the suspension or revocation, any good faith efforts to remedy that violation, and any other factors that the Director deems relevant in the determination.

2. Each request for re-application and re-examination will be considered on a case-by-case basis. The Director may seek the advice of the Advisory Board to make a decision, as described in § 1415.

3. Under no circumstance(s) shall an approval for re-application and re-examination be in conflict with a previously issued suspension or revocation.

4. All decisions by the Director are final. If approved, the applicant shall be permitted to re-apply and retake the exam as a new applicant subject to the certification requirements of this Part. If disapproved, a letter of denial with an explanation will be issued.

**§ 1415 UTILITY OPERATORS CERTIFICATION ADVISORY COMMITTEE**

A. Pursuant to § 309 of the NNSDWA, the Advisory Committee shall be appointed by the Director to make recommendations and provide technical advice and assistance to the Director as may be needed. The Director shall promptly notify the Advisory Committee of all significant matters brought before the Director to which the NNPDWR Operator Certification requirements are applicable.

B. The Advisory Committee members shall be appointed by the Director and must contain at least the following individuals as members:

1. 1 employee of NNEPA;

2 1 manager, director or administrator representative of the Navajo Tribal Utility Authority;

3. 1 employee of Navajo Area Bureau of Indian Affairs;

4. 1 currently employed operator of a water or wastewater system on the Navajo Nation;

5. 1 representative of small public water or wastewater systems within the Navajo Nation.

The Director shall also appoint two certified operators to serve as alternates to Board members in their absence. All alternates appointed prior to the effective date of this Part will be allowed to serve out the remainder of their three-year terms.

C. Each year, the Director shall elect from the Advisory Committee members a chairperson and such officers as deemed necessary. The NNEPA employee shall be the executive secretary and shall keep records of all Advisory Committee communications for the review of the Director.

D. The duties of the Advisory Committee members shall include (but are not limited to):

1. Advise the Director in administering and implementing this Part by providing a forum for the discussion of technical and administrative issues, and by providing training assistance or information on such assistance;

2. Provide input on proposed new and/or revisions to rules and guidelines under this Part;

3. Make recommendations to the Director for replacement members when a committee member vacancy occurs;

4. Perform any other function with regard to this Part XIV of the NNPDWR (Operator Certification Regulations).

E. The Director may remove any member of the Advisory Committee for neglect of any duty required by law, for incompetency or for unprofessional conduct or who violates any provision of the NNSDWA or its regulations.

F. All Advisory Committee members shall be reimbursed for their expenses related to participation on the committee upon the availability of funds.

**§ 1416 FEE SCHEDULE**

A. An applicant must pay the fees listed in the fee schedule established by the Director. These fees may be revised by the Director to reflect operator certification and training program costs, pursuant to the rulemaking requirements of Uniform Rules Subpart 4.

B. All fees must be paid to the Navajo Nation Public Water Systems Supervision Program.

C. In the event that an applicant is denied reciprocity or renewal of a certificate, the fees may be transferred to cover future application, renewal or examination fees. At no time will fees be returned to the applicant.

D. The fees may be used to cover the cost of examination services, training material reproduction, postage, and other certification-related costs.

# PART XV
# MINIMUM DESIGN REGULATIONS

**§ 1501 PURPOSE**

These regulations are intended to ensure that new public water systems and substantial modifications to existing public water systems are capable of supplying adequate quantities of water which consistently meet applicable drinking water quality requirements and do not pose a threat to public health. All such facilities shall be designed to function properly in compliance with the NNSDWA and the NNPDWR. These design regulations establish minimum requirements only and do not diminish the duty of owners and operators to comply with applicable statutes and regulations and industry standards and to provide adequate system design and performance. However, the Director will find that a proposed design that complies with the regulations in this Part is "satisfactory" for purposes of § 2551(A)(2) of the NNSDWA.

**§ 1502 APPLICABILITY**

These regulations apply to all new public water systems and substantial modifications to existing public water systems. In addition, §§ 1506 and 1509 apply to bottled water systems where specifically provided. The PWSSP will take these regulations into account when reviewing applications for and issuing construction permits. In addition, the Director may require an existing public water system up upgrade to meet the requirements of this Part if the public water system is consistently violating the NNSDWA and the NNPDWR and posing significant risks to the public health and the Director determines that the modification is necessary to bring the public water system into compliance and protect the public health. The Director will propose the upgrade pursuant to the permit modification procedures in Uniform Rules §§ 204(C), 205(C) and 207-214.

**§ 1503 LOCATION REQUIREMENTS**

To the extent practicable, a new water system or substantial modification to an existing water system shall be geographically located to avoid a site which is:

A. Subject to a significant risk from earthquakes, floods, fires, or other disasters which could cause a breakdown of the public water system or portion thereof; or

B. Within the flood plain of a 100-year flood or of highest flood level experienced in the past if the 100-year flood plain has not been defined, except for intake structures, properly protected wells and properly designed wash, creek and river crossings.

**§ 1504 WATER CONSUMPTION**

For community water systems and non-transient non-community water systems, the water usage rate, defined as gallons per home per day (gphd) or gallons per capita per day (gpcd), is used to determine the amount of water that will be utilized by the water system. The Engineer shall determine the total usage through engineering analyses that use operating data from the existing system or other guidelines and parameters accepted by the engineering community of the Navajo Nation, and shall submit documentation of that calculation in the Engineering Report that is submitted to the Director pursuant to Part XVI of these regulations. The water usage rate shall in no case be less than 200 gphd.

**§ 1505 WATER SUPPLY**

A water supply shall be provided which is capable of providing for the average daily system demand for the design population (as defined in §104) of the system in approximately 12 hours or less. This criterion is also applicable to booster stations. For duplex stations, only the capacity of one pump should be considered for meeting the 12 hour-average daily design demand requirement. It is permissible for pump capacity to be less than the 12 hour-average daily design demand requirement, when justified. Variable speed boosters and other types of boosters may also be used in the system if they are equivalent to above booster requirements or better. Water supply is rated in gallons per minute (gpm) and pumping cycle in hours per day.

**§ 1506 WATER SOURCES**

The Engineer shall provide all necessary information to the Director to ensure that the source(s) selected are of satisfactory quality, or shall be treated to meet the requirements of the NNPDWR and meet/exceed the demand of the system. The best available source of water that is both economically and technically feasible shall be utilized for the water supply. All water systems should identify an alternative source of supply in case of an emergency, when the primary source cannot be used, pursuant to §2545 of the NNSDWA.

A. The PWSSP shall classify all existing or new water sources as either:

1. Surface water or groundwater under the direct influence of surface water, or as

2. Groundwater not under the direct influence of surface water.

The groundwater under the direct influence of surface water, which may be a ground water well or a spring, shall meet all the treatment requirements of the surface water.

B. All new/existing drinking water sources, that have not previously been analyzed, shall be analyzed as initial water quality by a certified laboratory (as defined in § 402) for the following factors and results shall be provided to the Director for review:

1. Physical properties (refer to Table 1800.1);

2. Inorganic Chemicals (refer to Table 200.1 and Table 1800.1);

3. Synthetic Organic Chemicals (refer to Table 200.3);

4. Volatile Organic Chemicals (refer to Table 200.2);

5. Bacteriological contaminants (refer to Table 200.5); and

6. Radionuclides (refer to Table 200.10).

C. Surface Water Sources:

1. Quality:

An engineering evaluation shall be made considering all factors, both natural and man-made, which may affect the quality of the source water. The evaluation shall include, but not be limited to:

a. Projection of possible future uses of impoundments or reservoirs;

b. Assessing degree of hazard to the source from the accidental spillage of materials that may be toxic, harmful or detrimental to treatment processes;

c. Obtaining samples over a sufficient period of time (covering all four seasons of a year) to assess the microbiological, physical, chemical and radiological characteristics of the water and their variation;

d. Assessing the capability of the proposed treatment process to comply with the NNPDWR; and

e. Consideration of currents, wind and ice conditions, and the effect of tributary streams at their confluence.

2. Intake Structures:

The design of intake structures shall provide for:

a. Withdrawal of water from more than one level if quality varies with depth;

b. Lowest inlet port located above the bottom, but at sufficient depth to be kept submerged at low water levels;

c. Separate facilities for release of less desirable water held in storage;

d. Occasional cleaning of the inlet line;

e. Screens or gratings over the inlet to protect the pumps; and

f. A means for periodic cleaning of the screens or gratings.

3. Impoundments:

The design of an impoundment reservoir shall provide for, where applicable:

a. Removal of brush, trees, and stumps to the high water level; and

b. Protection from floods during construction.

D. Ground Water - Wells:

1. Location

a. The location of the public water well shall be at least one hundred (100) feet from all potential pollution sources except where the professional engineer or the professional geologist can justify a lesser distance based in part on hydrogeological conditions or special well construction techniques or where the pollution source is designed in such a manner as to prevent the release of contaminants to the environment.

A greater pollution free radius shall be required where water from water table aquifers will be used.

A Wellhead Protection Area Inventory must be performed based on the location and expected yield of the proposed well. Refer to Part XVII of these regulations for details.

b. The proposed well site must:

i. be readily accessible for cleaning, testing, monitoring, and maintenance;

ii. have the finished grade sloped away from the well to prevent any surface runoff from collecting or ponding;

iii. Be located up-slope and away from potential contaminants; and

iv. Be fenced to prevent unauthorized access.

2. Well Materials, Design and Construction:

a. Well casings, drop pipes, well screens, coatings, adhesives, pumps, switches, electrical wire, sensors and all other equipments or surfaces which may be in contact with drinking water must comply with ANSI/NSF Standard 61.

All substances introduced into the well during construction or development shall comply with ANSI/NSF Standard 60. This requirement applies to drilling fluids (biocides, clay thinners, defoamers, foamers, lubricants, oxygen scavengers, viscosifiers, weighting agents) and regenerants. This requirement also applies to well grouting and sealing materials which may come in direct contact with the drinking water.

b. Permanent steel casing pipe shall:

i. Be new steel casing pipe meeting AWWA Standard A-100, ASTM or API specifications;

ii. Be capable of withstanding forces to which it is subjected;

iii. Have full circumferential welds or threaded coupling joints; and

iv. Project at least 18 inches above the anticipated final ground surface. At sites subject to flooding, the top of the well casing shall terminate at least 36 inches above or the well shall be provided with water tight cap and a vent terminating 36 inches above the 100-year flood level or the highest known flood elevation where the 100-year flood level has not been established.

c. The use of any non-ferrous material for a well casing shall require prior approval from the Director. Thermoplastic water well casing pipe shall meet ANSI/ASTM Standard F480-76 and shall bear the logo NSF-wc indicating compliance with NSF Standard 14 for use as well casing.

d. Screens:

The use of well screens is recommended where appropriate and, if used, they shall:

i. Be constructed of material resistant to damage by chemical action of groundwater or cleaning operations;

ii. Have openings sized based on sieve analysis of water bearing formations or gravel pack materials;

iii. Have sufficient diameter to provide adequate specific capacity and low aperture entrance velocities; and

iv. Be provided with a bottom plate or washdown bottom fitting of the same material as the screen.

e. Casing Perforations:

The placement of perforations in the well casing shall:

i. Be located so as to permit as far as practical the uniform collection of water around the circumference of the well casing; and

ii. Be of dimensions and size to restrain the water bearing soils from entrance into the well.

f. Gravel Pack Wells:

The gravel pack material shall be well rounded particles, 95 percent siliceous that are smooth and uniform, free of foreign material, properly sized, washed and then disinfected immediately prior to or during placement as per AWWA standard C654. The gravel pack shall be placed in one uniform continuous operation.

g. Well Plumbness and Alignment:

Well plumbness and alignment shall be tested in accordance with the AWWA Standard A-100. The completed well shall be sufficiently plumb and straight so that there will be minimal interference with installation, alignment, operation, or removal of the test or permanent pumps.

h. Well Grouting:

All permanent well casing for drinking water wells shall be grouted to a depth of at least 50 feet below ground surface or firm bedrock whichever is less. However, where bedrock is encountered at less than 20 feet, casing shall be grouted to at least 20 feet depth. Sufficient annular opening shall be provided to permit a minimum of 2 inches of grout between the permanent casing and the drilled hole, taking into consideration any joint couplings. If a carrier casing is left in place, the casing shall be grouted so as to ensure contact with the native formations. The carrier casing may be perforated if the Engineer desires. Protection shall be provided to prevent leakage of grout into the screen or the gravel pack.

3. Well Development:

Every well shall be developed to remove the native silts and clays, drilling mud or finer fraction of the gravel pack. Development should continue until the expected maximum capacity is obtained from the well.

4. Well Testing for Performance:

The pumping test shall not be conducted until the well has been adequately developed. Both the step-drawdown and constant-rate tests shall be conducted to determine well capacity, type of pump and the time-drawdown characteristics meeting requirements of AWWA standard A-100. The engineer shall submit detailed procedures and specifications of these tests and analyses in the application package for the construction permit.

The following records shall be kept of the tests along with weather conditions and other pertinent information and submitted to the Director for review:

a. Date and time of starting and ending the test;

b. Name of the person(s) conducting the test.

c. Pumping rate and water level measurements with time;

d. Depth of water level increase with time after stopping the pumping test to evaluate well recovery; and

e. Analysis and interpretation of the test results;

5. Well Disinfection:

All new, modified, or reconditioned wells, including pumping equipment, shall be disinfected according to AWWA Standard C654 before being placed into service for drinking water use. Bacteriological water samples shall be collected according to the standard and analyzed by EPA-certified laboratory. The chlorine residual readings at the time and place of the bacteriological samples must also be submitted.

6. Well Abandonment:

Abandonment of wells shall conform to the followings:

a. Test wells and groundwater sources which are to be permanently abandoned shall be sealed by such methods as necessary to restore the controlling geological conditions which existed prior to construction.

b. Wells to be abandoned shall be sealed to prevent undesirable exchange of water from one aquifer to another. Preference shall be given to using a neat cement grout. Where fill materials are used, which are other than cement grout or concrete, they shall be free of foreign materials and shall not contaminate the ground water.

c. Complete and accurate records shall be kept for the entire abandonment procedure and shall be submitted to the Director.

7. Well Head Piping and Pumping Facilities:

a. General Requirements:

i. A sanitary seal or pitless unit must be provided on the top of the well casing. A pressure gauge and air line or other method for readily measuring the water level in the well shall also be provided;

ii. A casing vent shall be provided. The vent must be elbowed downwards and screened to prevent entry of insects;

iii. A check valve shall be provided in the pump discharge line. For jet pumps, no check valve is required in the main line but a back-flow/back-siphonage device must be provided on blow offs and sample cocks;

iv. A sampling tap must be provided for raw water sampling downstream of the check valve and prior to any chemical injection point. It must be equipped with a vacuum breaker device to prevent back-flow/back-siphonage;

v. A flow meter shall be provided on each well;

vi. Adequate support for the well pump and drop pipe must be provided;

vii. An hour meter shall be provided to record the elapsed run time of each well pump;

viii. A manual control switch shall also be provided for each well pump; and

ix. All electrical wiring shall be in conduit and meet the requirements of the National Electric Code.

b. Well Head Piping:

The discharge piping shall:

i. Be designed so that the friction loss will be low;

ii. Be protected against surge or water hammer;

iii. Have control valves located above the pump house floor; and

iv. Have all exposed piping valves and appurtenances protected against physical damage and freezing.

E. Ground Water - Springs:

Springs vary greatly in their characteristics and they should be observed for some time prior to development to determine any flow and quality variations. They must be determined whether or not they are “under the direct influence of surface water.” The springs determined to be under

the direct influence of surface water will have to be given “surface water treatment.”

The development of springs shall comply with the following requirements:

1. The spring collection device, whether it be collection tile, perforated pipe, imported gravel, infiltration boxes or tunnels, must be covered with a minimum of ten feet of relatively impervious soil cover. Such cover must extend a minimum of 15 feet in all horizontal directions from the spring collection device.

   Where it is impossible to achieve the ten feet of relatively impervious soil cover, an impermeable liner may be used, provided:

   a. The liner has a minimum thickness of at least 10 mils;

   b. All seams in the liner are folded or welded to prevent leakage;

   c. The liner is certified as complying with ANSI/NSF Standard 61; and

   d. A minimum of two feet of relatively impervious soil cover is placed over the impermeable liner.

2. Each spring collection area shall be provided with at least one collection box to permit spring inspection and testing.

3. All junction boxes and collection boxes must be provided with access manholes, air vents and overflow piping. Lids of these spring boxes shall be fitted with sanitary gaskets.

4. The spring collection area shall be surrounded by a fence located a distance of 50 feet (preferably 100 feet if conditions allow) from all collection devices on land at an elevation equal to or higher than the collection device, and a distance of 15 feet from all collection devices on land at an elevation lower than the collection device. The elevation datum to be used is the surface elevation at the point of collection.

   In remote areas where no grazing or public access is possible, the fencing requirement may be waived by the Director.

   In populated areas, a six-foot high chain link fence with three strands of barbed wire may be required.

5. All vegetation which has a deep root system shall be removed from the fenced area.

6. Surface water runoff must be diverted away from the spring collection area by constructing a diversion channel or berm around the fence.

7. A permanent flow measuring device shall be installed. Flow- measurement devices such as critical depth meters or weirs shall be properly housed and otherwise protected.

8. The spring shall be developed as thoroughly as possible so as to minimize the possibility of excess spring water ponding within the collection area. Where the ponding of spring water is unavoidable, the excess water shall be collected by shallow piping or french drain and be routed beyond and down grade of the fenced area required above, whether or not a fence is in place.

**§ 1507 WATER STORAGE**

For community water systems and non-transient non-community water systems, water storage shall be provided to ensure that safe, potable water is available for both normal and emergency situations, such as pipeline breaks, equipment failures, or natural disasters. For single-source systems, five-days storage plus any fire flow reserve should be provided. The single-source storage requirements can be reduced to three-days storage plus any fire flow reserve if the system is provided with an emergency standby pump. For multi-source systems, storage requirement should be at least 1.5 days-storage plus any fire flow reserve plus a volume determined by subtracting from one day’s storage the volume of water that the remaining water sources can provide in 18 hours if the largest source is out of service.

Adequate controls shall be provided to maintain levels in distribution system storage structures. Also, storage structures shall be designed so they can be isolated from the distribution system for the purpose of draining, maintenance and repair.

A. Ground-level/Elevated Storage Tanks and Standpipes:

   The materials and design of storage structures shall provide stability and protection of the stored water. Storage structures shall be designed in accordance with appropriate current AWWA Standards whenever applicable.

The ground-level/elevated storage tanks and standpipes shall:

1. Be sized to meet the pressure requirements in the distribution system;

2. Be structurally competent and constructed of materials that are acceptable to the Director;

3. Be readily accessible at all times for inspection and maintenance;

4. Be tightly secured within a fenced area to prevent any unauthorized access, vandalism, contamination or sabotage;

5. Have suitable watertight roofs which exclude birds, animals, insects, and dust. The roof shall have vents, which shall be screened with appropriate non-corrodible mesh;

6. Be provided with adequately sized drains;

7. Be provided with an overflow pipe of sufficient diameter to permit the discharge of water equal to or greater than the filling rate. The overflow pipe shall be brought down to below 24 inches above the ground surface or piped to daylight, be screened with appropriately sized non-corrodible mesh and discharge over a splash pad to prevent ground erosion.

8. Be provided with access ladders, ladder guards, balcony railings, and safely located entrance. The outside ladder shall be provided with a safety cage complying with the latest OSHA Standards.

9. Be designed to remain functional in extremely cold weather.

10. Be designed to give proper protection to metal surfaces by paints or other protective coatings, by cathodic protective devices, or by both. All paint coatings which come into contact with drinking water shall be certified as meeting the specifications of the ANSI/NSF Standard 61, Drinking Water System Components - Health Effects.

11. Be disinfected in accordance with current AWWA Standard for the Disinfection of Water Storage Facilities.

12. Meet applicable Occupational Safety and Health Administration (OSHA) Standards.

B. Clearwell:

1. Clearwell storage shall be sized, in conjunction with distribution system storage, to relieve the filters from having to follow fluctuations in water use;

2. When finished water storage is used to provide the contact time for chlorine, special attention shall be given to size and baffling;

3. An overflow shall be provided; and

4. Finished water must not be stored or conveyed in a compartment adjacent to unsafe water when the two compartments are separated by a single wall.

C. Hydropneumatic (Pressure) Tanks:

Hydropneumatic (Pressure) tanks shall:

1. Not be used in a public water system with more than 10 service connections unless the system is provided with a separate storage tank along with it to meet the storage requirements;

2. Be deemed inadequate for protection from fire and the storage of water;

3. Be completely housed and, except as authorized by the Director, located above the ground level;

4. Meet the pressure requirements of the distribution system;

5. Have interior paint coatings meeting the specifications of the ANSI/NSF Standard 61, Drinking Water Systems Components - Health Effects;

6. Be provided with a bypass piping to facilitate repair or painting without removing well(s) or booster pump(s) from service; and

7. Be provided with all necessary appurtenances such as isolation valves, sample tap, pressure gauge, air make-up system (except for bladder tanks), pressure relief valve, and pressure operated start and stop controls for the pump.

**§ 1508 DISTRIBUTION**

The Engineer shall ensure that the distribution system of the public water system is adequate to deliver sufficient volumes of water of appropriate quality and pressure to the area of service within the public water system. Prior to installing or replacing appurtenances, such as, but not limited to, valves, hydrants, and pipes, it must be ensured that the components are fully functional without any breaks, splits or other defects and that all foreign materials and objects are removed. During the construction of a distribution system, any opening in unfinished piping or appurtenances must be sealed at the end of each working day in such a manner so as to prevent the entry of any rodents and other animals, dirt, trench water and other sources of pollution or contamination.

A. Distribution System Materials:

The Engineer shall ensure that the pipes, fittings, and valves used in the public water distribution system are appropriate given the soil and pressure conditions throughout the system. Acceptable types of piping materials include, but are not limited to, Polyvinyl Chloride (PVC), Polyethylene (PE), High Density Polyethylene (HDPE), Ductile Iron, Stainless Steel, and Cast Iron. These pipes, fittings, packing and jointing materials shall conform to the appropriate AWWA and ASTM standards. All materials or products which come into contact with drinking water shall be certified as meeting the specifications of the ANSI/NSF Standard 61, Drinking Water System Components - Health Effects. The certifying party shall be accredited by the American National Standards Institute. The pipes, fittings, solder, or flux used in the installation or repair of the public water system must be lead-free pursuant to § 201 of the Navajo Nation Safe Drinking Water Act. Asbestos cement pipe shall not be used except in the repair of existing asbestos cement lines. Thermoplastic pipe shall not be used above grade.

B. Hydraulic Analysis:

The Engineer shall size all water mains after a hydraulic analysis of the distribution system based on flow demands and pressure requirements. The distribution system shall be designed to maintain and shall maintain a minimum pressure of 20 pounds per square inch at ground level at all points in the distribution system under all conditions of flow. However, the Director may allow the minimum pressure between 15 and 20 psi for the modification of existing systems on a case-by-case basis if the engineer can demonstrate that no backflow/back-siphonage situation can arise. The maximum pressure, measured at the user’s meter, shall not exceed 70 pounds per square inch. If the calculations needed to conduct this hydraulic analysis are complex, a computerized network analysis shall be performed to verify that the distribution system will be capable of meeting the minimum pressure requirements. Where improvements will upgrade more than 25% of an existing distribution system, or where a new distribution system is proposed, a hydraulic analysis of the entire system shall be prepared and submitted to the Director for review.

The diameter of water mains not connected to fire hydrants must have a nominal size of at least 2 inches. The minimum diameter of a water main serving a fire hydrant lateral shall be at least 6-inches unless a hydraulic analysis indicates that required flow and pressures can be maintained by smaller lines.

C. Installation of Water Mains and Service Lines:

Piping for the distribution system shall be designed and laid in a manner such that appropriate consideration is given to frost depth, type of backfill and surface loads while undertaking trenching, bedding, and refills. Construction specifications shall incorporate the provisions of appropriate AWWA and ASTM standards and/or manufacturer’s recommended installation procedures.

Water mains shall be:

1. Properly bedded and covered with a sufficient amount of earth or insulation to prevent freezing;

2. Installed with at least 42" of cover over the piping or at least 12 inches below frost depth, whichever is deeper (unless otherwise specified);

3. Located at least 15 feet away from any existing structure such as a house or building unless written permission or a signed waiver is obtained from the owner; and

4. Installed so that they do not pass through, under, or come into contact with any part of a sewer manhole.

Water service lines shall:

1. Be properly bedded and covered with a sufficient amount of earth or insulation to prevent freezing;

2. Be installed with at least 36" of cover over the top of the pipe; and

3. Have at least one corporation stop and one curb stop or meter stop.

Areas which have been disturbed due to the installation of pipes within the distribution system shall be brought to true grades. All excess debris shall be properly disposed of. Marker posts shall be installed at all road crossings, water valves, points of intersection and bends and in other pertinent areas.

D. Separation of Water Lines and Sewers:

Water and sewer lines shall be separated in order to protect public water systems from possible contamination. For the purpose of this section, the term “lines” shall include mains, laterals and service lines for both water and sewer.

1. Parallel Installation: When sewer and water lines are parallel to each other the water line must be in a separate trench and:

   a. Located at least 10 feet away from the sewer line as measured horizontally from the exterior walls of the pipes.

   b. If the 10 feet requirement is unattainable due to existing structures or other physical conditions, deviations may be allowed by the Director if supported by data from the design engineer, provided the water line is:

      i. Located at least 5 feet away from the sewer line as measured horizontally from the exterior walls of the pipes; and

      ii. At least 12 inches higher than the sewer line as measured vertically from the exterior walls of the pipes.

2. Crossings: When sewer and water lines must cross each other, the water line must be:

   a. Located at least 12 inches above the sewer line as measured vertically from the exterior walls of the pipes; or

   b. Located at least 12 inches below the sewer line as measured vertically from the exterior walls of the pipes if and ONLY if the water line cannot be located above the sewer line.

   The water line must be continuous and free from any joint within 10 feet of crossing a sewer line on either side. Backfill of the trenches shall be compacted to provide adequate support to prevent settling of the lines.

3. Sewer Manholes: No water line shall pass through or come in contact with any part of a sewer manhole. The minimum horizontal separation between water lines and manholes shall be 10 feet, measured from the center of the manhole.

4. Sewage Disposal Systems: Water lines shall not be laid less than 10 feet horizontally from a septic tank, 25 feet from a drain field, or 50 feet from an outhouse. Also water lines shall not be installed within 100 feet of the perimeter fence of an individual lagoon, or within 500 feet of the perimeter fence of a community lagoon.

E. Separation of Water Lines and Other Buried Utilities:

When water lines are laid parallel to other buried utilities such as electric or gas lines, the horizontal separation distance between the water line and utilities shall be as per the requirements of the respective utility authorities. In the absence of such requirements by the utility authorities, a minimum separation of 10 feet shall apply.

F. Fire Hydrants and Fire Flow Requirements:

The project engineer shall contact the Navajo Nation Fire Department for the fire flow requirements. If fire flow is to be provided, fire hydrants shall be installed on 6-inch or larger diameter mains and the pipe network shall be designed so that it meets the fire flow requirements while maintaining a minimum water pressure of 20 psi at all times and at all points in the distribution system. As a minimum, the flows to be assumed during a fire-flow analysis shall be the “peak day demand” plus the fire flow requirement. The fire hydrants shall conform

to AWWA C502 and C503 Standards. A gate valve and a valve box shall be installed adjacent to the fire hydrant.

G. Valves:

All buried valves within the distribution system shall be installed with valve boxes. The top of the valve box shall be slightly above the finished grade so as to provide drainage away from the structure. A 2-foot by 2-foot by 4-inch concrete pad shall be poured around the valve box and the valve size, the type of valve and the direction of flow through the valve shall be clearly indicated on the concrete pad before it hardens.

1. Flush Valves:

A distribution system shall be designed, to the extent possible, so as to form a grid system or arterial loops to minimize the number of dead ends. If a dead end cannot be eliminated, the line shall terminate with a flushing device if it exceeds 500 feet in length.

2. Isolation Valves:

Water mains must contain a sufficient number of isolation or gate valves in order to minimize any inconvenience to customers and sanitary hazards resulting from repairs.

The Engineer shall locate isolation valves in such a manner as to minimize the number of houses that will be taken out of service by the isolation of a particular portion of the service area.

3. Pressure Reducing Valves:

Due to large changes in elevation throughout the Navajo Nation, pressures within the distribution system can become excessive. Therefore, it is necessary to provide pressure reducing valves so that the pressure limitations of the network of pipelines are not exceeded and the need for installing individual pressure reducing valves is minimized. The Engineer shall examine the alternatives and consider the potential for future expansion prior to installing a pressure reducing valve on a main line. Pressure reducing valves should be provided based on the hydraulic analysis results and the pressure requirements in §1508B.

4. Air Relief Valves:

Air relief valves shall be provided in water mains in areas where air tends to accumulate. Automatic air relief valves shall not be used in situations where flooding may occur.

H. Thrust Blocking:

Where appropriate, all tees, bends, plugs, crosses and fire hydrants in the distribution system shall be provided with reaction/thrust blocking, tie rods or other approved restraining methods to prevent movement. The thrust blocking shall not block weep holes or obstruct access to the joints of the pipe or fittings.

I. Surface Water Crossings:

1. Above-water crossings: The pipe shall be adequately supported and anchored, protected from damage and freezing, and accessible for repair or replacement.

2. Underwater crossings: Underwater crossings shall be installed at a depth greater than 6 feet below the wash bottom. Wash crossings constructed of PVC, ductile iron or HDPE are acceptable. PVC may be installed across minor washes given that the burial depth is appropriate. Whereas, HDPE may be preferred for major and/or flowing washes. Blue marker posts shall be located on both sides of the wash crossing to indicate the point at which the type of pipes differ. Also, gate valve shall be provided at least to the upstream side of water crossings so that the section can be isolated for testing or repair. The valves shall be accessible and not subject to flooding.

J. Road Crossings:

General requirements:

1. Permission must be obtained from the appropriate road authorities prior to excavation or boring;

2. The road crossing shall be open-cut and at 90E to the road centerline or as permitted by the road authority except for paved highway crossing, which may require utilizing boring

equipment to avoid cutting the pavement;

3. The water line shall be buried at a minimum depth of 42" below the ditch line;

4. A gate valve shall be installed with a valve box on the upstream side of the road crossing; and

5. Upon placement of the pipe, the road shall be restored to its original condition and excess materials or debris shall be removed from the construction site.

Additional requirements for roads which are maintained dirt school bus routes:

1. Pipes shall be Class II ductile iron pipe;

2. The limits of the ductile iron pipe shall be 10 feet outside the apparent ditch line, unless circumstances dictate greater lengths; and

3. Marker posts shall be placed over each side of the road where the transition occurs between the ductile iron pipe and PVC pipe.

Additional requirements for roads which are gravel roads with platted right-of-ways and paved highways:

1. Pipes shall be PVC or ductile iron pipe cased within a steel conduit;

2. The limits for crossing encasement shall be from right-of-way line to right-of-way line; and

3. Marker posts shall be placed at the highway right-of-way lines over the pipe.

K. Pressure and Leakage Testing:

All newly installed water lines shall be pressure tested and leakage tested in accordance with appropriate AWWA Standards. Other methods of testing may also be acceptable subject to the prior approval of the Director. The Engineer should provide details of the test procedure and specification while applying for the construction permit.

L. Disinfection:

All new water lines shall be properly disinfected and the evidence provided to the Director prior to placing them into use for water conveyance. For purposes of this subsection, “new” water lines shall not include repaired or replaced lines. Specifications shall include detailed procedures for the adequate flushing, disinfection and microbiological testing of all new water mains, laterals or service lines. Samples for coliform analyses shall be collected after disinfection is complete and the system is refilled with potable water. The use of water for culinary purposes shall not commence until the bacteriological tests indicating the water to be free from contamination has been reviewed and approved by the Director.

M. Booster Pumps:

Booster pumps shall be located or controlled so that they will not produce negative pressure in their suction lines and have a device for automatic control which prevents excessive cycling. If necessary, the Engineer shall ensure that a bypass is available for use.

All water systems that rely in whole or in part on a booster pump station shall be equipped with onsite back-up power facilities, or at least with the ability to readily obtain a portable generator. The primary intent for recommending back-up power is to assure that the distribution system is pressurized at all times to minimize contamination due to backflow and backsiphonage.

**§ 1509 CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION**

A. The Engineer shall ensure that there are no unprotected connections between the supplies of water, systems for pumping, storage and treatment of water, and distribution system of the public water system and any source of pollution or contamination pursuant to which any unsafe water or other degrading material can be discharged or drawn into the public water system as a result of backsiphonage or backflow.

B. The distribution system including service connections must have an assembly for the prevention of backflow as per the requirements of part XX of these regulations.

# PART XVI
# CONSTRUCTION PERMITS

**§ 1601 PURPOSE**

Pursuant to subchapter 5 of NNSDWA, the Director shall review plans, specifications, and other pertinent data to ensure proper design and construction of new public water systems and of substantial modifications to existing public water systems. This part of the NNPDWR establishes procedures and requirements for obtaining construction permits from the NNEPA to enable such review.

**§ 1602 APPLICABILITY**

These regulations apply to all new public water systems, substantial modifications to existing public water systems, and bottled water systems within the jurisdiction of the Navajo Nation.

**§ 1603 REQUIREMENTS FOR CONSTRUCTION PERMITS**

A. Before the construction of any new public water system or bottled water system or of any substantial modification to an existing public water system begins, an application for a permit to construct shall be made to, and a permit to construct obtained from, the Director. In addition, the PWSSP must be notified of the construction start date at least seven (7) days in advance of that date. Failure to obtain a permit to construct is a violation of the NNSDWA (Subchapter 7) and is subject to an enforcement action by the Director.

B. The application for a permit to construct shall include the following:

1. A completed application form obtained from the Director;

2. Appropriate fee, as determined by the Director;

3. Two (2) sets of detailed plans, as required in §1606;

4. Two (2) sets of material and construction specifications, as required in §1607;

5. Engineering Report, as required in §1608;

6. Two (2) copies of wellhead/watershed protection area inventory;

7. A copy of Right-of-way approval;

8. Construction Schedule;

9. If the owner of the project is different from the utility supplying water, a letter from the utility supplying water stating its willingness and ability to serve the project; and,

10. If the owner of the project is different from the utility that will be responsible for operating and maintaining the project, a letter from that utility acknowledging such responsibility.

C. Before a permit to construct can be issued for a new public water system, the applicant shall demonstrate to the satisfaction of the Director that the new system will be a “viable water system.” A “viable water system” is one that is self-sustaining and has the commitment and the financial, managerial and technical capacity to consistently comply with the NNSDWA and NNPDWR. In addition to the documentation required in § 1603(B), an application for a permit to construct a new public water system shall include a management plan and a multi-year financial plan. These plans will not be required from new systems when their only source of water is an existing water system approved by the Director and the new system does not provide additional treatment to the water or sell the water. If the application proposes that the new system has its own source of water (i.e., its own well(s) or surface water treatment plant), the applicant shall evaluate the feasibility of connecting to an existing public water system as part of the demonstration of viability. This evaluation shall include, but not be limited to, a determination of the willingness and ability of an existing system to serve the project, water quality, capital cost of constructing the line extension versus constructing a new source and the operation and maintenance costs of both alternatives. Any cost comparisons between creating a new water system with its own source of water and connecting to an existing water system shall not be based on any subsidized monitoring. Also any financing of the new system shall not utilize a loan amortization schedule which exceeds the useful life of the facility or its components. This demonstration of viability may be included in the engineering report when applying for a permit to construct.

D. For projects involving a surface water discharge of water treatment residuals or wastewater, a

National Pollutant Discharge Elimination System (NPDES) permit must be obtained from the NNEPA/NPDES Permit Program or from U.S. EPA Region 9, if NNEPA does not yet have an approved NPDES program. For projects involving land application of water treatment residuals or wastewater, a No Discharge (ND) permit must be obtained from the NNEPA or U.S. EPA, as the case may be. No construction permit can be issued for such projects until a valid NPDES or ND permit is obtained.

**§ 1604 PERMIT ISSUANCE**

A. The Director will review the permit application for completeness and will issue the construction permit pursuant to the permitting provisions in subpart 2 of the Uniform Rules.

B. A construction permit shall be valid for three years from the date of issuance, unless a permit extension is obtained.

C. A construction permit will become void if:

1. Construction does not begin within one year after the date the Construction Permit is issued; or

2. There is a halt in construction of more than one year; or

3. Construction is not completed within three years after the date construction begins, unless a permit extension is obtained. The professional engineer of record for the project must apply for the permit extension.

D. A permit extension must be applied for at least fifteen (15) days prior to expiration of the construction permit. If a permit extension is not obtained from the Director within thirty (30) days after the expiration of the construction permit, then all construction must terminate until further notice from the Director.

E. A permit to construct may be denied when:

1. The project does not comply with the minimum design regulations specified in the NNPDWR;

2. The water quality fails to comply with the drinking water standards specified in the NNPDWR; or

3. The owner of a proposed new system fails to prove to the Director’s satisfaction that the system will be a "viable water system" as defined in § 1603(C).

F. Any deviation from the plans and specifications approved by the PWSSP which could potentially affect capacity, hydraulic conditions, operating units, functioning of water treatment process, or the quality of water to be delivered is grounds for revocation of the permit pursuant to § 204 of the Uniform Rules, unless a permit modification is obtained pursuant to that section. Minor revisions not affecting water quality, capacity, flow, sanitary features or performance will be permitted during construction without further approval, provided as-built plans documenting these changes are submitted to the Director as required.

**§ 1605 EXCEPTIONS FROM PERMITTING REQUIREMENTS**

A. Piping associated with a service connection will not require a construction permit if the following conditions are met:

1. All piping associated with the connection is dedicated strictly for use by a single customer being served water;

2. The customer consists of only a single house, single mobile home or single building; and

3. The customer is not a shopping mall or multiple building complex.

B. The following regular operation and maintenance procedures will not require permits:

1. Pipeline leak repair;

2. Replacement of existing deteriorated pipeline where the new pipeline segment is the same size as the old pipeline;

3. Entry into a drinking water storage facility for the purposes of cleaning and maintenance; and,

4. Replacement of equipment or pipeline appurtenances with the same type, size and rated capacity (fire hydrants, valves, pressure regulators, meters, service laterals, chemical

feeders and booster pumps including deep well pumps).

**§ 1606 CONSTRUCTION PLANS**

A. Construction plans shall be dated, shall carry the seal and signature of a professional engineer and, where applicable, shall provide the following:

1. General layout drawn to scale on plan sheets no larger than thirty (30) inches by forty-two (42) inches, including:

   a. suitable title;

   b. name of utility or owner;

   c. area or institution to be served;

   d. scale, in feet;

   e. north reference point;

   f. any physical or political boundaries within the area to be served including utility easements;

   g. sufficient number of elevations (Mean Sea Level) to characterize terrain in the area;

   h. address and name of the professional engineer responsible for the design;

   i. legible prints;

   j. location and size of existing water mains;

   k. location and nature of existing water works structures and appurtenances affecting the proposed improvements, noted on one sheet;

   l. for water systems supplied by wells, the location of all existing wells within the system; and,

   m. site location map.

2. Detailed plans, including:

   a. Construction drawings of distribution system drawn to a scale of no smaller than one inch to four hundred feet (1in : 400 ft) showing location of all appurtenances referenced to fixed above-ground objects, including size, length, identity, and location of sewers, drains, water mains, plant structures, and petroleum storage facilities, and, for new well projects any other pollution source. The Director may grant a variance to the 400 feet/inch scale on a case by case basis if the drawings adequately show all necessary physical features mentioned in this item;

   b. Profiles including hydraulic gradients for lines six (6) inches and larger in diameter having a horizontal scale of not more than one hundred (100) feet to the inch and a vertical scale of not more than ten (10) feet to the inch, with both scales clearly indicated. Profiles for lines smaller in diameter may be submitted at the discretion of the engineer or upon request by the Director;

   c. Stream crossings, providing profiles with elevations (MSL) of the stream bed and the normal and extreme high and low water levels

   d. Schematic drawing of proposed well construction, showing diameter and depth of drill hole(s), casing diameters and depths, grouting depths, elevations and designations of geological formations, water levels, screen lengths, gravel packing and other details to describe the proposed well completely;

   e. Drawing(s) of wellhead construction showing the concrete pad, sanitary seal, screened vent, check valve, pressure gauge, flow meter, blowoff, sample tap, gate valve(s), air line and gauge for measuring water level in the well, protective cover for wellhead, and well identification plate;

   f. Topography and arrangement of present or planned wells or structures, with appropriate contour interval to show runoff directions clearly (not greater than two feet in a relatively flat area) for a minimum one hundred (100) foot radius;

g. Elevation drawings of structures showing the one hundred (100) year flood plain (MSL), or the highest flood elevation if the 100-year flood plain has not been defined, and elevations of floor, bottom, overflows, etc. within the structure;

h. Location and size of property to be used for groundwater development with respect to known references;

i. Location of pollution sources found in the wellhead/watershed protection area inventory as per Part XVII of the NNPDWR;

j. Schematic flow diagrams and hydraulic profiles showing flow through various plant units drawn on plan sheets the same size as the construction drawings;

k. Location, dimensions, and elevations of all proposed plant facilities;

l. Location of all plant piping in sufficient detail to show flow through plant including waste lines;

m. Location of all chemical feeding equipment, points of application, and sample taps following chemical injection points;

n. Location of sanitary or other facilities, such as lavatories, showers, toilets, lockers, etc.;

o. All appurtenances, specific structures, and equipment pertinent to the project, such as water plant structures (air relief valves, altitude valves, blowoffs, hydrants, service connections, etc.);

p. Erosion control structures for wellhead blowoff and elevated and ground storage tank drains;

q. Adequately detailed drawing of any feature or piece of equipment not otherwise covered or adequately described by the specifications; and,

r. Protection of the water source, structures, and appurtenances, to include, but not be limited to, fencing, protective housing, or comparable form of security.

**§ 1607 SPECIFICATIONS**

A. The title page or cover of the specifications must carry the seal and signature of a professional engineer. Complete, detailed, technical specifications shall be supplied for each proposed project, and shall include, but not be limited to, the following:

1. Construction specifications, including:

a. A detailed written program for maintaining normal operation of existing facilities during construction with minimal interruption of service;

b. Laying methods and conditions including depth of cover, type of bedding and reaction blocking, and special structural details for water lines installed under storm drains;

c. Pressure and leakage test procedures for new water mains including method of determining maximum allowable leakage;

d. Disinfection procedure for all new or affected water system components to include disinfectant, dosage, contact time, and method for testing the results of the procedure;

e. Well construction method and procedure;

f. Chlorination room construction; and

g. Other chemical feeding facilities construction.

2. Material specifications, including:

a. Laboratory facilities and equipment, including sampling taps and their location;

b. Number and design of chemical feeding equipment including make and model, if available;

c. Equipment for sanitary or other facilities including any necessary backflow or

back-siphonage protection;

d. Water main and appurtenances schedule and class, including approval status by testing and certification organizations;

e. Make, model, horsepower and performance curves of all pumping equipment; and

f. Paint coatings.

3. Testing and development procedure for new sources.

B. Standard Specifications

If a water system or professional engineering firm uses a set of its own standard specifications, such specifications may be submitted to the Director, in duplicate, for approval. Following this approval, no specifications will be required on future project submittals as long as no changes are made. If there are any additions, deletions, or revisions to the approved standard specifications for a particular project submitted, the professional engineer shall either submit three (3) copies of an addendum to the standard specifications covering the changes only, or shall submit three (3) complete copies of specifications for the project in question. Each professional engineer that will be using a standard specification must place his seal and signature on the title page and must place his seal and signature on any revisions.

**§ 1608 ENGINEERING REPORT**

A. An engineering report explaining design criteria and calculations shall be submitted for each proposed project along with the application for the construction permit. The engineering report shall carry the seal and signature of a professional engineer and shall, where pertinent, present the following information:

1. General Information:

a. Name, address, phone number of owner, corporation, town or utility as well as name of responsible officer;

b. Name, address, phone number of engineering firm and name of engineer responsible for design;

c. General description of service area and surroundings (type of economy, estimated percent residential, estimated percent industrial, terrain, location, possible rate of development);

d. Number and type of customers to be served, (i.e., domestic, industrial, commercial, agricultural, etc.); and

e. Approval of any land use and development by the appropriate authority having jurisdiction.

2. General Design Data:

a. Pumping capacity of the source(s);

b. Average daily water consumption;

c. Number and type(s) of proposed service connections;

d. Fire flow requirements;

e. The results of a flow test conducted at a location near the proposed connection to the existing system. The results of this flow test shall include static pressure and residual pressure when a known flow, in excess of the demand for the proposed extension, is flowing. The time and date the flow test was conducted, the pipe size, type of pipe, elevation and distance between the test point and connection site shall also be included;

f. System pressures at maximum instantaneous demand or fire flow in addition to peak hourly flow, whichever is the worst case;

g. Details of hydraulic analyses and sizing of pipes and appurtenances;

h. Ground storage and transfer pump capacity;

i. System storage capacities; and

3. Ground Water Sources:

   a. Location details including latitude and longitude of the well

   b. Well record form

   c. Ground profile

   d. Casing material and size including details of well head

   e. Details of pumping equipment

   f. Results of pumping test

   g. Results of physical, chemical, radiological and bacteriological analyses of raw water from a certified laboratory.

4. Surface Water Sources:

   a. Location map including latitude and longitude of intake;

   b. Name of source(s) and type (river, lake, etc.);

   c. Watershed area;

   d. Expected flow and the lowest flow of record of the source(s);

   e. Name and type of discharges within ten (10) miles upstream (industrial, agricultural, municipal and other);

   f. Distance from raw water supply to reservoir or plant; and

   g. General description of intake and pump house.

5. Water Treatment Plants:

   a. Projected maximum volume of water to be treated;

   b. Year when plant is expected to operate at its maximum capacity;

   c. If existing, present operating capacity;

   d. Location map of plant;

   e. Height above the one hundred (100) year flood plain based on the best information available;

   f. Land available for future plant expansion;

   g. Proposed treatment scheme shown in block diagram;

   h. Proposed design criteria (retention times, velocities, weir overflow rates, filtration rates, etc.);

   i. Description of proposed method of handling, treating, and disposing of wastewater from plant (includes clarification of sludge, filter backwash water, brines, etc.);

   j. Name(s) and grade(s) of operator(s);

   k. For modifications to existing treatment plant, report must include: Present capacity of raw water pumps, and a brief description of what effect proposed modification will have on existing facilities including velocities and retention times through plant; and

   l. Detailed description of pilot testing to be performed, if any.

**§ 1609 NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION**

The Director shall be notified at least seven days in advance of the beginning of construction on the site so that the Director may schedule an inspection. The Director may inspect the construction site any time to evaluate compliance with the approved plans and specifications, and shall be given access to the site for that purpose.

**§ 1610 APPROVAL OF CONSTRUCTION**

A. New facilities and substantial modifications to existing facilities shall not be placed into operation until written “approval of construction” is issued by the Director, unless a waiver of this requirement is issued by the Director. Upon completion of permitted construction, the professional engineer shall make arrangements with the Director for final inspection. Prior to this inspection, the professional engineer shall submit to the Director a letter certifying that construction is complete and in accordance with the approved plans and specifications. This letter must specifically identify the project by permit number. If the project was not completed in accordance with the approved plans and specifications, the professional engineer shall so state and shall outline any deviations to the permitted project. No written approval shall be issued to place a drinking water construction project into operation until written approval is obtained to place any associated wastewater construction into operation. In the absence of an appropriate NNEPA permit program for wastewater, the readiness of the wastewater construction to go into operation shall be deemed sufficient. The following information, where applicable, shall be submitted with the professional engineer's letter of certification:

1. Results of physical, chemical, radiological, and bacteriological analyses of new sources and/or treated water. These analyses shall be performed by a certified laboratory;

2. Results of bacteriological analyses following disinfection, including chlorine residuals at the time of collection. These analyses shall be performed by a certified laboratory;

3. Results of pressure/leakage test conducted on water lines;

4. As-built drawings of construction;

5. Completed Water Well Record form;

6. Geophysical/mechanical well logs;

7. Results of pumping test;

8. Paint coating(s) used for water storage tank(s);

9. Susceptibility assessment report showing wellhead/watershed protection area delineation along with the inventory of the potential sources of contamination to the well and the aquifer being utilized;

10. Proof of testing of all backflow prevention assemblies installed;

11. Letter of acceptance from organization responsible for operation and maintenance (must be the same as shown on the Application for Approval to Construct Drinking Water Facilities); and

12. Copies of any information specified as a special condition of a construction permit issued by the Director.

B. Failure to obtain written approval of construction from the Director prior to placing a new drinking water facility or a substantial modification to an existing facility into operation is a violation of the NNSDWA (Subchapter 7) and is subject to an enforcement action by the Director.

**§ 1611 JUDICIAL REVIEW OF PERMIT DECISIONS**

An applicant may appeal a final construction permit decision of the Director to the Navajo Nation Supreme Court, pursuant to § 2586 of the NNSDWA.

# PART XVII
# WELLHEAD PROTECTION REGULATIONS

**§ 1701 PURPOSE**

This part provides for the establishment of a Wellhead Protection (WHP) Program, pursuant to NNSDWA § 2538, through which the PWSSP will assist Chapter governments and other communities in implementing measures to protect their drinking water supplies. Implementation of a public water systems WHP Plan may result in lowering the costs for communities to provide clean drinking water to the public by reducing the need to drill new wells and reducing the costs for treatment of drinking water. Information collected through a WHP Program may support requests for waivers from sampling requirements for certain chemicals, if there is no evidence of those chemicals in the water supply and the chemicals have not been used in the surrounding areas.

Developing a WHP Plan includes identifying the wellhead protection area and taking the necessary steps to safeguard the area from contaminants, for which the standards are set forth below. In addition to these standards, the PWSSP has developed a Navajo Nation Wellhead Protection Program guidance manual to assist public water system owners / operators and the communities in developing their own Wellhead Protection Programs. Copies are available from the PWSSP office.

**§ 1702 APPLICABILITY**

All public water systems using wells or springs within the jurisdiction of NNEPA as a source of supply of drinking water must complete a NNEPA form identifying all potential pollution sources within a one-mile radius of each well or springs. In addition, community water systems (excluding systems using purchased sources, or interties) that use wells or springs within NNEPA jurisdiction as a source of supply of drinking water must comply with the remainder of this part.

**§ 1703 PRELIMINARY WELLHEAD PROTECTION REQUIREMENTS**

Public water system owners and operators are required to complete a Susceptibility Assessment Form (Appendix H of the Navajo Nation Wellhead Protection Guidance Manual) for each well in the public water system. It is used to develop and implement a wellhead protection plan for the public water system to protect drinking water wells/springs from man-made contamination. It is also required for a Waiver Application.

**§ 1704 WELLHEAD PROTECTION ELEMENTS**

A. An effective Wellhead Protection Plan (WHPP) must contain, at a minimum, the following elements:

1. Specification of the duties of a public water system with respect to the development and implementation of a wellhead protection program;

2. Susceptibility Assessment Form(s);

3. Wellhead Protection Area (WHPA) delineation for each well, wellfield, or spring with the one, five and ten year time of travel boundaries marked, or boundaries established using alternate criteria approved by the PWSSP in those settings where ground water time of travel is not a reasonable delineation criteria. WHPA delineations shall be done in accordance with recognized methods such as those described in the following sources:

   a. Navajo Nation Wellhead Protection Guidance Manual, February 2003;

   b. EPA Guidelines for Delineation of Wellhead Protection Areas, EPA 440/6-87-010;

4. A list / inventory of all actual and potential ground water contaminant sources located within the delineated WHPA(s). This list must be updated every two years;

5. Documentation of the public water system owner=s notification to all owners / operators of actual and potential sources of ground water contamination within the WHPA boundaries;

6. Documentation of the water system owner=s notification to regulatory agencies and local chapter governments of the boundaries of the WHPA(s) and the findings of the WHPA inventory;

7. An Emergency Water Supply Plan (EWSP) to ensure consumers have an adequate supply of potable water in the event that contamination results in the temporary or permanent loss of the principal source of supply (major well(s) or wellfield). An EWSP is required pursuant to §2545 of the NNSDWA;

8. Before the operation of new water wells and springs, provide the PWSSP the following

documentation:

a. Susceptibility Assessment Form(s);

b. A preliminary WHPA designation using the calculated fixed radius method, with the one, five, and ten year time of travel criteria;

c. An initial inventory of potential sources of groundwater contamination located within the WHPA;

d. A copy of the water well report including the Navajo Nation Tribal Well Identification number, depth to open interval or top of screened interval, overall depth of well, and location (both plat location and latitude / longitude);

e. Well source development data establishing the capacity of the source. Data must include:

i. Static water level;

ii. Wellhead elevation;

iii. Yield;

iv. The amount of drawdown;

v. Recovery rate;

vi. Duration of pumping; and

vii. Interference between existing sources and the source being tested.

9. Documentation of coordination with local emergency responders (including police, fire and health departments), including notification of WHPA boundaries, results of susceptibility assessment, inventory findings, and EWSP; and

10. A WHP program that contains, as appropriate, technical assistance, financial assistance, implementation of control measures, education, training, and demonstration projects to protect the water supply within the WHPAs from such contaminants.

B. Geographic Information Systems (GIS) analysis or assessments consisting of a series of hydrogeologic and cultural overlay maps as given below, if available, shall be used to prioritize and determine aquifer susceptibility to potential contamination.

1. groundwater basin locations, geomorphic type, designated status;

2. geographic distribution of groundwater quantity data (availability, type of use, type of water supply);

3. population density and distribution;

4. land status and land use;

5. location of wells;

6. contour map of depth of water table;

7. contour map of total dissolved solids;

8. areas of impaired groundwater (natural and human-induced); and

9. actual and potential point sources of contamination (activities permitted or regulated by the Navajo Nation)

**§ 1705 SENSITIVITY DETERMINATION**

A. A sensitivity determination consists of examining the hydrogeologic characteristics of the source, groundwater quality, and the well=s physical integrity. Based on the Susceptibility Assessment review, the groundwater source is determined to be either sensitive or non-sensitive based on the criteria discussed within the Navajo Nation Wellhead Protection Guidance Manual and the following:

1. A groundwater source will be determined non-sensitive by the PWSSP in its initial assessment, if all four of the following conditions exist:

a. There is a hydrogeologic barrier of a minimum combined total of 50 feet of clay between, the surface and the top of the screened interval or perforated casing interval, or other identified protective layer;

b. There is evidence that the 50-foot clay or other protective layer extends throughout the delineated area;

c. No man-made contamination has been detected in the past three years; and

d. The Susceptibility Assessment Form shows that the well has passed the physical integrity test.

If a PWS well does not meet one of the above-listed conditions, then its WHPA will be considered sensitive.

B. For those water sources that have been determined Groundwater under the Direct Influence of Surface Water (GWUDI) will be by default sensitive and vulnerable to potential contamination. These GWUDI sources will be delineated as surface water sources and include the delineated area around the well.

C. PWSSP will coordinate with Arizona, New Mexico, and Utah to share their water assessment results for water sources originating outside the Navajo Nation boundaries.

**§ 1706 CRITERIA, THRESHOLDS AND DELINEATION METHODS**

A. The delineation of a WHPA must be conservative; it must include the surface and subsurface area contributing water to the well. The goal is to provide protection to drinking water at the well from unexpected contaminant releases.

1. Public water systems with less than 1,000 connections

a. The Calculated Fixed Radius method is the minimum acceptable method of delineation.

2. Public water systems with 1,000 or more connections

a. The initial delineation must be the analytical or other more sophisticated groundwater flow method.

B. The criterion, threshold and method selected for delineating a WHPA must be appropriate for the hydrogeologic situation and additional consideration must be given if the inventory reveals the presence of high risk potential contaminant sources.

C. The Hydrologist shall evaluate the extent to which a hydrogeologic setting varies from a circular zone of contribution through the use of the Susceptibility Assessment form. The assessment shall determine if delineation methods other than the Calculated Fixed Radius methods are more appropriate:

1. For public water systems determined to have high susceptibility to contamination or its groundwater source sensitive.

a. Initial delineation may be done using a Calculated Fixed Radius method, but must be upgraded using Analytical or other sophisticated, site specific methods, such as the numerical modeling and / or hydrogeologic mapping within two (2) years;

2. For public water systems having low to moderate susceptibility to contamination or its groundwater source non-sensitive:

a. Initial delineation may be done using a Calculated Fixed Radius method, but must be upgraded to a more sophisticated delineation method within five (5) years;

C. All delineations for groundwater sources will be based on the 1, 5, and 10-year Time-of-Travel boundaries for defining the wellhead protection area(s). Inventory results will be presented based on occurrence in the 3 delineated subunits (0-1 yr., 1-5 yr., and 5-10 yr.,areas).

**§ 1707 GUIDELINES FOR CONTAMINANT SOURCE INVENTORY**

A. The PWSSP has developed a Potential Sources of Contamination (PSOC) survey form (Susceptibility Assessment Appendix F). This PSOC form is an aid to identify any potential sources of contaminants that may exist within rural or populous communities. At a minimum, the WHPP should identify, locate and include a map of the past, present, and proposed operations that may represent a future potential source of groundwater contamination. The WHPP must also identify

and include a map of the current and proposed land use zoning designations.

B. Guidelines for conducting an inventory are given in the Navajo Nation Wellhead Protection Guidance Manual (February 2003).

C. The WHPP inventory list must be updated every two years.

**§ 1708 NEW WELL SITING**

A. All new water wells and related drilling must obtain drilling permits from the Navajo Nation Water Resources Management (NNWRM). Any construction or substantial modification of a public water system must be approved and permitted by the PWSSP pursuant to Part XVI of the NNPDWR.

Before a new or modified public water system well receives approval from the PWSSP:

1. A susceptibility assessment must be completed;

2. A wellhead protection area must be delineated; and

3. Potential sources of contamination of the water bearing zone (aquifer) utilized by the well, spring, or wellfield must be identified.

**§ 1709 CONTINGENCY PLANNING**

A. In the event that contamination results in the temporary or permanent loss of the principal source of supply (major well(s) or wellfield) an EWSP required under NNSDWA § 2545 shall be developed to ensure consumers have an adequate supply of potable water. Refer to § 2545 for requirements.

B. The water system owner / operator must provide a copy of the wellhead protection area boundaries, results of the susceptibility assessment, inventory findings, and EWSP to local emergency responders (e.g. police, fire departments), the Navajo Nation Department of Emergency Management, and the local health department, and any local emergency planning committee. They can then evaluate whether changes in emergency response measures are needed to better protect groundwater / drinking water quality within the wellhead protection area. Coordination with local emergency responders must be initiated within one (1) year of completing the wellhead protection area delineation.

**§ 1710 PUBLIC PARTICIPATION**

Public participation is crucial to wellhead protection of drinking water sources within the Navajo Nation. Local public participation is voluntary and may culminate in local zoning or other control programs to protect a drinking water source. The PWSSP functions as the primary contact agency for individuals, organizations, and municipalities seeking information on the Navajo Nation Wellhead Protection Program. A primary objective of the PWSSP is to educate water system owners, interested citizens, agency staff and elected officials on the importance of wellhead protection within the Navajo Nation.

A. Providing Information to the Public:

1. The PWSSP has primary responsibility for publicizing the Navajo Nation Environmental Protection Agency Wellhead Protection Program, although all of Navajo Nation=s agencies must assume some responsibility for informing potentially affected communities and/or parties. The PWSSP will notify existing public water system owners/operators of the requirements of the wellhead protection program.

2. The water system owner or community is advised to make the findings of its protection efforts available to the public.

3. In all cases, copies of the updated wellhead protection reports must be provided to the PWSSP as part of the public record.

# PART XVIII
# SECONDARY DRINKING WATER STANDARDS

**§ 1801 PURPOSE**

This part establishes the Navajo Nation's Secondary Drinking Water Standards pursuant to § 2532 of the NNSDWA. These standards control contaminants in drinking water that primarily affect aesthetic qualities relating to public acceptance of drinking water. At considerably higher concentrations of these contaminants, health implications may exist as well as aesthetic degradation. These standards serve as a goal and are not enforceable by the NNEPA.

**§ 1802 SECONDARY MAXIMUM CONTAMINANT LEVELS**

The secondary maximum contaminant levels (SMCL) for public water systems are as follows:

**TABLE 1800.1 SECONDARY MAXIMUM CONTAMINANT LEVEL**

| CONTAMINANT | LEVEL |
|---|---|
| Aluminum | 0.05 to 0.2 mg/L |
| Chloride | 250 mg/L |
| Color | 15 COLOR UNITS |
| Copper | 1.0 mg/L |
| Corrosivity | Non-corrosive |
| Fluoride | 2.0 mg/L |
| Foaming Agents | 0.5 mg/L |
| Iron | 0.3 mg/L |
| Manganese | 0.05 mg/L |
| Odor | 3 threshold odor number |
| pH | 6.5-8.5 |
| Silver | 0.1 mg/L |
| Sulfate | 250 mg/L |
| Total Dissolved Solids (TDS) | 500 mg/L |
| Zinc | 5 mg/L |

**§ 1803 ANALYTICAL METHODS**

A. It is recommended that the parameters in these standards should be monitored at intervals no less frequent than the monitoring performed for inorganic chemical contaminants listed in the NNPDWR as applicable to CWSs. More frequent monitoring would be appropriate for specific parameters such as pH, color, odor, or others under certain circumstances as recommended by the Director.

B. Measurement of pH, copper and fluoride may be conducted with one of the methods in § 402, Table 400.4. Analyses of aluminum, chloride, foaming agents, iron, manganese, odor, silver, sulfate, total dissolved solids (TDS) and zinc may be conducted with the methods in the following table. Criteria for analyzing aluminum, copper, iron, manganese, silver and zinc samples with digestion or directly without digestion, and other analytical test procedures are contained in *Technical Notes on Drinking Water Methods*, EPA-600/R-94-173, October 1994, which is available at NTIS PB95-104766.

**TABLE 1800.2 METHODOLOGY**

| Contaminant | EPA | ASTM[3] | SM[4] | Other |
|---|---|---|---|---|
| Aluminum | [2]200.7<br>[2]200.8<br>[2]200.9 | | 3120B<br>3113B<br>3111D | |
| Chloride | [1]300.0 | D4327-91 | 4110<br>4500-Cl-D | |
| Color | | | 2120B | |
| Foaming Agent | | | 5540C | |
| Iron | [2]200.7<br>[2]200.9 | | 3120B<br>3111B<br>3113B | |
| Manganese | [2]200.7<br>[2]200.8<br>[2]200.9 | | 3120B<br>3111B<br>3113B | |
| Odor | | | 2150B | |
| Silver | [2]200.7<br>[2]200.8<br>[2]200.9 | | 3120B<br>3111B<br>3113B | I-3720-85[5] |
| Sulfate | [1]300.0<br>[1]375.2 | D4327-91 | 4110<br>4500-$SO_4$-F<br>4500-$SO_4$-C, D | |
| TDS | | | 2540C | |
| Zinc | [2]200.7<br>[2]200.8 | | 3120B<br>3111B | |

1. *"Methods for the Determination of Inorganic Substances in Environmental Samples"*, EPA-600/R-93-100, August 1993. Available at NTIS, PB94-121811.
2. *"Methods for the Determination of Metals in Environmental Samples-Supplement I"*, EPA-600/R-94-111, May 1994. Available at NTIS, PB94-184942.
3. The procedures shall be done in accordance with the *Annual Book of ASTM Standards*, 1994, Vols. 11.01 and 11.02, American Society for Testing and Materials. Copies may be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103. Copies may be inspected at EPA's Drinking Water Docket, 401 M Street SW, Washington, D.C. 20460; or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, D.C.
4. The procedures shall be done in accordance with the 18th edition, or latest edition, of Standard Methods for the Examination of Water and Wastewater, 1992. American Public Health Association. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW., Washington, D.C. 20005. Copies may be inspected at EPA's Drinking Water Docket, 401 M. Street, SW., Washington, DC 20460; or at the Office of the Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, D.C.
5. Available from Books and Open-File Reports Section, USGS Federal Center, Box 25425, Denver, CO, 80225-0425.

**§ 1804 COMPLIANCE WITH SECONDARY MAXIMUM CONTAMINANT LEVEL AND PUBLIC NOTIFICATION FOR FLUORIDE**

A. CWSs, as defined in § 104 of these regulations, that exceed the SMCL for fluoride as determined by the last single sample taken in accordance with the requirements of § 406.1 of the NNPDWR, but not to exceed the MCL for fluoride as specified by § 204 of the NNPDWR, shall provide the notice described in subsection (B) of this section to all billing units annually, all new billing units at the time service begins, and the Director.

B. The notice required by subsection (A) of this section shall contain the following language, including the language necessary to replace the superscripts:

PUBLIC NOTICE

Dear User:

The Navajo Nation Environmental Protection Agency and the U.S. Environmental Protection Agency require that we send you this notice on the level of fluoride in your drinking water. The drinking water in your community has a fluoride concentration of [1] milligrams per liter (mg/l).

Both the Navajo Nation Primary Drinking Water Drinking Regulations and federal regulations require that fluoride, which may occur naturally in your water supply, not exceed a concentration of 4.0 mg/l in drinking water. This is an enforceable standard called a Maximum Contaminant Level (MCL), and it has been established to protect the public health. Exposure to drinking water levels above 4.0 m/l for many years may result in some cases of crippling skeletal fluorosis, which is a serious bone disorder.

Both Navajo Nation and federal law also require that we notify you when sampling indicates that the fluoride in your drinking water exceeds 2.0 mg/l. This is intended to alert families about dental problems that might affect children under nine years of age. The fluoride concentration of your water exceeds this guideline.

Fluoride in children's drinking water at levels of approximately 1 mg/l reduces the number of dental cavities. However, some children exposed to levels of fluoride greater than about 2.0 mg/l may develop dental fluorosis. Dental fluorosis, in its moderate and severe forms, is a brown staining and/or pitting of the permanent teeth.

Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of nine are encouraged to seek other sources of drinking water for their children to avoid the possibility of staining and pitting.

Your water supplier can lower the concentration of fluoride in your water so that you will still receive the benefits of cavity prevention while the possibility of stained and pitted teeth is minimized. Removal of fluoride may increase your water costs. Treatment systems are also commercially available for home use. Information on such systems is available at the address given below. Low fluoride bottled drinking water that would meet all standards is also commercially available.

For further information, contact [2] at your water system.

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[1] PWS shall insert the compliance result which triggered notification under this part.

[2] PWS shall insert the name, address, and telephone number of a contact person at the PWS.

# PART XIX
# CONSECUTIVE PUBLIC WATER SYSTEMS

**§ 1901 PURPOSE**

This part identifies those public water systems which purchase water from a primary public water system and identifies the water sampling/analyses requirements for such systems.

**§ 1902 APPLICABILITY**

The Director shall determine whether a public water system is a consecutive public water system through a sanitary survey, and shall notify in writing the owner and/or operator of the consecutive public water system of this determination within 30 days of making the determination. The Director shall also identify all requirements with which the consecutive public water system must comply, consistent with the requirements for all CWSs (community water systems) and shall notify the owner and/or operator in writing of those requirements.

**§ 1903 DEFINITION**

A consecutive public water system purchases water from a primary public water system. The consecutive public water system distributes the water through its own distribution system.

**§ 1904 COMPLIANCE REQUIREMENTS**

A. Consecutive public water systems are required to operate and maintain their systems in a manner that ensures compliance with the NNSDWA and NNPDWR. Each consecutive public water system will be required to monitor for the following contaminants:

1. Bacteriological and total coliform sampling pursuant to § 404.

2. Lead and Copper sampling pursuant to Part VII, § 701 of these regulations.

3. Asbestos sampling pursuant to § 406, if the system uses asbestos cement pipe or if the Director determines that asbestos sampling is required.

B. Each consecutive public water system is required to comply with all other requirements consistent with the NNSDWA and NNPDWR, such as recordkeeping, reporting requirements, and operator certification.

C. Each consecutive public water system that is a community public water system must prepare a consumer confidence report pursuant to Part XII. Consecutive public water systems will need to request from the primary water purveyor a copy of the consumer confidence report and include the compliance/noncompliance information in their consumer confidence report.

# PART XX
# CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

**§ 2001 PURPOSE**

This part outlines the requirements to protect the public water supply from the possibility of contamination through actual or potential cross-connections between public water systems and non-potable water systems due to backflow.

**§ 2002 RESPONSIBILITY**

Public water system owners and operators shall be responsible for protecting public water systems from backflow by complying with these regulations. These regulations shall not diminish the duty of owners and operators to comply with applicable statutes and regulations and industry standards and to provide adequate system design and performance.

**§ 2003 CROSS-CONNECTION CONTROL HAZARD ASSESSMENT**

A. To evaluate the potential for backflow into public water systems, each community water system shall conduct an initial field and/or office hazard assessment of the premises within its service area and each non-community water system shall conduct an initial field hazard assessment of its water distribution system. The hazard assessment shall consider:

   1. The existence of actual or potential cross-connections;

   2. The type and use of materials handled; and

   3. The degree of piping system complexity and accessibility.

B. Subsequent to the initial hazard assessment described in § 2003(A), the community water system shall:

   1. Conduct an assessment of the premises of each new water user connected to the public water system; and

   2. Re-evaluate the premises of an existing water user if changes within the water user’s premises or any backflow incidents occur.

C. Subsequent to the initial hazard assessment described in § 2003(A), the non-community water system shall re-evaluate its water distribution system if any changes or any backflow incidents occur.

D. Each hazard assessment shall be performed by a person who is currently certified as a cross-connection control program specialist by the California-Nevada Section of the American Water Works Association or an organization with equivalent certification requirements acceptable to the Director, unless the Director approves an alternative person based on its review of system size, types of water users, treatment, distribution system, and any previous hazard assessment.

**§ 2004 SELECTION OF THE TYPE OF BACKFLOW PROTECTION**

A. Based on the results of the hazard assessment conducted pursuant to § 2003, the public water system owner or operator shall ensure that the minimum backflow protection, if any, required pursuant to Table 2000.1 is installed. A community water system shall ensure that the protection is installed at the water user’s service connection. A non-community water system shall ensure that protection is installed in the distribution system.

   1. The types of backflow protection that may be used are listed according to increasing level of protection as follows: *Pressure vacuum breaker assembly*, *Double check valve assembly*, *Reduced pressure principle assembly*, and *Air gap separation*. For roadway right-of-way irrigation systems where there is no potential for backpressure, a pressure vacuum breaker assembly shall be considered more protective than a double check valve assembly.

   2. If more than one of the hazard criteria listed in Table 2000.1 applies to the premises of a water user, the greatest degree of protection required by the criteria shall be installed.

B. If permitted as indicated in Table 2000.1, the public water system owner or operator may allow protection at one level lower than specified in Table 2000.1, subject to the Director’s approval based on a review that includes the hazard involved, the public water system’s cross-connection control program, the rationale and justification for proposing the lower level of protection, and the public water system’s compliance history related to cross-connection control.

C. If an assessment of a premise(s) could not be made pursuant to § 2003 to determine the type of hazard present, the public water system owner or operator shall ensure that an air gap separation is installed.

D. If a hazardous situation exists on a water user's premises or in the public water system's distribution system that is not described in Table 2000.1, the public water system owner or operator shall consult with and obtain the concurrence of the PWSSP as to the appropriate type of backflow protection to be installed.

**TABLE 2000.1 HAZARD CRITERIA AND APPROPRIATE TYPES OF BACKFLOW PROTECTION**

| **Hazard** | **Required Level of Protection** |
|---|---|
| 1. Auxiliary Water Supplies | |
| A. Auxiliary supply that is interconnected with a piping system connected to the public water system (PWS) | Air gap separation[1] |
| B. Auxiliary supply that is not interconnected with a piping system connected to the PWS, but has piped water conveyed under pressure in a piping system less than 200 feet from the piping system connected to the PWS | Reduced pressure principle assembly[1] |
| 2. Fire Protection Systems | |
| A. Fire protection system interconnected with a piping system connected to the PWS and an onsite auxiliary water supply for fire fighting | Air gap separation[1] |
| B. Fire protection system supplied by the PWS with an interconnection to onsite storage facilities and pumps, or combined fire and industrial water | Reduced pressure principle assembly[2] |
| 3. Marina or port facilities | |
| A. Residential | Reduced pressure principle assembly[1] |
| B. Nonresidential | Reduced pressure principle assembly[2] |
| 4. Premises with multiple service connections to the PWS | Reduced pressure principle assembly[1] |
| 5. Recycled Water or Graywater | |
| A. Recycled water supply system that is: | |
| i. Interconnected to a piping system connected to PWS | Air gap separation[2] |
| ii. Not interconnected to a piping system connected to PWS | Reduced pressure principle assembly[2] |
| B. System that produces, or collects and distributes graywater and is: | |
| i. Interconnected to a piping system connected to the PWS | Air gap separation[2] |
| ii. Not interconnected to a piping system connected to the PWS | Reduced pressure principle assembly[2] |
| 6. Sewage and Hazardous or Potentially Hazardous Substances | |
| A. Waste water treatment processes, handling and/or pumping equipment interconnected to a piping system connected to the PWS | Air gap separation[2] |
| B. Waste water treatment processes, handling and/or pumping equipment not interconnected to a piping system connected to the PWS, except for a single-family residence that has a sewage lift pump | Air gap separation[1] |
| C. Premises handling a substance in any manner in which the substance may enter a piping system connected to the PWS | Air gap separation[1] |
| D. Recreational vehicle dump station that is not interconnected to a piping system connected to the PWS | Reduced pressure principle assembly[1] |
| E. Piped irrigation system interconnected to a piping system connected to the PWS, into which fertilizers, herbicides, or pesticides are, or are intended to be, injected into the irrigation water | Reduced pressure principle assembly[2] |
| F. Piping system conveying a fluid not from an approved water supply that is: | |
| 1. Interconnected to a piping system connected to the PWS | Air gap separation[1] |
| 2. Not interconnected to a piping system connected to the PWS | Reduced pressure principle assembly[1] |

| | | |
|---|---|---|
| 7. | Roadway right-of-way irrigation system interconnected to a piping system connected to the PWS, and there is no potential for back pressure | Pressure vacuum breaker assembly[1] |
| 8. | Water storage facility not under control of the PWS | Air gap separation[1] |

[1]The public water system owner or operator may allow protection at one level lower than that designated, pursuant to §2004(B).
[2]The public water system owner or operator shall not allow a lower level of protection than that designated.

**§ 2005 STANDARDS FOR TYPES OF BACKFLOW PROTECTION**

A. The public water system owner or operator shall ensure that each air-gap separation meets the requirements in section 603.2.1 of the Uniform Plumbing Code.

B. The public water system owner or operator shall ensure that each installed pressure vacuum breaker, double check valve, and reduced pressure principle backflow prevention assembly:

1. Meets the requirements in this part;

2. Meets the applicable American Water Works Standards, as follows:

a. C512 - Air Release, Air/Vacuum, and Combination Air Valves for Waterworks Service;

b. C511 - Reduced Pressure Principle Backflow Prevention Assembly; or

c. C510 - Double Check Valve Backflow Prevention Assembly; and

3. Is approved through laboratory and field evaluation tests performed by the Foundation for Cross-Connection Control and Hydraulic Research (University of Southern California, Kaprielian Hall 200, Los Angeles, CA 90089-2531; http://www.usc.edu/fccchr/) or an entity with equivalent testing requirements acceptable to the Director.

**§ 2006 INSTALLATION CRITERIA FOR BACKFLOW PROTECTION**

A. For air-gaps, the following shall apply:

1. The receiving water container shall be located on the water user’s premises at the water user’s service connection unless an alternate location has been approved by the public water system owner or operator in consultation and concurrence of the PWSSP.

2. All piping between the water user’s service connection and the discharge location of the receiving water container shall be above finished grade and be accessible for visual inspection unless an alternative piping configuration is approved by the public water system owner or operator in consultation and concurrence of the PWSSP.

B. A reduced pressure principle backflow prevention assembly shall be installed such that the lowest point of the assembly is a minimum of twelve inches, and a maximum of 36 inches, above finished grade, unless an alternative is approved by the public water system owner or operator in consultation and concurrence of the PWSSP.

C. A pressure vacuum breaker assembly shall be installed a minimum of twelve inches above all downstream piping.

D. A reduced pressure principle or double check valve backflow prevention assembly shall have a minimum side clearance of twelve inches, except that a minimum side clearance of 24 inches shall be provided on the side of the assembly that contains the test cocks.

E. Backflow protection shall be located at the water user’s service connection unless one or more alternative locations have been approved by the public water system owner or operator in consultation and concurrence of the PWSSP. The public water system owner or operator shall obtain access to the water user’s premises and shall ensure that the on-site protection meets the standards specified in §2005 and the requirements of this part for installation, testing and inspections.

F. Each backflow prevention assembly and air gap separation shall be accessible for field testing and maintenance.

**§ 2007 FIELD TESTING AND REPAIR OF BACKFLOW PREVENTION ASSEMBLIES AND AIR GAP INSPECTION**

A. The public water system owner or operator shall require that all backflow prevention assemblies installed pursuant to this part be field tested following installation, repair, or relocation and at least annually thereafter. All required field testing shall be performed by persons who are currently certified in the testing of backflow prevention assemblies by California-Nevada Section of the American Water Works Association, the American Backflow Prevention Association, or an organization with equivalent certification requirements acceptable to the Director and have obtained a registration number from the Director. A registration number can be obtained through application to the PWSSP. An application fee, as determined by the Director, shall be charged for the registration number.

B. Air-gap separations installed pursuant to §§ 2005(A) and 2006(A) shall be visually inspected by the public water system owner or operator at least annually to determine compliance with these regulations.

C. The public water system owner or operator shall ensure that backflow prevention assemblies that fail the field test are repaired or replaced within 30 days.

**§ 2008 ADDITIONAL CROSS-CONNECTION CONTROL REQUIREMENTS FOR COMMUNITY WATER SYSTEMS**

In addition to the applicable requirements in this part of the regulations, each community water system shall implement a cross-connection control program that includes operating rules of service or ordinances adopted to enable the public water system owner or operator to:

A. Comply with the requirements of these regulations, and

B. Discontinue a water user’s service if the requirements in these regulations are not met.

**§ 2009 RECORDKEEPING**

A. Each public water system owner or operator shall maintain records of the following for a minimum of three years:

1. Most current hazard assessment, conducted pursuant to § 2003;

2. Locations and types of backflow protection and associated hazards;

3. Results of all backflow prevention assembly field testing and air gap inspections; and

4. Repairs made to, or replacement or relocation of, backflow protection.

B. Each public water system owner or operator shall submit summaries of the information in § 2009(A) to the Navajo Nation Public Water Systems Supervision Program at the end of each calendar year. The summaries shall also be available to the Director on request for a minimum of three years.

**§ 2010 NOTIFICATION**

Each public water system owner or operator shall notify the Navajo Nation Public Water Systems Supervision Program of any known incident of backflow into the public water system within 24 hours of discovery of the incident. The public water system owner or operator shall also submit, within 5 working days, a written report of the incident describing the nature and severity of the backflow, the actions taken by the public water system owner or operator in response to the incident, and the action plan intended to prevent such incidents in the future.

# PART XXI
# ENHANCED FILTRATION AND DISINFECTION
# (Systems Serving Fewer Than 10,000 People)

**§ 2101 GENERAL REQUIREMENTS**

A. The requirements of this part constitute a primary drinking water regulation. These regulations establish requirements for filtration and disinfection that are in addition to Part VIII (Surface Water Treatment) for systems serving fewer than 10,000 people. The regulations in this part establish or extend treatment technique requirements in lieu of maximum contaminant levels (MCLs) for the following contaminants: *Giardia lamblia,* viruses, heterotrophic plate count bacteria, *Legionella, Cryptosporidium* and turbidity. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

1. At least 99 percent (2 log) removal of *Cryptosporidium* between a point where the raw water is not subject to re-contamination by surface water runoff and a point downstream before or at the first customer for filtered systems, or *Cryptosporidium* control under the watershed control plan for unfiltered systems; and

2. Compliance with the profiling and benchmark requirements in §§ 2104(A) through 2105(C).

B. Applicability

1. Compliance with this section is required if a system:

   a. Is a public water system;

   b. Uses surface water or GWUDI as a source;

   c. Serves fewer than 10,000 persons.

C. Compliance dates

Part XXI systems must comply with these regulations beginning January 14, 2005 except where otherwise noted.

D. Requirements

1. Any finished water reservoir must be covered. These regulations apply to any public water system project constructed on or after March 15, 2002 as described in §§2102 (A) and (B);

2. If the public water system is an unfiltered system, owners/operators must comply with the updated watershed control requirements described in §§ 2103(A), (B), and (C).

3. If the public water system is a community or non-transient non-community water system, owners/operators must develop a disinfection profile as described in §§ 2104(A-G)

4. If the public water system is considering making a significant change to its disinfection practices, owners/operators must develop a disinfection benchmark and consult with the Director for approval of the change as described in §§ 2105(A-E);

5. If the public water system is a filtered system, owners/operators must comply with the combined filter effluent requirements as described in §§ 2106(A)B(D);

6. If the public water system is a filtered system that uses conventional or direct filtration, owners/operators must comply with the individual filter turbidity requirements as described in §§ 2107(A-E), and;

7. Owners/operators must comply with the applicable reporting and recordkeeping requirements as described in §§ 2108(A) and (B).

**§ 2102 FINISHED WATER RESERVIORS**

A. All Part VIII systems which serve fewer than 10,000 people are subject to this requirement.

B. Requirements for new finished water reservoirs

If the public water system begins construction of a finished water reservoir on or after March 15, 2002 the reservoir must be covered. Finished water reservoirs for which public water systems began construction prior to March 15, 2002 are not subject to this requirement.

**§ 2103 ADDITIONAL WATERSHED CONTROL REQUIREMENTS FOR UNFILTERED SYSTEMS**

A. If the public water system is a Part VIII system serving fewer than 10,000 persons which does not provide filtration, owners/operators must continue to comply with all of the filtration avoidance criteria in § 803, as well as the additional watershed control requirements in § 2103(B).

B. Updated watershed control requirements for unfiltered systems to continue to avoid filtration

1. Owners/operators must take any additional steps necessary to minimize the potential for contamination by *Cryptosporidium* oocysts in the source water. A public water system's watershed control program must, for *Cryptosporidiu*m:

a. Identify watershed characteristics and activities which may have an adverse effect on source water quality; and

b. Monitor the occurrence of activities which may have an adverse effect on source water quality.

C. Director-determination of watershed control requirements

During an onsite inspection conducted under the provisions of § 803(B)(3), the Director must determine whether public water system watershed control program is adequate to limit potential contamination by *Cryptosporidium* oocysts. The adequacy of the program must be based on the comprehensiveness of the watershed review; the effectiveness of owner's/operator's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the owner/operator has maximized land ownership and/or controlled land use within the watershed.

**§ 2104 DISINFECTION PROFILE**

A. A disinfection profile is a graphical representation of the public water system's level of *Giardia lamblia* or virus inactivation measured during the course of a year. If the public water system is a Part VIII CWS or NTNCWS which serves fewer than 10,000 persons, owners/operators must develop a disinfection profile unless the Director determines that the public water system's profile is unnecessary. The Director may approve the use of a more representative data set for disinfection profiling than the data set required under §§ 2104(C) - (G).

B. Criteria to determine that a profile is unnecessary

The Director may only determine that a system's profile is unnecessary if a system's TTHM and HAA5 levels are below 0.064 mg/L and 0.048 mg/L, respectively. To determine these levels, TTHM and HAA5 samples must be collected after January 1, 1998, during the month with the warmest water temperature, and at the point of maximum residence time in the public water system's distribution system.

C. Requirements for a Disinfection Profile

1. A disinfection profile consists of three steps:

a. The owner/operator must first collect data for several parameters from the plant as discussed in § 2104(D) over the course of 12 months. If the public water system serves between 500 and 9,999 persons, owner/operator must begin to collect data no later than July 1, 2003. If the public water system serves fewer than 500 persons, the owner/operator must begin to collect data no later than January 1, 2004.

b. The owner/operator must then use this data to calculate weekly log inactivation as discussed in §§ 2104(E) and (F); and

c. Next, the owner/operator must use these weekly log inactivations to develop a disinfection profile as specified in § 2104(G).

D. Required data for a Disinfection Profile

1. Owners/operators must monitor the following parameters to determine the total log inactivation using the analytical methods in Appendix D 801-D, once per week on the same calendar day, over 12 consecutive months:

a. The temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;

b. If the owner/operator uses chlorine, the pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow;

c. The disinfectant contact time(s) (“T”) during peak hourly flow; and

d. The residual disinfectant concentration(s) (“C”) of the water before or at the first customer and prior to each additional point of disinfection during peak hourly flow.

E. Calculation of the inactivation ratio

Calculate the total inactivation ratio as follows, and multiply the value by 3.0 to determine log inactivation of *Giardia lamblia*:

**TABLE 2100.1 TOTAL INACIVATION CALCULATION OF *Giardia lamblia***

| If the public water system | The owner/operator must determine |
|---|---|
| (a) Uses only one point of disinfectant application. | (1) One inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow: or<br><br>(2) Successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the owner/operator must calculate the total inactivation ratio by determining ($C_{Tcalc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine ($3CT_{calc}/CT_{99.9}$). |
| (b) Uses more than one point of disinfectant application before the first customer. | The ($CT_{calc}/CT_{99.9}$) value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow using the procedure specified in paragraph (a)(2) of this section. |

F. Requirements for systems using chloramines, ozone, or chlorine dioxide for primary disinfection

If the owner/operator uses chloramines, ozone, or chlorine dioxide for primary disinfection, the owner/operator must also calculate the logs of inactivation for viruses and develop an additional disinfection profile for viruses using methods approved by the Director.

G. Inactivation ratio reporting requirements

Each log inactivation serves as a data point in the public water system disinfection profile. The owner/operator will have obtained 52 measurements (one for every week of the year). This will allow the owner/operator and the Director the opportunity to evaluate how microbial inactivation varied over the course of the year by looking at all 52 measurements (the Disinfection Profile). The owner/operator must retain the Disinfection Profile data in graphic form, such as a spreadsheet, which must be available for review by the Director as part of a sanitary survey. The owner/operator must use this data to calculate a benchmark if the owner/operator are considering changes to disinfection practices.

**§ 2105 DISINFECTION BENCHMARK**

A. If the public water system is a Part VIII system, the owners/operators are required to develop a disinfection profile under §§ 2104(A) through (G). The owner/operator must develop a Disinfection Benchmark if the owner/operator decides to make a significant change to the public water system disinfection practice. Owners/operators must consult with the Director for approval before implementing a significant disinfection practice change.

B. Disinfection practices

1. Significant changes to disinfection practice include:

a. Changes to the point of disinfection;

b. Changes to the disinfectant(s) used in the treatment plant;

c. Changes to the disinfection process; or

d. Any other modification identified by the Director.

C. Requirements for significant changes to disinfection practices

1. If the owner/operator is considering a significant change to its disinfection practice, owners/operators must calculate a disinfection benchmark(s) as described in §§ 2105(D) and (E) and provide the benchmark(s) to the Director. Owners/operators may only make a

significant disinfection practice change after consulting with the Director for approval. Owners/operators must submit the following information to the Director as part of the consultation and approval process:

a. A description of the proposed change;

b. The disinfection profile for *Giardia lamblia* (and, if necessary, viruses) and disinfection benchmark;

c. An analysis of how the proposed change will affect the current levels of disinfection; and

d. Any additional information requested by the Director.

D. Disinfection Benchmark Calculations

If owner/operator is making a significant change to its disinfection practice, the owner/operator must calculate a disinfection benchmark using the procedure specified below:

1. To calculate a disinfection benchmark owners/operator must perform the following steps

a. Step 1: Using the data that owners/operators collected to develop the Disinfection Profile, determine the average *Giardia lamblia* inactivation for each calendar month by dividing the sum of all *Giardia lamblia* inactivations for that month by the number of values calculated for that month.

b. Step 2: Determine the lowest monthly average value out of the twelve values. This value becomes the disinfection benchmark.

E. Requirements for public water systems using chloramines, ozone, or chlorine dioxide for primary disinfection

If the owner/operator uses chloramines, ozone or chlorine dioxide for primary disinfection, the owner/operator must calculate the disinfection benchmark from the data that the owner/operator collected for viruses to develop the disinfection profile in addition to the *Giardia lamblia* disinfection benchmark calculated under § 2105(D). This viral benchmark must be calculated in the same manner used to calculate the *Giardia lamblia* disinfection benchmark in § 2105(D).

**§ 2106 COMBINED FILTER EFFLUENT REQUIREMENTS**

A. All Part VIII systems which serve populations fewer than 10,000, are required to filter, and utilize filtration other than slow sand filtration or diatomaceous earth filtration must meet the combined filter effluent turbidity requirements of §§2106 (B)-(D). If the owner/operator uses slow sand or diatomaceous earth filtration, owners/operators are not required to meet the combined filter effluent turbidity limits of this section, but owner/operator must continue to meet the combined filter effluent turbidity limits in § 805.

B. Requirements for strengthened combined filter effluent turbidity limits

1. Public water systems must meet two strengthened combined filter effluent turbidity limits.

a. The first combined filter effluent turbidity limit is a ”95th percentile” turbidity limit that public water systems must meet in at least 95 percent of the turbidity measurements taken each month. Measurements must continue to be taken as described in Appendix D, 801-D(A) and (C). Monthly reporting must be completed according to § 2108(A). The following table describes the required limits for specific filtration technologies.

**TABLE 2100.2 REQUIRED LIMITS FOR SPECIFIC FILTRATION TECHNOLOGIES – 95TH PERCENTILE**

| If the public water system consists of | The 95th percentile turbidity value is: |
|---|---|
| (1) Conventional Filtration or Direct Filtration | 0.3 NTU |
| (2) All other “Alternative” Filtration | A value determined by the Director (not to exceed 1 NTU) based on the demonstration described in § 2106(C). |

b. The second combined filter effluent turbidity limit is a “maximum” turbidity limit which the public water system may at no time exceed during the month. Measurements must continue to be taken as described in Appendix D 801-D(A) and (C). Monthly reporting must be completed according to § 2108(A). The following table describes the required limits for specific filtration technologies.

**TABLE 2100.3 REQUIRED LIMITS FOR SPECIFIC FILTRATION TECHNOLOGIES – MAXIMUM TURBIDITY LIMIT**

| If the public water system consists of | The maximum turbidity value is: |
|---|---|
| (1) Conventional Filtration or Direct Filtration | 1 NTU. |
| (2) All other ”Alternative” Filtration | A value determined by the Director (not to exceed 5 NTU) based on the demonstration as described in § 2106(C). |

C. Requirements for “alternative filtration”

1. If the public water system consists of alternative filtration(filtration other than slow sand filtration, diatomaceous earth filtration, conventional filtration, or direct filtration), owners/operators are required to conduct a demonstration (see tables in § 2106(B)(1)). Owners/operators must demonstrate to the Director, using pilot plant studies or other means that the public water system’s filtration, in combination with disinfection treatment, consistently achieves:

   a. 99 percent removal of *Cryptosporidium* oocysts;

   b. 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts; and

   c. 99.99 percent removal and/or inactivation of viruses.

2. [Reserved]

D. Requirements for lime softening

If lime softening is practiced, the owner/operator may acidify representative combined filter effluent turbidity samples prior to analysis using a protocol approved by the Director.

**§ 2107 INDIVIDUAL FILTER TURBIDITY REQUIREMENTS**

A. If the public water system is a Part VIII system serving fewer than 10,000 people and utilizing conventional filtration or direct filtration, the owner/operator must conduct continuous monitoring of turbidity for each individual filter at the public water system. The following requirements apply to continuous turbidity monitoring:

1. Monitoring must be conducted using an approved method in Appendix D 801-D(A);

2. Calibration of turbidimeters must be conducted using procedures specified by the manufacturer;

3. Results of turbidity monitoring must be recorded at least every 15 minutes;

4. Monthly reporting must be completed according to § 2108(A); and

5. Records must be maintained according to § 2108(B).

B. Requirements for turbidity monitoring if equipment fails

If there is a failure in the continuous turbidity monitoring equipment, the owner/operator must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is back on-line. The owner/operator has 14 days to resume continuous monitoring before a violation is incurred.

C. Special provisions regarding individual filter turbidity monitoring

If the public water system only consists of two or fewer filters, the owner/operator may conduct continuous monitoring of combined filter effluent turbidity in lieu of individual filter effluent turbidity monitoring. Continuous monitoring must meet the same requirements set forth in § 2107(A)(1) through (5) and (B).

D. Requirements for continuous turbidity monitoring

Follow-up action is required according to the following tables:

**TABLE 2100.4 REQUIREMENTS FOR CONTINUOUS TURBIDITY MONITORING**

| If | Owners/operators must |
|---|---|
| (1) The turbidity of an individual filter (or the turbidity of combined filter effluent (CFE) for systems with 2 filters that monitor CFE in lieu of individual filters) exceeds 1.0 NTU in two consecutive recordings 15 minutes apart. | Report to the Director by the 10th of the following month and include the filter number(s), corresponding date(s), turbidity value(s) which exceeded 1.0 NTU, and the cause (if known) for the exceedance(s). |

**TABLE 2100.5 REQUIREMENTS FOR CONTINUOUS TURBIDITY MONITORING – REPORTING**

| If a public water system was required to report to the Director | Owners/operators must |
|---|---|
| (2) For three months in a row and turbidity exceeded 1.0 NTU in two consecutive recordings 15 minutes apart at the same filter (or CFE for systems with 2 filters that monitor CFE in lieu of individual filters). | Conduct a self-assessment of the filter(s) within 14 days of the day the filter exceeded 1.0 NTU in two consecutive measurements for the third straight month unless a CPE as specified in paragraph (c) of this section was required. Systems with 2 filters that monitor CFE in lieu of individual filters must conduct a self assessment on both filters. The self-assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report. If a self-assessment is required, the date that it was triggered and the date that it was completed. |
| (3) For two months in a row and turbidity exceeded 2.0 BTU in 2 consecutive recordings 15 minutes apart at the same filter (or CFE for systems with 2 filters that monitor CFE in lieu of individual filters). | Arrange to have a comprehensive performance evaluation (CPE) conducted by the Director not later than 60 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month. If a CPE has been completed by the Director within the 12 prior months or the system and Director are jointly participating in an ongoing Comprehensive Technical Assistance (CTA) project at the system, a new CPE is not required. If conducted, a CPE must be completed and submitted to the Director no later than 120 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month. |

E. Requirements for lime softening practices for individual filter turbidity monitoring

If the public water system utilizes lime softening, the owner/operator may apply to the Director for alternative turbidity exceedance levels for the levels specified in the table in § 2107(D). Owners/operators must be able to demonstrate to the Director that higher turbidity levels are due to lime carryover only, and not due to degraded filter performance.

**§ 2108 REPORTING AND RECORDKEEPING REQUIREMENTS**

A. This section requires owners/operators to report several items to the Director. The following table describes the items which must be reported and the frequency of reporting. Owners/operators are required to report the information described in the following table, if it is subject to the specific requirement shown in the first column.

**TABLE 2100.6 REPORTING REQUIREMENTS**

| Corresponding requirement | Description of information to report | Frequency |
|---|---|---|
| (1) Combined Filter Effluent Requirements. (§§ 2106(A)-(D)) | (1) The total number of filtered water turbidity measurements taken during the month.<br>(2) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the public water system's required 95th percentile limit.<br>(3) The date and value of any turbidity measurements taken during the month which exceed the maximum turbidity value for the public water system's filtration system. | By the 10th of the following month.<br>By the 10th of the following month.<br>By the 10th of the following month. |
| (2) Individual Turbidity Requirements. (§§ 2107(A)-(E)) | (1) That the owner/operator conducted individual filter turbidity monitoring during the month.<br>(2) The filter number(s), corresponding date(s), and the turbidity value(s) which exceeded 1.0 NTU during the month, but only if 2 consecutive measurements exceeded 1.0 NTU.<br>(3) If a self-assessment is required, the date that it was triggered and the date that it was completed.<br>(4) If a CPE is required, that the CPE is required and the date that it was triggered.<br>(5) Copy of completed CPE report. | By the 10th of the following month.<br>By the 10th of the following month.<br>By the 10th of the following month (or 14 days after the self-assessment was triggered only if the self-assessment was triggered during the last four days of the month)<br>By the 10th of the following month.<br>Within 120 days after the CPE was triggered. |
| (3) Disinfection Profiling (§§ 2104(A)-(G)) | (1) Results of optional monitoring which show TTHM levels <0.064 mg/l and HAA5 levels <0.048 mg/l (Only if owner/operator wishes to forgo profiling) or that the owner/operator has begun disinfection profiling. | (i) For systems serving 500B9,999 by July 1, 2003;<br>(ii) For systems serving fewer than 500 by January 1, 2004. |
| (4) Disinfection Benchmarking (§§ 2105(A)-(E)) | (1) A description of the proposed change in disinfection, the public water system's disinfection profile for Giardia lamblia (and, if necessary, viruses) and disinfection benchmark, and an analysis of how the proposed change will affect the current levels of disinfection. | Anytime the owner/operator is considering a significant change to its disinfection practice. |

B. Recordkeeping

Owners/operators must keep several types of records based on the requirements of this section, in addition to recordkeeping requirements under § 806. The following table describes the necessary records, the length of time these records must be kept, and for which requirement the records pertain.

Owners/operators are required to maintain records described in this table, if it is subject to the specific requirement shown in the first column

**TABLE 2100.7 RECORDKEEPING REQUIREMENTS**

| Corresponding requirement | Description of necessary records | Duration of time records must be kept |
|---|---|---|
| (1) Individual Filter Turbidity Requirements (§§ 2107(A)-(E)) | Results of individual filter monitoring | At least 3 years. |
| (2) Disinfection Profiling (§§ 2104(A)-(G)) | Results of Profile (including raw data and analysis) | Indefinitely. |
| (3) Disinfection Benchmarking (§§ 2105(A)-(E)) | Benchmark (including raw data and analysis) | Indefinitely. |

# PART XXII
# INITIAL DISTRIBUTION SYSTEM EVALUTATIONS

## § 2201 GENERAL REQUIREMENTS

A. The regulations in this part establish monitoring and other requirements for identifying Part XXIII compliance monitoring locations for determining compliance with maximum contaminant levels for total trihalomethanes (TTHM) and haloacetic acids (five)(HAA5). The public water system owner/operator must use an Initial Distribution System Evaluation (IDSE) to determine locations with representative high TTHM and HAA5 concentrations throughout the distribution system. IDSEs are used in conjunction with, but separate from, Part XI compliance monitoring, to identify and select Part XXIII compliance monitoring locations.

B. Applicability. An owner/operator is subject to these requirements if a system is a community water system that uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light; or if the system is a nontransient noncommunity water system that serves at least 10,000 people and uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

C. Schedule

1. The owner/operator must comply with the requirements of this part according to the schedule in Table 2200.1.

**TABLE 2200.1 SCHEDULE REQUIREMENTS BY POPULATION AND SYSTEM TYPE**

| If system serves this population | The public water system owner/operator must submit a standard monitoring plan or system specific study plan[1] or 40/30 certification[2] to the Director by or receive very small system waiver from Director | The public water system owner/operator must complete a standard monitoring or system specific study by | The public water system owner/operator must submit an IDSE report to the Director by[3] |
|---|---|---|---|
| Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system | | | |
| (a) ≥100,000.... | October 1, 2006 | September 30, 2008 | January 1, 2009 |
| (b) 50,000-99,999 | April 1, 2007 | March 31, 2009 | July 1, 2009 |
| (c) 10,000-49,999 | October 1, 2007 | September 30, 2009 | January 1, 2010 |
| (d) <10,000 (CWS Only) | April 1, 2008 | March 31, 2010 | July 1, 2010 |
| Other systems that are part of a combined distribution system | | | |
| (e) Wholesale system or consecutive system. | --at the same time as the system with the earliest compliance date in the combined distribution system. | --at the same time as the system with the earliest compliance date in the combined distribution system. | --at the same time as the system with the earliest compliance date in the combined distribution system. |

[1]If, within 12 months after the date identified in this column, the Director does not approve the plan or notify the system that it has not yet completed its review, the owner/operator may consider the plan that was submitted as approved. The owner/operator must implement that plan and complete standard monitoring or a system specific study no later than the date identified in the third column.
[2]The owner/operator must submit a 40/30 certification under § 2204 by the date indicated.
[3]If, within three months after the date identified in this column (nine months after the date identified in this column if the owner/operator must comply on the schedule in paragraph (C)(1)(c) of this section), the Director does not approve the IDSE report or notify the owner/operator that it has not yet completed its review, the owner/operator may consider the report that was submitted as approved and the owner/operator must implement the recommended Part XXIII monitoring as required.

2. For the purpose of the schedule in paragraph (C)(1) of this section, the Director may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The Director may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system.

D. The owner/operator must conduct standard monitoring that meets the requirements in § 2202, or a system specific study that meets the requirements in § 2203, or certify to the Director that the owner/operator meets the 40/30 certification criteria under § 2204, or qualifies for a very small system waiver under § 2205.

1. The owner/operator must have taken the full complement of routine TTHM and HAA5 compliance samples required of a system with the same population and source water under Part XI of these regulations (or the owner/operator must have taken the full complement of reduced TTHM and HAA5 compliance samples required of a system with the same population and source water under Part XI if the owner/operator meet reduced monitoring criteria under Part XI of these regulations) during the period specified in § 2204(A) to meet the 40/30 certification criteria in § 2204. The owner/operator must have taken TTHM and HAA5 samples under Appendix E-1101-E and 1103 to be eligible for the very small system waiver in § 2205.

2. If the owner/operator has not taken the required samples, the owner/operator must conduct standard monitoring that meets the requirements in § 2202, or a system specific study that meets the requirements in § 2203.

E. The owner/operator must use only the analytical methods specified in Appendix E-1101-E, or otherwise approved by EPA for monitoring under this subpart, to demonstrate compliance with the requirements of this subpart.

F. IDSE results will not be used for the purpose of determining compliance with MCLs in § 207.

**§ 2202 STANDARD MONITORING**

A. Standard monitoring plan. The standard monitoring plan must comply with paragraphs (A)(1) through (A)(4) of this section. The owner/operator must prepare and submit a standard monitoring plan to the Director according to the schedule in § 2201(C).

1. The standard monitoring plan must include a schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating locations and dates of all projected standard monitoring, and all projected Part XI compliance monitoring.

2. The standard monitoring plan must include a justification of the standard monitoring location selection and a summary of data the owner/operator relied on to justify the standard monitoring location selection.

3. The standard monitoring plan must specify the population served and system type (Part VIII or ground water).

4. The owner/operator must retain a complete copy of the standard monitoring plan submitted under this subsection (A), including any Director modification of the standard monitoring plan, for as long as the owner/operator is required to retain an IDSE report under paragraph (C)(4) of this section.

B. Standard monitoring

1. The owner/operator must monitor as indicated in Table 2200.2. The owner/operator must collect dual sample sets at each monitoring location. One sample in the dual sample set must be analyzed for TTHM. The other sample in the dual sample set must be analyzed for HAA5. The owner/operator must conduct one monitoring period during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature. The owner/operator must review available compliance, study, or operational data to determine the peak historical month for TTHM or HAA5 levels or warmest water temperature.

**TABLE 2200.2 STANDARD MONITORING PERIODS, FREQUENCY, AND LOCATION BY POPULATION AND SYSTEM TYPE**

| Source water type | Population size category | Monitoring periods and frequency of sampling | Distribution system monitoring locations[1] | | | | |
|---|---|---|---|---|---|---|---|
| | | | Total per monitoring period | Near entry points | Average residence time | High TTHM locations | High HAA5 locations |
| Part VIII | < 500 consecutive systems | one (during peak historical month)[2] | 2 | 1 | ..... | 1 | |
| | < 500 non-consecutive systems | ..... | 2 | ..... | ..... | 1 | 1 |
| | 500-3,300 consecutive systems | four (every 90 days)... | | 1 | ..... | 1 | |
| | 500-3,300 non-consecutive systems | ..... | 2 | ..... | ..... | 1 | 1 |
| | 3,301-9,999 | ..... | 4 | ..... | 1 | 2 | 1 |
| | 10,000-49,999 | six (every 60 days) | 8 | 1 | 2 | 3 | 2 |
| | 50,000-249,999 | ..... | 16 | 3 | 4 | 5 | 4 |
| | 250,000-999,999 | ..... | 24 | 4 | 6 | 8 | 6 |
| | 1,000,000-4,999,999 | ..... | 32 | 6 | 8 | 10 | 8 |
| | ≥5,000,000 | ..... | 40 | 8 | 10 | 12 | 10 |
| Ground Water: | <500 consecutive systems | one (during peak historical month)[2] | 2 | 1 | ..... | 1 | |
| | <500 non-consecutive systems | ..... | 2 | ..... | ..... | 1 | 1 |
| | 500-9,999 | four(every 90 days) | 2 | ..... | ..... | 1 | 1 |
| | 10,000-99,999 | ..... | 6 | 1 | 1 | 2 | 2 |
| | 100,000-499,999 | ..... | 8 | 1 | 1 | 3 | 3 |
| | ≥500,000 | ..... | 12 | 2 | 2 | 4 | 4 |

[1]A dual sample set (i.e., a TTHM and an HAA5 sample) must be taken at each monitoring location during each monitoring period.
[2]The peak historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature.

2. The owner/operator must take samples at locations other than the existing Part XI monitoring locations. Monitoring locations must be distributed throughout the distribution system.

3. If the number of entry points to the distribution system is fewer than the specified number of entry point monitoring locations, excess entry point samples must be replaced equally at high TTHM and HAA5 locations. If there is an odd extra location number, the owner/operator must take a sample at a high TTHM location. If the number of entry points to the distribution system is more than the specified number of entry point monitoring locations, the owner/operator must take samples at entry points to the distribution system having the highest annual water flows.

4. Monitoring under this subsection (B) may not be reduced under the provisions of § 1902 and the Director may not reduce monitoring using the provisions of § 142.16(m).

C. IDSE report. The owner/operator's IDSE report must include the elements required in paragraphs (C)(1) through (C)(4) of this section. The owner/operator must submit an IDSE report to the Director according to the schedule in § 2201(C).

1. The IDSE report must include all TTHM and HAA5 analytical results from Part XI compliance monitoring and all standard monitoring conducted during the period of the IDSE as individual analytical results and LRAAs presented in a tabular or spreadsheet format acceptable to the Director. If changed from the standard monitoring plan submitted under subsection (A) of this section, the report must also include a schematic of the distribution system, the population served, and system type (Part VIII or ground water).

2. The IDSE report must include an explanation of any deviations from the approved standard monitoring plan.

3. The owner/operator must recommend and justify Part XXIII compliance monitoring locations and timing based on the protocol in § 2206.

4. The owner/operator must retain a complete copy of the IDSE report submitted under this section for 10 years after the date that the owner/operator submitted the report. If the Director modifies the Part XXIII monitoring requirements that the owner/operator recommended in the IDSE report or if the Director approves alternative monitoring locations, the owner/operator must keep a copy of the Director's notification on file for 10 years after the date of the Director's notification. The owner/operator must make the IDSE report and any Director notification available for review by the Director or the public.

**§ 2203 SYSTEM SPECIFIC STUDIES**

A. System specific study plan. The owner/operator's system specific study plan must be based on either existing monitoring results as required under paragraph (A)(1) of this section or modeling as required under paragraph (A)(2) of this section. The owner/operator must prepare and submit a system specific study plan to the Director according to the schedule in § 2201(C).

1. Existing monitoring results. The owner/operator may comply by submitting monitoring results collected before the owner/operator is required to begin monitoring under §2201(C). The monitoring results and analysis must meet the criteria in paragraphs (A)(1)(a) and (A)(1)(b) of this section.

a. Minimum requirements

i. TTHM and HAA5 results must be based on samples collected and analyzed in accordance with Appendix E-1101-E. Samples must be collected no earlier than five years prior to the study plan submission date.

ii. The monitoring locations and frequency must meet the conditions identified in this paragraph (A)(1)(a)(ii). Each location must be sampled once during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature for every 12 months of data submitted for that location. Monitoring results must include all Part XI compliance monitoring results plus additional monitoring results as necessary to meet minimum sample requirements.

**TABLE 2200.3 SAMPLE REQUIREMENTS FOR TTHM and HAA5**

| System Type | Population size category | Number of monitoring locations | Number of samples | |
|---|---|---|---|---|
| | | | TTHM | HAA5 |
| Part VIII: | < 500 | 3 | 3 | 3 |
| | 500-3,300 | 3 | 9 | 9 |
| | 3,301-9,999 | 6 | 36 | 36 |
| | 10,000-49,999 | 12 | 72 | 72 |
| | 50,000-249,999 | 24 | 144 | 144 |
| | 250,000-999,999 | 36 | 216 | 216 |
| | 1,000,000-4,999,999 | 48 | 288 | 288 |
| | ≥5,000,000 | 60 | 360 | 360 |
| Ground Water: | < 500 | 3 | 3 | 3 |
| | 500-9,999 | 3 | 9 | 9 |
| | 10,000-99,999 | 12 | 48 | 48 |
| | 100,000-499,999 | 18 | 72 | 72 |
| | ≥500,000 | 24 | 96 | 96 |

b. Reporting monitoring results. The owner/operator must report the information in this paragraph (A)(1)(b).

i. The owner/operator must report previously collected monitoring results and certify that the reported monitoring results include all compliance and non-compliance results generated during the period beginning with the first reported result and ending with the most recent Part XI results.

ii. The owner/operator must certify that the samples were representative of the entire distribution system and that treatment, and distribution system has not changed significantly since the samples were collected.

iii. The owner/operator's study monitoring plan must include a schematic of the distribution system (including distribution system entry points and their sources, and storage facilities) with notes indicating the locations and dates of all completed or planned system specific study monitoring.

iv. The system specific study plan must specify the population served and system type (Part VIII or ground water).

v. The owner/operator must retain a complete copy of the system specific study plan submitted under this paragraph (A)(1), including any Director modification of the system specific study plan, for as long as the owner/operator is required to retain an IDSE report under paragraph (B)(5) of this section.

vi. If the owner/operator submits previously collected data that fully meet the number of samples required under paragraph (A)(1)(a)(i) of this section and the Director rejects some of the data, the owner/operator must either conduct additional monitoring to replace rejected data on a schedule the Director approves or conduct standard monitoring under § 2202.

2. Modeling. The public water system owner/operator may comply through analysis of an extended period simulation hydraulic model. The extended period simulation hydraulic model and analysis must meet the criteria in this paragraph (A)(2).

a. Minimum requirements

i. The model must simulate 24 hour variation in demand and show a consistently repeating 24 hour pattern of residence time.

ii. The model must represent the criteria listed in paragraphs (A)(2)(a)(ii)(A) through (I) of this section
A. 75% of pipe volume;
B. 50% of pipe length;
C. All pressure zones;
D. All 12-inch diameter and larger pipes;
E. All 8-inch and larger pipes that connect pressure zones, influence zones from different sources, storage facilities, major demand areas, pumps, and control valves, or are known or expected to be significant conveyors of water;
F. All 6-inch and larger pipes that connect remote areas of a distribution system to the main portion of the system;
G. All storage facilities with standard operations represented in the model;
H. All active pump stations with controls represented in the model; and
I. All active control valves.

iii. The model must be calibrated, or have calibration plans, for the current configuration of the distribution system during the period of high TTHM formation potential. All storage facilities must be evaluated as part of the calibration process. All required calibration must be completed no later than 12 months after plan submission.

b. Reporting modeling. The public water system specific study plan must include the information in this paragraph (A)(2)(b).

i. Tabular or spreadsheet data demonstrating that the model meets requirements in paragraph (A)(2)(a)(ii) of this section.

ii. A description of all calibration activities undertaken and, if calibration is complete, a graph of predicted tank levels versus measured tank levels for the storage facility with the highest residence time in each pressure zone, and a time series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period (i.e., from time zero until the time it takes for the model to reach a consistently repeating pattern of residence time).

iii. Model output showing preliminary 24 hour average residence time predictions throughout the distribution system.

iv. Timing and number of samples representative of the distribution system planned for at least one monitoring period of TTHM and HAA5 dual sample monitoring at a number of locations no less than would be required for the system under standard monitoring in § 2202 during the historical month of high TTHM. These samples must be taken at locations other than existing Part XI compliance

monitoring locations.

v. Description of how all requirements will be completed no later than 12 months after the owner/operator submits a system specific study plan.

vi. Schematic of the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed system specific study monitoring (if calibration is complete) and all Part XI compliance monitoring.

vii. Population served and system type (Part VIII or ground water).

viii. The owner/operator must retain a complete copy of the system specific study plan submitted under this paragraph (A)(2), including any Director modification of the system specific study plan, for as long as the owner/operator is required to retain an IDSE report under paragraph (B)(7) of this section.

c. If the owner/operator submits a model that does not fully meet the requirements under paragraph (A)(2) of this section, the owner/operator must correct the deficiencies and respond to Director inquiries concerning the model. If the owner/operator fails to correct deficiencies or respond to inquiries to the Director's satisfaction, the owner/operator must conduct standard monitoring under § 2202.

B. IDSE report. The IDSE report must include the elements required in paragraphs (B)(1) through (B)(6) of this section. The owner/operator must submit the IDSE report according to the schedule in § 2201(C).

1. The IDSE report must include all TTHM and HAA5 analytical results from Part XI compliance monitoring and all system specific study monitoring conducted during the period of the system specific study presented in a tabular or spreadsheet format acceptable to the Director. If changed from the system specific study plan submitted under subsection (A) of this section, an IDSE report must also include a schematic of the distribution system, the population served, and system type (Part VIII or ground water).

2. If the owner/operator used the modeling provision under paragraph (A)(2) of this section, the owner/operator must include final information for the elements described in paragraph (A)(2)(b) of this section, and a 24-hour time series graph of residence time for each Part XXIII compliance monitoring location selected.

3. The owner/operator must recommend and justify Part XXIII compliance monitoring locations and timing based on the protocol in § 2206.

4. The IDSE report must include an explanation of any deviations from the approved system specific study plan.

5. The IDSE report must include the basis (analytical and modeling results) and justification the owner/operator used to select the recommended Part XXIII monitoring locations.

6. The owner/operator may submit the IDSE report in lieu of the system specific study plan on the schedule identified in § 2201(C) for submission of the system specific study plan if the owner/operator believes that it has the necessary information by the time that the system specific study plan is due. If the owner/operator elects this approach, the IDSE report must also include all information required under subsection (A) of this section.

7. The owner/operator must retain a complete copy of the IDSE report submitted under this section for 10 years after the date that the owner/operator submitted the IDSE report. If the Director modifies the Part XXIII monitoring requirements that the owner/operator recommended in the IDSE report or if the Director approves alternative monitoring locations, the owner/operator must keep a copy of the Director's notification on file for 10 years after the date of the Director's notification. The owner/operator must make the IDSE report and any Director notification available for review by the Director or the public.

**§ 2204 40/30 CERTIFICATION**

A. Eligibility. An owner/operator is eligible for 40/30 certification if its system had no TTHM or HAA5 monitoring violations under Part XI of these regulations and no individual sample exceeded 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 during an eight consecutive calendar quarter period beginning no earlier than the date specified in this subsection (A).

**TABLE 2200.4 40/30 CERTIFICATION ELIGIBILITY AND DUE DATES FOR TTHM and HAA5**

| If your 40/30 certification is due | Then your eligibility for 40/30 certification is based on eight consecutive calendar quarters of Part XI compliance monitoring results beginning no earlier than[1] |
|---|---|
| (1) October 1, 2006<br>(2) April 1, 2007<br>(3) October 1, 2007<br>(4) April 1, 2008 | January 2004<br>January 2004<br>January 2005<br>January 2005 |

[1]Unless the public water system is on reduced monitoring under Part XI of this part and was not required to monitor during the specified period. If the owner/operator did not monitor during the specified period, the owner/operator must base its eligibility on compliance samples taken during the 12 months preceding the specified period.

B. 40/30 certification

1. The owner/operator must certify to the Director that every individual compliance sample taken under Part XI of these regulations during the periods specified in subsection (A) of this section were ≤0.040 mg/L for TTHM and ≤0.030 mg/L for HAA5, and that the public water system has not had any TTHM or HAA5 monitoring violations during the period specified in subsection (A) of this section.

2. The Director may require the owner/operator to submit compliance monitoring results, distribution system schematics, and/or recommended Part XXIII compliance monitoring locations in addition to the certification. If the owner/operator fails to submit the requested information, the Director may require standard monitoring under § 2202 or a system specific study under § 2203.

3. The Director may still require standard monitoring under § 2202 or a system specific study under § 2203 even if the owner/operator meets the criteria in subsection (A) of this section.

4. The owner/operator must retain a complete copy of the certification submitted under this section for 10 years after the date that the owner/operator submitted the certification. The owner/operator must make the certification, all data upon which the certification is based, and any Director notification available for review by the Director or the public.

**§ 2205 VERY SMALL SYSTEM WAIVERS**

A. If the public water system serves fewer than 500 people and the owner/operator has taken TTHM and HAA5 samples under Part XI of these regulations, the owner/operator is not required to comply with this Part unless the Director notifies the owner/operator that the owner/operator must conduct standard monitoring under § 2202 or a system specific study under § 2203.

B. If the owner/operator has not taken TTHM and HAA5 samples under Part XI of these regulations or if the Director notifies the owner/operator that the owner/operator must comply with this Part, the owner/operator must conduct standard monitoring under § 2202 or a system specific study under § 2203.

**§ 2206 PART XXIII COMPLIANCE MONITORING LOCATION RECOMMENDATIONS**

A. The IDSE report must include recommendations and justification for where and during what month(s) TTHM and HAA5 monitoring for Part XXIII of these regulations should be conducted. The owner/operator must base the recommendations on the criteria in subsections (B) through (E) of this section.

B. The owner/operator must select the number of monitoring locations specified in Table 2200.5. The owner/operator will use these recommended locations as Part XXIII routine compliance monitoring locations, unless the Director requires different or additional locations. The owner/operator should distribute locations throughout the distribution system to the extent possible.

**TABLE 2200.5 RECOMMENDED COMPLIANCE MONITORING PERIODS, FREQUENCY, AND LOCATION BY POPULATION AND SYSTEM TYPE**

| Source Water Type | Population Size Category | Monitoring frequency[1] | Distribution system monitoring location | | | |
|---|---|---|---|---|---|---|
| | | | Total per monitoring period[2] | Highest TTHM locations | Highest HAA5 locations | Existing Part XI compliance locations |
| Part VIII: | <500 | per year | 2 | 1 | 1 | ..... |
| | 500-3,300 | per quarter | 2 | 1 | 1 | |
| | 3,301-9,999 | per quarter | 2 | 1 | 1 | ..... |
| | 10,000-49,999 | per quarter | 4 | 2 | 1 | 1 |
| | 50,000-249,999 | per quarter | 8 | 3 | 3 | 2 |
| | 250,000-999,999 | per quarter | 12 | 5 | 4 | 3 |
| | 1,000,000- | per quarter | 16 | 6 | 6 | 4 |
| | ≥5,000,000 | per quarter | 20 | 8 | 7 | 5 |
| Ground water: | <500 | per year | 2 | 1 | 1 | |
| | 500-9,999 | per year | 2 | 1 | 1 | |
| | 10,000-99,999 | per quarter | 4 | 2 | 1 | 1 |
| | 100,000-499,999 | per quarter | 6 | 3 | 2 | 1 |
| | ≥500,000 | per quarter | 8 | 3 | 3 | 2 |

[1]All systems must monitor during the month of highest D.P. concentrations.
[2]Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for Part VIII systems serving 500-3,300 persons. Ground water systems serving 500-9,999 on annual monitoring must take dual sample sets at each monitoring location. All other systems on annual monitoring and Part VIII systems serving 500-3,300 persons are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. For systems serving fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location, and month.

C. The owner/operator must recommend Part XXIII compliance monitoring locations based on standard monitoring results, system specific study results, and Part XI compliance monitoring results. The owner/operator must follow the protocol in paragraphs (C)(1) through (C)(8) of this section. If required to monitor at more than eight locations, owner/operator must repeat the protocol as necessary. If the owner/operator does not have existing Part XI compliance monitoring results or if the owner/operator does not have enough existing Part XI compliance monitoring results, the owner/operator must repeat the protocol, skipping the provisions of paragraphs (C)(3) and (C)(7) of this section as necessary, until the owner/operator has identified the required total number of monitoring locations.

1. Location with the highest TTHM LARA not previously selected as a Part XXIII monitoring location.

2. Location with the highest HAA5 LARA not previously selected as a Part XXIII monitoring location.

3. Existing Part XI average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest HAA5 LARA not previously selected as a Part XXIII monitoring location.

4. Location with the highest TTHM LARA not previously selected as a Part XXIII monitoring location.

5. Location with the highest TTHM LARA not previously selected as a Part XXIII monitoring location.

6. Location with the highest HAA5 LARA not previously selected as a Part XXIII monitoring location.

7. Existing Part XI average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest TTHM LARA not previously selected as a Part XXIII monitoring location.

8. Location with the highest HAA5 LARA not previously selected as a Part XXIII monitoring location.

D. The owner/operator may recommend locations other than those specified in subsection (C) of this section if the owner/operator includes a rationale for selecting other locations. If the Director approves the alternate locations, the owner/operator must monitor at these locations to determine compliance under Part XXIII of these regulations.

E. The recommended schedule must include Part XXIII monitoring during the peak historical month for TTHM and HAA5 concentration, unless the Director approves another month. Once the owner/operator has identified the peak historical month, and if the owner/operator is required to conduct routine monitoring at least quarterly, the owner/operator must schedule Part XXIII compliance monitoring at a regular frequency of every 90 days or fewer.

# PART XXIII
# STAGE 2 DISINFECTION BYPRODUCTS

## § 2301 GENERAL REQUIREMENTS

A. General. The regulations in this part establish monitoring and other requirements for achieving compliance with maximum contaminant levels based on locational running annual averages (LRAA) for total trihalomethanes (TTHM) and haloacetic acids-5 (HAA5), and for achieving compliance with maximum residual disinfectant residuals for chlorine and chloramine for certain consecutive systems.

B. Applicability. This part applies to community water systems and nontransient noncommunity water systems that use a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

C. Schedule. CWSs and NTNCWSs must comply with the requirements in this subpart according to the schedule in Table 2300.1.

**TABLE 2300.1 SCHEDULE REQUIREMENTS BASED ON PUBLIC WATER SYSTEM TYPE**

| Type of system | Date of compliance with Stage 2 DBP monitoring by: [1] |
|---|---|
| 1. System serving ≥100,000 | April 1, 2012. |
| 2. System serving 50,000-99,999 | October 1, 2012. |
| 3. System serving 10,000-49,999 | October 1, 2013. |
| 4. System serving < 10,000 | October 1, 2013 if no Cryptosporidium monitoring is required under § 2402(A)(4) or October 1, 2014 if Cryptosporidium monitoring is required under § 2402(A)(4) or (A)(6) |
| Other systems that are part of a combined distribution system | |
| 5. Consecutive system or wholesale system | --at the same time as the system with the earliest compliance date in the combined distribution system. |
| 6. Monitoring frequency is specified in § 2302(A)(2).<br>a If quarterly monitoring is required, the owner/operator must begin monitoring in the first full calendar quarter that includes the compliance date in this Table.<br>b If monitoring is required at a frequency that is less than quarterly, the owner/operator must begin monitoring in the calendar month recommended in the IDSE report prepared under §2202 or §2203 or the calendar month identified in the Stage 2 DBP monitoring plan developed under §2303 no later than 12 months after the compliance date in this Table. | |
| 7. If quarterly monitoring is required, the owner/operator must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter (or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters). If monitoring is required at a frequency that is less than quarterly, the owner/operator must make compliance calculations beginning with the first compliance sample taken after the compliance date. | |
| 8. For the purpose of the schedule in this Table, the Director may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The Director may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system. | |

[1] The Director may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if the system requires capital improvements to comply with an MCL.

D. Monitoring and compliance

1. Systems required to monitor quarterly. To comply with Stage 2 DBP MCLs in § 207(B)(2), the owner/operator must calculate LRAAs for TTHM and HAA5 using monitoring results collected under this part and determine that each LRAA does not exceed the MCL. If the owner/operator fails to complete four consecutive quarters of monitoring, the owner/operator must calculate compliance with the MCL based on the average of the available data from the most recent four quarters. If more than one sample per quarter is collected at a monitoring location, the average of all samples taken in the quarter at that location to determine a quarterly average must be used in the LRAA calculation.

2. Systems required to monitor yearly or less frequently. To determine compliance with Stage 2 DBP MCLs in § 207(B)(2), the owner/operator must determine that each sample taken is less than the MCL. If any sample exceeds the MCL, the owner/operator must comply with the requirements of § 2306. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

E. Violation. The public water system owner/operator is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the owner/operator fails to monitor.

**§ 2302 ROUTINE MONITORING**

A. Monitoring

1. If an IDSE report was submitted, the owner/operator must begin monitoring at the locations and months that were recommended in the IDSE report submitted under § 2206 following the schedule in § 2301(C), unless the Director requires other locations or additional locations after its review. If a 40/30 certification was submitted under § 2204, the system qualified for a very small system waiver under §2205, or the system is a nontransient noncommunity water system serving < 10,000, the owner/operator must monitor at the location(s) and dates identified in the monitoring plan in § 1103(F), updated as required by § 2303.

2. The owner/operator must monitor at no fewer than the number of locations identified in Table 2300.2.

**TABLE 2300.2 MINIMUM NUMBER OF MONITORING LOCATIONS (DISTRIBUTION SYSTEM MONITORING)**

| Distribution System Monitoring | | | |
|---|---|---|---|
| Source Water Type | Population Size Category | Monitoring Frequency[1] | Distribution System Monitoring Location Total per monitoring period[2] |
| Surface Water | < 500 | Per year | 2 |
| | 500-3,300 | per quarter | 2 |
| | 3,301-9,999 | per quarter | 2 |
| | 10,000-49,999 | Per quarter | 4 |
| | 50,000-249,999 | per quarter | 8 |
| | 250,000-999,999 | per quarter | 12 |
| | 1,000,000-4,999,999 | per quarter | 16 |
| | ≥5,000,000 | per quarter | 20 |
| Ground Water: | <500 | per year | 2 |
| | 500-9,999 | per year | 2 |
| | 10,000-99,999 | per quarter | 4 |
| | 100,000-499,999 | per quarter | 6 |
| | ≥5,000,000 | per quarter | 8 |

[1] All systems must monitor during the month of highest DBP concentrations.
[2] Systems on quarterly monitoring must take dual sample sets every 90 days at each monitoring location, except for Part VIII systems serving 500-3,300 persons. Systems on annual monitoring and Part VIII systems serving 500-3,300 persons are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

3. If an undisinfected system begins using a disinfectant other than UV light after the dates in Part XXII of these regulations for complying with the Initial Distribution System Evaluation requirements, the owner/operator must consult with the Director to identify compliance monitoring locations for this part. A monitoring plan must be developed under § 2303 that includes those monitoring locations.

B. Analytical methods. The owner/operator must use an approved method listed in Appendix E-1101-E for TTHM and HAA5 analyses in this part. Analyses must be conducted by laboratories that have received certification by EPA or the Director as specified in Appendix E-1101-E.

**§ 2303 STAGE 2 DBP MONITORING PLAN**

A. 1. The public water system owner/operator must develop and implement a monitoring plan to be kept on file for Director and public review. The monitoring plan must contain the elements in paragraphs (A)(1)(a) through (A)(1)(d) of this section and be complete no later than the date that initial monitoring is conducted under this part.

a. Monitoring locations;

b. Monitoring dates;

c. Compliance calculation procedures; and

d. Monitoring plans for any other systems in the combined distribution system if the Director has reduced monitoring requirements under the Director's authority in §142.16(m).

2. If the public water system was not required to submit an IDSE report under either § 2202 or § 2203, and the owner/operator does not have sufficient Part XI monitoring locations to identify the required number of Stage 2 DBP compliance monitoring locations indicated in § 2206(B), the owner/operator must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. The owner/operator must also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. If the public water system has more Part XI monitoring locations than required for Stage 2 DBP compliance monitoring in § 2206(B), the owner/operator must identify which locations to use for Stage 2 DBP compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of Stage 2 DBP compliance monitoring locations have been identified.

B. If the public water system is a Part VIII system serving >3,300 people, the owner/operator must submit a copy of the monitoring plan to the Director prior to the date that it will conduct initial monitoring under this part, unless an IDSE report submitted under Part XXII of these regulations contains all the information required by this section.

C. The owner/operator may revise its monitoring plan to reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for Director-approved reasons, after consultation with the Director regarding the need for changes and the appropriateness of changes. If the owner/operator changes monitoring locations, the owner/operator must replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The Director may also require modifications in the monitoring plan. If the system is a Part VIII system serving >3,300 people, the owner/operator must submit a copy of a modified monitoring plan to the Director prior to the date the system is required to comply with the revised monitoring plan.

**§ 2304 REDUCED MONITORING**

A. The owner/operator may reduce monitoring to the level specified in Table 2300.3 any time the LRAA is ≤0.040 mg/L for TTHM and ≤0.030 mg/L for HAA5 at all monitoring locations. The owner/operator may only use data collected under the provisions of this part or Part XI to qualify for reduced monitoring. In addition, the source water annual average TOC level, before any treatment, must be ≤4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either §§ 1103(B)(1)(c) or 1103(D).

**TABLE 2300.3 REDUCED MONITORING FREQUENCY AND MONITORING LOCATIONS PER MONITORING PERIOD FOR DISTRIBUTION SYSTEMS**

| Distribution System | | | |
|---|---|---|---|
| Source water type | Population size category | Monitoring Frequency[1] | Distribution System Monitoring location per monitoring period |
| Surface Water | <500 | ..... | Monitoring may not be reduced |
| | 500-3,300 | per year | 1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter. |
| | 3,301-9,999 | per year | 2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement. |
| | 10,000-49,999 | per quarter | 2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs. |
| | 50,000-249,999 | per quarter | 4 dual sample sets--at the locations with the two highest TTHM and two highest HAA5 LRAAs. |
| | 250,000-999,999 | per quarter | 6 dual sample sets--at the locations with the three highest TTHM and three highest HAA5 LRAAs. |
| | 1,000,000-4,999,999 | per quarter | 8 dual sample sets--at the locations with the four highest TTHM and four highest HAA5 LRAAs. |
| | ≥5,000,000 | per quarter | 10 dual sample sets--at the locations with the five highest TTHM and five highest HAA5 LRAAs. |

| Distribution System | | | |
|---|---|---|---|
| Source Water Type | Population size category | Monitoring Frequency[1] | Distribution System Monitoring location per monitoring period |
| Ground Water | < 500 | every third year | 1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter. |
| | 500-9,999 | per year | 1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter. |
| | 10,000-99,999 | per year | 2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement. |
| | 100,000-499,999 | per quarter | 2 dual sample sets; at the locations with the highest TTHM and highest HAA5 LRAAs. |
| | ≥500,000 | per quarter | 4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs. |

[1] Systems on quarterly monitoring must take dual sample sets every 90 days.

B. The public water system may remain on reduced monitoring as long as the TTHM LRAA is ≤0.040 mg/L and the HAA5 LRAA is ≤0.030 mg/L at each monitoring location (for systems with quarterly reduced monitoring) or each TTHM sample is ≤0.060 mg/L and each HAA5 sample is ≤0.045 mg/L (for systems with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, must be ≤4.0 mg/L at each treatment plant treating surface water or ground water under the direct influence of surface water, based on monitoring conducted under either §§ 1103(B)(1)(c) or 1103(D).

C. If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or if the source water annual average TOC level, before any treatment, is >4.0 mg/L at any treatment plant treating surface water or ground water under the direct influence of surface water, the owner/operator must resume routine monitoring under § 2302 or begin increased monitoring if § 2306 applies.

D. The Director may return the public water system to routine monitoring at his/her discretion.

**§ 2305 ADDITIONAL REQUIREMENTS FOR CONSECUTIVE SYSTEMS**

If the public water system is a consecutive system that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, the owner/operator must comply with analytical and monitoring requirements for chlorine and chloramines in Appendix E, 1101-E(C) and § 1103(C)(1) and the compliance requirements in § 1104(C)(1) beginning April 1, 2009, unless required earlier by the Director, and report monitoring results under § 1105(C).

**§ 2306 CONDITIONS REQUIRING INCREASED MONITORING**

A. If the public water system is required to monitor at a particular location annually or less frequently than annually under § 2302 or § 2304, the owner/operator must increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if a TTHM sample is >0.080 mg/L or a HAA5 sample is >0.060 mg/L at any location.

B. The owner/operator is in violation of the MCL when the LRAA exceeds the Stage 2 DBP MCLs in § 207(B)(2), calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). The owner/operator is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if the owner/operator fails to monitor.

C. The public water system may return to routine monitoring once the owner/operator has conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is ≤0.060 mg/L for TTHM and ≤0.045 mg/L for HAA5.

**§ 2307 OPERATIONAL EVALUATION LEVELS**

A. The public water system has exceeded the operational evaluation level at any monitoring location where the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine an average, exceeds 0.080 mg/L, or where the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine an average, exceeds 0.060 mg/L.

B. 1. If the public water system exceeds the operational evaluation level, the owner/operator must conduct an operational evaluation and submit a written report of the evaluation to the Director no later than 90 days after being notified of the analytical result that causes the public water system to exceed the operational evaluation level. The written report must be made available to the public upon request.

2. The public water system’s operational evaluation must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedances.

a. The owner/operator may request and the Director may allow the owner/operator to limit the scope of an evaluation if the owner/operator is able to identify the cause of the operational evaluation level exceedance.

b. The public water system’s request to limit the scope of the evaluation does not extend the schedule in paragraph (B)(1) of this section for submitting the written report. The Director must approve this limited scope of evaluation in writing and the owner/operator must keep that approval with the completed report.

**§ 2308 REQUIREMENTS FOR REMAINING ON REDUCED TTHM AND HAA5 MONITORING BASED ON PART XI RESULTS**

The public water system may remain on reduced monitoring after the dates identified in § 2301(C) for compliance with this part only if the public water system qualifies for a 40/30 certification under § 2204 or has received a very small system waiver under §2205, plus it meets the reduced monitoring criteria in § 2304(A), and the owner/operator does not change or add monitoring locations from those used for compliance monitoring under Part XI of these regulations. If the public water system's monitoring locations under this part differ from the system's monitoring locations under Part XI of these regulations, the system may not remain on reduced monitoring after the dates identified in § 2301(C) for compliance with this part.

**§ 2309 REQUIREMENTS FOR REMAINING ON INCREASED TTHM AND HAA5 MONITORING BASED ON PART XI RESULTS**

If the public water system was on increased monitoring under § 1103(B)(1), it must remain on increased monitoring until the system qualifies for a return to routine monitoring under § 2306(C). The owner/operator must conduct increased monitoring under § 2306 at the monitoring locations in the monitoring plan developed under § 2303 beginning on the date identified in § 2301(C) for compliance with this part and must remain on increased monitoring until the system qualifies for a return to routine monitoring under § 2306(C).

**§ 2310 REPORTING AND RECORDKEEPING REQUIREMENTS**

A. Reporting

1. The owner/operator must report the following information for each monitoring location to the Director within 10 days of the end of any quarter in which monitoring is required:

    a. Number of samples taken during the last quarter.

    b. Date and results of each sample taken during the last quarter.

    c. Arithmetic average of quarterly results for the last four quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. If the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the owner/operator must report this information to the Director as part of the first report due following the compliance date or anytime thereafter that this determination is made. If the system is required to conduct monitoring at a frequency that is less than quarterly, the owner/operator must make compliance calculations beginning with the first compliance sample taken after the compliance date, unless the owner/operator is required to conduct increased monitoring under §2306.

    d. Whether, based on § 207(B)(2) and this subpart, the MCL was violated at any monitoring location.

    e. Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

2. If the public water system is a Part VIII system seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, the owner/operator must report the following source water TOC information for each treatment plant that treats surface water or ground water under the direct influence of surface water to the Director within 10 days of the end of any quarter in which monitoring is required:

    a. The number of source water TOC samples taken each month during the last quarter.

    b. The date and result of each sample taken during the last quarter.

    c. The quarterly average of monthly samples taken during last quarter or the result of the quarterly sample.

    d. The running annual average (RAA) of quarterly averages from the past four quarters.

    e. Whether the RAA exceeded 4.0 mg/L.

3. The Director may choose to perform calculations and determine whether the MCL was exceeded or the system is eligible for reduced monitoring in lieu of having the system report that information.

B. Recordkeeping. The public water system owner/operator must retain any Stage 2 DBP monitoring plans and Stage 2 DBP monitoring results as required by § 503.

# PART XXIV
# ENHANCED TREATMENT FOR *CRYPTOSPORIDIUM*

**§ 2401 GENERAL REQUIREMENTS**

A. The regulations in this subpart establish or extend treatment technique requirements in lieu of maximum contaminant levels for *Cryptosporidium*. These requirements are in addition to requirements for filtration and disinfection in Parts VIII, XIII, and XXI of these regulations.

B. Applicability. The requirements of these regulations apply to all Part VIII systems, which are public water systems supplied by a surface water source and public water systems supplied by a ground water source under the direct influence of surface water.

1. Wholesale systems, as defined in § 104, must comply with the requirements of this part based on the population of the largest system in the combined distribution system.

2. The requirements of this part for filtered systems apply to systems required by the Navajo Nation Primary Drinking Water Regulations (“NNPDWR”) to provide filtration treatment, whether or not the system is currently operating a filtration system.

3. The requirements of this part for unfiltered systems apply only to unfiltered systems that timely met and continue to meet the filtration avoidance criteria in Parts VIII, XIII, and XXI of these regulations.

C. Requirements. Systems subject to this part must comply with the following requirements:

1. Systems must conduct an initial and a second round of source water monitoring for each plant that treats a surface water or GWUDI source. This monitoring may include sampling for *Cryptosporidium*, *E. coli*, and turbidity as described in §§ 2402 through 2405 and Appendix G 2401-G through 2402-G, to determine what level, if any, of additional *Cryptosporidium* treatment they must provide.

2. Systems that plan to make a significant change to their disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in §§ 2407 through 2409.

3. Filtered systems must determine their *Cryptosporidium* treatment bin classification as described in § 2409 and provide additional treatment for *Cryptosporidium*, if required, as described in § 2410. All unfiltered systems must provide treatment for *Cryptosporidium* as described in § 2411. Filtered and unfiltered systems must implement *Cryptosporidium* treatment according to the schedule in § 2412.

4. Systems with uncovered finished water storage facilities must comply with the requirements to cover the facility or treat the discharge from the facility as described in § 2413.

5. Systems required to provide additional treatment for *Cryptosporidium* must implement microbial toolbox options that are designed and operated as described in §§ 2414 through 2419.

6. Systems must comply with the applicable recordkeeping and reporting requirements described in §§ 2420 through 2421.

7. Systems must address significant deficiencies identified in sanitary surveys performed by PWSSP as described in § 2422.

**Source Water Monitoring Requirements**

**§ 2402 SOURCE WATER MONITORING REQUIREMENTS**

A. Initial round of source water monitoring. Systems must conduct the following monitoring according to the schedule in Table 2400.1 unless they meet the monitoring exemption criteria in subsection (D) of this section.

1. Filtered systems serving at least 10,000 people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 months.

2. Unfiltered systems serving at least 10,000 people must sample their source water for *Cryptosporidium* at least monthly for 24 months.

3. a. Filtered systems serving fewer than 10,000 people must sample their source water

for *E. coli* at least once every two weeks for 12 months.

b. A filtered system serving fewer than 10,000 people may avoid *E. coli* monitoring if the system notifies the Director that it will monitor for *Cryptosporidium* as described in paragraph (A)(4) of this section. The system must notify the Director no later than 3 months prior to the date the system is otherwise required to start *E. coli* monitoring under § 2402(C).

4. Filtered systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months if they meet one of the following, based on monitoring conducted under paragraph (A)(3) of this section:

a. For systems using lake/reservoir sources, the annual mean *E. coli* concentration is greater than 10 *E. coli*/100 mL.

b. For systems using flowing stream sources, the annual mean *E. coli* concentration is greater than 50 *E. coli*/100 mL.

c. The system does not conduct *E. coli* monitoring as described in paragraph (A)(3) of this section.

d. Systems using ground water under the direct influence of surface water (GWUDI) must comply with the requirements of paragraph (A)(4) of this section based on the *E. coli* level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to systems using lake/reservoir sources.

5. For filtered systems serving fewer than 10,000 people, the Director may approve monitoring for an indicator other than *E. coli* under paragraph (A)(3) of this section. The Director also may approve an alternative to the *E. coli* concentration in paragraph (A)(4)(a), (b) or (d) of this section to trigger *Cryptosporidium* monitoring. This approval by the Director must be provided to the system in writing and must include the basis for the Director's determination that the alternative indicator and/or trigger level will provide a more accurate identification of whether a system will exceed the Bin 1 *Cryptosporidium* level in § 2409.

6. Unfiltered systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months.

7. Systems may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.

B. Second round of source water monitoring. Systems must conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in subsection (A) of this section, unless they meet the monitoring exemption criteria in subsection (D) of this section. Systems must conduct this monitoring according to the schedule in Table 2400.1.

C. Monitoring schedule. Systems must begin the monitoring required in subsections (A) and (B) of this section no later than the month beginning with the date listed in this table:

**TABLE 2400.1 SOURCE WATER MONITORING STARTING DATES TABLE**

| Systems that serve . . . | Must begin the first round of source water monitoring no later than the month beginning . . | And must begin the second round of source water monitoring no later than the month beginning . . . |
|---|---|---|
| (1) At least 100,000 people | (a) October 1, 2006 | (b) April 1, 2015 |
| (2) From 50,000 to 99,999 people | (a) April 1, 2007 | (b) October 1, 2015 |
| (3) From 10,000 to 49,999 people | (a) April 1, 2008 | (b) October 1, 2016 |
| (4) Fewer than 10,000 and monitor for *E. coli* [a] | (a) October 1, 2008 | (b) October 1, 2017 |
| (5) Fewer than 10,000 and monitor for *Cryptosporidium* [b] | (a) April 1, 2010 | (b) April 1, 2019 |

[a]Applies only to filtered systems.
[b]Applies to filtered systems that meet the conditions of paragraph (A)(4) of this section and unfiltered systems.

D. Monitoring avoidance

1. Filtered systems are not required to conduct source water monitoring under this part if the system will provide a total of at least 5.5-log of treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in § 2410.

2. Unfiltered systems are not required to conduct source water monitoring under this part if the system will provide a total of at least 3-log *Cryptosporidium* inactivation, equivalent to meeting the treatment requirements for unfiltered systems with a mean *Cryptosporidium* concentration of greater than 0.01 oocysts/L in § 2411.

3. If a system chooses to provide the level of treatment in paragraph (D)(1) or (2) of this section, as applicable, rather than start source water monitoring, the system must notify the Director in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring under §2403. Alternatively, a system may choose to stop sampling at any point after it has initiated monitoring if it notifies the Director in writing that it will provide this level of treatment. Systems must install and operate technologies to provide this level of treatment by the applicable treatment compliance date in § 2412.

E. Plants operating only part of the year. Systems with Part VIII plants that operate for only part of the year must conduct source water monitoring in accordance with this part, but with the following modifications:

1. Systems must sample their source water only during the months that the plant operates unless the Director specifies another monitoring period based on plant operating practices.

2. Systems with plants that operate fewer than six months per year and that monitor for *Cryptosporidium* must collect at least six *Cryptosporidium* samples per year during each of two years of monitoring. Samples must be evenly spaced throughout the period the plant operates.

F. New sources

1. A system that begins using a new source of surface water or GWUDI after the system is required to begin monitoring under subsection (C) of this section must monitor the new source on a schedule the Director approves. Source water monitoring must meet the requirements of this part. The system must also meet the bin classification and *Cryptosporidium* treatment requirements of § 2409 and § 2410 or § 2412, as applicable, for the new source on a schedule the Director approves.

2. The requirements of § 2402(F) apply to Part VIII systems that begin operation after the monitoring start date applicable to the system's size under subsection (C) of this section.

3. The system must begin a second round of source water monitoring no later than 6 years following initial bin classification under § 2409 or determination of the mean *Cryptosporidium* level under § 2411, as applicable.

G. Failure to collect any source water sample required under this section in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements of §§ 2403 through 2405 and Appendix G 2401-G and 2404-G is a monitoring violation.

H. Grandfathering monitoring data. Systems may use (grandfather) monitoring data collected prior to the applicable monitoring start date in subsection (C) of this section to meet the initial source water monitoring requirements in subsection (A) of this section. Grandfathered data may substitute for an equivalent number of months at the end of the monitoring period. All data submitted under this paragraph must meet the requirements in § 2406.

**§ 2403 SAMPLING SCHEDULES**

A. Systems required to conduct source water monitoring under § 2402 must submit a sampling schedule that specifies the calendar dates when the system will collect each required sample.

1. Systems must submit sampling schedules no later than 3 months prior to the applicable date listed in § 2402(C) for each round of required monitoring.

2. All systems must submit their sampling schedule for the initial round of source water monitoring under § 2402(A) to the Director. All systems must submit sampling schedules for the second round of source water monitoring under § 2402(B) to the Director.

3. If EPA or the Director does not respond to a system regarding its sampling schedule, the system must sample at the reported schedule.

B. Systems must collect samples within two days before or two days after the dates indicated in their sampling schedule (i.e., within a five-day period around the schedule date) unless one of the conditions of paragraph (B)(1) or (2) of this section applies.

1. If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled date as is feasible unless the Director approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the Director concurrent with the shipment of the sample to the laboratory.

2. a. If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in Appendix G-2401-G, or the failure of an approved laboratory to analyze the sample, then the system must collect a replacement sample.

b. The system must collect the replacement sample not later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the system demonstrates that collecting a replacement sample within this time frame is not feasible or the Director approves an alternative resampling date. The system must submit an explanation for the delayed sampling date to the Director concurrent with the shipment of the sample to the laboratory.

C. Systems that fail to meet the criteria of subsection (B) of this section for any source water sample required under §2402 must revise their sampling schedules to add dates for collecting all missed samples. Systems must submit the revised schedule to the Director for approval prior to when the system begins collecting the missed samples.

**§ 2404 SAMPLING LOCATIONS**

A. Systems required to conduct source water monitoring under § 2402 must collect samples for each plant that treats a surface water or GWUDI source. Where multiple plants draw water from the same influent, such as the same pipe or intake, the Director may approve one set of monitoring results to be used to satisfy the requirements of § 2402 for all plants.

B. 1. Systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants and disinfectants, unless the system meets the conditions of paragraph (B)(2) of this section.

2. The Director may approve a system to collect a source water sample after chemical treatment. To grant this approval, the Director must determine that collecting a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

C. Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

D. Bank filtration

1. Systems that receive *Cryptosporidium* treatment credit for bank filtration under §§ 805(D) or 2106(C), as applicable, must collect source water samples in the surface water prior to bank filtration.

2. Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well (i.e., after bank filtration). Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under § 2416(C).

E. Multiple sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources, must collect samples as specified in paragraph (E)(1) or (2) of this section. The use of multiple sources during monitoring must be consistent with routine operational practice.

1. If a sampling tap is available where the sources are combined prior to treatment, systems must collect samples from the tap.

2. If a sampling tap where the sources are combined prior to treatment is not available, systems must collect samples at each source near the intake on the same day and must follow either paragraph (E)(2)(a) or (b) of this section for sample analysis.

   a. Systems may composite samples from each source into one sample prior to analysis. The volume of sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

   b. Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

F. Additional Requirements. Systems must submit a description of their sampling location(s) to the Director at the same time as the sampling schedule required under § 2403. This description must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the Director does not respond to a system regarding sampling location(s), the system must sample at the reported location(s).

**§ 2405 REPORTING SOURCE WATER MONITORING RESULTS**

A. Systems must report results from the source water monitoring required under § 2402 no later than 10 days after the end of the first month following the month when the sample is collected.

B. All systems must report results from the initial source water monitoring required under § 2402(A) to the Director.

C. All systems must report results from the second round of source water monitoring required under § 2402(B) to the Director.

D. Systems must report the applicable information in paragraphs (D)(1) and (2) of this section for the source water monitoring required under § 2402.

1. Systems must report the following data elements for each *Cryptosporidium* analysis:

**TABLE 2400.2 DATA ELEMENTS FOR EACH *CRYPTOSPORIDIUM* ANALYSIS**

| Data element |
|---|
| 1. PWS ID |
| 2. Facility ID |
| 3. Sample collection date |
| 4. Sample type (field or matrix spike) |
| 5. Sample volume filtered (L), to nearest \1/4\ L |
| 6. Was 100% of filtered volume examined |
| 7. Number of oocysts counted |

   a. For matrix spike samples, systems must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

   b. For samples in which less than 10 L is filtered or less than 100% of the sample volume is examined, systems must also report the number of filters used and the packed pellet volume.

   c. For samples in which less than 100% of sample volume is examined, systems must also report the volume of re-suspended concentrate and volume of this resuspension processed through immunomagnetic separation.

2. Systems must report the following data elements for each *E. coli* analysis:

**TABLE 2400.3 DATA ELEMENTS FOR EACH *E. COLI* ANALYSIS**

| Data element. |
|---|
| 1. PWS ID<br>2. Facility ID<br>3. Sample collection date<br>4. Analytical method number<br>5. Method type<br>6. Source type (flowing stream, lake/reservoir, GWUDI)<br>7. *E. coli*/100 mL<br>8. Turbidity[1] |

[1]Systems serving fewer than 10,000 people that are not required to monitor for turbidity under § 2402 are not required to report turbidity with their *E. coli* results.

**§ 2406 GRANDFATHERING PREVIOUSLY COLLECTED DATA**

A. 1. Systems may comply with the initial source water monitoring requirements of § 2402(A) by grandfathering sample results collected before the system is required to begin monitoring (i.e., previously collected data). To be grandfathered, the sample results and analysis must meet the criteria in this section and the Director must approve.

2. A filtered system may grandfather *Cryptosporidium* samples to meet the requirements of § 2402(A) when the system does not have corresponding *E. coli* and turbidity samples. A system that grandfathers *Cryptosporidium* samples without *E. coli* and turbidity samples is not required to collect *E. coli* and turbidity samples when the system completes the requirements for *Cryptosporidium* monitoring under § 2402(A).

B. Sampling location. The sampling location must meet the conditions in § 2404.

C. Sampling frequency. *Cryptosporidium* samples were collected no less frequently than each calendar month on a regular schedule, beginning no earlier than January 1999. Sample collection intervals may vary for the conditions specified in § 2403(B)(1) and (2) if the system provides documentation of the condition when reporting monitoring results.

1. The Director may approve grandfathering of previously collected data where there are time gaps in the sampling frequency if the system conducts additional monitoring the Director specifies to ensure that the data used to comply with the initial source water monitoring requirements of § 2402(A) are seasonally representative and unbiased.

2. Systems may grandfather previously collected data where the sampling frequency within each month varied. If the *Cryptosporidium* sampling frequency varied, systems must follow the monthly averaging procedure in §§ 2409(B)(5) or 2411(A)(3), as applicable, when calculating the bin classification for filtered systems or the mean *Cryptosporidium* concentration for unfiltered systems.

D. Reporting monitoring results for grandfathering. Systems that request to grandfather previously collected monitoring results must report the following information by the applicable dates listed in this subsection. Systems serving at least 10,000 people must report this information to EPA unless the Director approves reporting to the Director rather than EPA. Systems serving fewer than 10,000 people must report this information to the Director.

1. Systems must report that they intend to submit previously collected monitoring results for grandfathering. This report must specify the number of previously collected results the system will submit, the dates of the first and last sample, and whether a system will conduct additional source water monitoring to meet the requirements of § 2402(A). Systems must report this information no later than the date the sampling schedule under § 2403 is required.

2. Systems must report previously collected monitoring results for grandfathering, along with the associated documentation listed in paragraphs (F)(2)(a) through (d) of this section, no later than two months after the applicable date listed in § 2402(C).

a. For each sample result, systems must report the applicable data elements in § 2405.

b. Systems must certify that the reported monitoring results include all results the system generated during the time period beginning with the first reported result and ending with the final reported result. This applies to samples that were collected from the sampling location specified for source water monitoring under this subpart, not spiked, and analyzed using the laboratory's routine process for

the analytical methods listed in this section.

c. Systems must certify that the samples were representative of a plant's source water(s) and the source water(s) have not changed. Systems must report a description of the sampling location(s), which must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including points of chemical addition and filter backwash recycle.

d. For *Cryptosporidium* samples, the laboratory or laboratories that analyzed the samples must provide a letter certifying that the quality control criteria specified in the methods listed in paragraph (C)(1) of this section were met for each sample batch associated with the reported results. Alternatively, the laboratory may provide bench sheets and sample examination report forms for each field, matrix spike, IPR, OPR, and method blank sample associated with the reported results.

E. If the Director determines that a previously collected data set submitted for grandfathering was generated during source water conditions that were not normal for the system, such as a drought, the Director may disapprove the data. Alternatively, the Director may approve the previously collected data if the system reports additional source water monitoring data, as determined by the Director, to ensure that the data set used under §§ 2409 or 2411 represents average source water conditions for the system.

F. If a system submits previously collected data that fully meet the number of samples required for initial source water monitoring under § 2402(B) and some of the data are rejected due to not meeting the requirements of this section, systems must conduct additional monitoring to replace rejected data on a schedule the Director approves. Systems are not required to begin this additional monitoring until two months after notification that data have been rejected and additional monitoring is necessary.

**Disinfection Profiling and Benchmarking Requirements**

**§ 2407 REQUIREMENTS WHEN MAKING A SIGNIFICANT CHANGE IN DISINFECTION PRACTICE**

A. Following the completion of initial source water monitoring under § 2402(A), a system that plans to make a significant change to its disinfection practice, as defined in subsection (B) of this section, must develop disinfection profiles and calculate disinfection benchmarks for *Giardia lamblia* and viruses as described in § 2408. Prior to changing the disinfection practice, the system must notify the Director and must include in this notice the information in paragraphs (A)(1) through (3) of this section.

1. A completed disinfection profile and disinfection benchmark for *Giardia lamblia* and viruses as described in § 2408.

2. A description of the proposed change in disinfection practice.

3. An analysis of how the proposed change will affect the current level of disinfection.

B. Significant changes to disinfection practice are defined as follows:

1. Changes to the point of disinfection;

2. Changes to the disinfectant(s) used in the treatment plant;

3. Changes to the disinfection process; or

4. Any other modification identified by the Director as a significant change to disinfection practice.

**§ 2408 DEVELOPING THE DISINFECTION PROFILE AND BENCHMARK**

A. Systems required to develop disinfection profiles under § 2407 must follow the requirements of this section. Systems must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for *Giardia lamblia* and viruses. If systems monitor more frequently, the monitoring frequency must be evenly spaced. Systems that operate for fewer than 12 months per year must monitor weekly during the period of operation. Systems must determine log inactivation for *Giardia lamblia* through the entire plant, based on $CT_{99.9}$ values in Tables 800-D-4 through 800-D-9, 800-D-10 and Table 800-D-11 of Appendix D-801-D as applicable. Systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the Director.

B. Systems with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring in paragraphs (B)(1) through (4) of this section. Systems with more than one point of disinfectant application must conduct the monitoring in paragraphs (B)(1) through (4) of this section for each disinfection segment. Systems must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in Appendix D-801-D (A).

1. For systems using a disinfectant other than UV, the temperature of the disinfected water must be measured at each residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Director.

2. For systems using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point during peak hourly flow or at an alternative location approved by the Director.

3. The disinfectant contact time(s) (t) must be determined during peak hourly flow.

4. The residual disinfectant concentration(s) (C) of the water before or at the first customer and prior to each additional point of disinfectant application must be measured during peak hourly flow.

C. In lieu of conducting new monitoring under subsection (B) of this section, systems may elect to meet the requirements of paragraphs (C)(1) or (2) of this section.

1. Systems that have at least one year of existing data that are substantially equivalent to data collected under the provisions of subsection (B) of this section may use these data to develop disinfection profiles as specified in this section if the system has neither made a significant change to its treatment practice nor changed sources since the data were collected. Systems may develop disinfection profiles using up to three years of existing data.

2. Systems may use disinfection profile(s) developed under §§ 804 or 2104(A) through (G) in lieu of developing a new profile if the system has neither made a significant change to its treatment practice nor changed sources since the profile was developed. Systems that have not developed a virus profile under §§ 804 or 2104(A) through (G) must develop a virus profile using the same monitoring data on which the *Giardia lamblia* profile is based.

D. Systems must calculate the total inactivation ratio for *Giardia lamblia* as specified in paragraphs (D)(1) through (3) of this section.

1. Systems using only one point of disinfectant application may determine the total inactivation ratio for the disinfection segment based on either of the methods in paragraph (D)(1)(a) or (b) of this section.

   a. Determine one inactivation ratio ($CT_{calc}/CT_{99.9}$) before or at the first customer during peak hourly flow.

   b. Determine successive $CT_{calc}/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. The system must calculate the total inactivation ratio by determining ($CT_{calc}/CT_{99.9}$) for each sequence and then adding the ($CT_{calc}/CT_{99.9}$) values together to determine ($\sum(CT_{calc}/CT_{99.9})$).

2. Systems using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CT_{calc}/CT_{99.9}$) value of each segment and ($3(CT_{calc}/CT_{99.9})$) must be calculated using the method in paragraph (D)(1)(b) of this section.

3. The system must determine the total logs of inactivation by multiplying the value calculated in paragraph (D)(1) or (D)(2) of this section by 3.0.

4. Systems must calculate the log of inactivation for viruses using a protocol approved by the Director.

E. Systems must use the procedures specified in paragraphs (E)(1) and (2) of this section to calculate a disinfection benchmark.

1. For each year of profiling data collected and calculated under subsections (A) through (D) of this section, systems must determine the lowest mean monthly level of both *Giardia*

*lamblia* and virus inactivation. Systems must determine the mean *Giardia lamblia* and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly *Giardia lamblia* and virus log inactivation by the number of values calculated for that month.

2. The disinfection benchmark is the lowest monthly mean value (for systems with one year of profiling data) or the mean of the lowest monthly mean values (for systems with more than one year of profiling data) of *Giardia lamblia* and virus log inactivation in each year of profiling data.

**Treatment Technique Requirements**

**§ 2409 BIN CLASSIFICATION FOR FILTERED SYSTEMS**

A. Following completion of the initial round of source water monitoring required under § 2402(A), filtered systems must calculate an initial *Cryptosporidium* bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the *Cryptosporidium* results reported under § 2402(A) and must follow the procedures in paragraphs (B)(1) through (5) of this section.

B. 1. For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

2. For systems that collect a total of at least 24 samples, but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected.

3. For systems that serve fewer than 10,000 people and monitor for *Cryptosporidium* for only one year (i.e., collect 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

4. For systems with plants operating only part of the year that monitor fewer than 12 months per year under § 2402(E), the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

5. If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification in paragraphs (B)(1) through (4) of this section.

C. Filtered systems must determine their initial bin classification from the following table and using the *Cryptosporidium* bin concentration calculated under subsections (A)-(B) of this section:

**TABLE 2400.4 BIN CLASSIFICATION TABLE FOR FILTERED SYSTEMS**

| For systems that are: | With a *Cryptosporidium* bin concentration of...[1] | The bin classification is |
|---|---|---|
| . . . required to monitor for *Cryptosporidium* under §2402 | *Cryptosporidium* <0.075 oocyst/L. | Bin 1 |
| | 0.075 oocysts/L #*Cryptosporidium* <1.0 oocysts/L. | Bin 2 |
| | 1.0 oocysts/L #*Cryptosporidium* <3.0 oocysts/L. | Bin 3 |
| | *Cryptosporidium* ∃3.0 oocysts/L. | Bin 4 |
| . . . serving fewer than 10,000 people and NOT required to monitor for *Cryptosporidium* under §2402(A)(4) | NA | Bin 1. |

[1]Based on calculations in paragraph (A) or (D) of this section, as applicable.

D. Following completion of the second round of source water monitoring required under § 2402(B), filtered systems must recalculate their *Cryptosporidium* bin concentration using the *Cryptosporidium* results reported under § 2402(B) and following the procedures in paragraphs

(B)(1) through (4) of this section. Systems must then redetermine their bin classification using this bin concentration and Table 2400.4.

E. 1. Filtered systems must report their initial bin classification under subsection (C) of this section to the Director for approval no later than 6 months after the system is required to complete initial source water monitoring based on the schedule in § 2402(C).

2. Systems must report their bin classification under subsection (D) of this section to the Director for approval no later than 6 months after the system is required to complete the second round of source water monitoring based on the schedule in § 2402(C).

3. The bin classification report to the Director must include a summary of source water monitoring data and the calculation procedure used to determine bin classification.

F. Failure to comply with the conditions of subsection (E) of this section is a violation of the treatment technique requirement.

**§ 2410 FILTERED SYSTEM ADDITIONAL CRYPTOSPORIDIUM TREATMENT REQUIREMENTS**

A. Filtered systems must provide the level of additional treatment for *Cryptosporidium* specified in this subsection based on their bin classification as determined under § 2409 and according to the schedule in § 2412.

**TABLE 2400.5 ADDITIONAL *CRYPTOSPORIDIUM* TREATMENT REQUIREMENTS FOR FILTERED SYSTEMS BASED ON BIN CLASSIFICATION**

| If the system bin classification is... | And the system uses the following filtration treatment in full compliance with Parts VIII, XIII, and XXI of this part (as applicable), then the additional *Cryptosporidium* treatment requirements are . . . | | | |
|---|---|---|---|---|
| | Conventional filtration treatment (including softening) | Direct Filtration | Slow sand or diatomaceous earth filtration | Alternative filtration technologies |
| Bin 1..... | No additional treatment | No additional treatment..... | No additional treatment | No additional Treatment |
| Bin 2..... | 1-log treatment.... | 1. 5-log treatment | 1-log treatment | ([1]) |
| Bin 3..... | 2-log treatment.... | 2. 5-log treatment | 2-log treatment | ([2]) |
| Bin 4..... | 2.5 log treatment.... | 3. 3-log treatment | 2.5 log treatment | ([3]) |

[1]As determined by the Director such that the total *Cryptosporidium* removal and inactivation is at least 4.0-log.
[2]As determined by the Director such that the total *Cryptosporidium* removal and inactivation is at least 5.0-log.
[3]As determined by the Director such that the total *Cryptosporidium* removal and inactivation is at least 5.5-log.

B. 1. Filtered systems must use one or more of the treatment and management options listed in § 2414, termed the microbial toolbox, to comply with the additional *Cryptosporidium* treatment required in subsection (A) of this section.

2. Systems classified in Bin 3 and Bin 4 must achieve at least 1-log of the additional *Cryptosporidium* treatment required under subsection (A) of this section using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as described in §§ 2415 through 2419.

C. Failure by a system in any month to achieve treatment credit by meeting criteria in § 2415 through § 2419 for microbial toolbox options that is at least equal to the level of treatment required in subsection (A) of this section is a violation of the treatment technique requirement.

D. If the Director determines during a sanitary survey or an equivalent source water assessment that after a system completed the monitoring conducted under §§ 2402(A) or 2402(B) significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system must take actions specified by the Director to address the contamination. These actions may include additional source water monitoring and/or implementing microbial toolbox options listed in § 2414.

**§ 2411 UNFILTERED SYSTEM CRYPTOSPORIDIUM TREATMENT REQUIREMENTS**

A. Determination of mean *Cryptosporidium* level

1. Following completion of the initial source water monitoring required under § 2402(A), unfiltered systems must calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported under § 2402(A). Systems must report this value to the Director for approval no later than 6 months after the month the system is required to complete initial source water monitoring based on the schedule in § 2402(C).

2. Following completion of the second round of source water monitoring required under § 2402(B), unfiltered systems must calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported under § 2402(B). Systems must report this value to the Director for approval no later than 6 months after the month the system is required to complete the second round of source water monitoring based on the schedule in § 2402(C).

3. If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the calculation of the mean *Cryptosporidium* level in paragraphs (A)(1) or (2) of this section.

4. The report to the Director of the mean *Cryptosporidium* levels calculated under paragraphs (A)(1) and (2) of this section must include a summary of the source water monitoring data used for the calculation.

5. Failure to comply with the conditions of subsection (A) of this section is a violation of the treatment technique requirement.

B. *Cryptosporidium* inactivation requirements. Unfiltered systems must provide the level of inactivation for *Cryptosporidium* specified in this paragraph, based on their mean *Cryptosporidium* levels as determined under paragraph (A) of this section and according to the schedule in § 2412.

1. Unfiltered systems with a mean *Cryptosporidium* level of 0.01 oocysts/L or less must provide at least 2-log *Cryptosporidium* inactivation.

2. Unfiltered systems with a mean *Cryptosporidium* level of greater than 0.01 oocysts/L must provide at least 3-log *Cryptosporidium* inactivation.

C. Inactivation treatment technology requirements. Unfiltered systems must use chlorine dioxide, ozone, or UV as described in § 2419 to meet the *Cryptosporidium* inactivation requirements of this section.

1. Systems that use chlorine dioxide or ozone and fail to achieve the *Cryptosporidium* inactivation required in subsection (B) of this section on more than one day in the calendar month are in violation of the treatment technique requirement.

2. Systems that use UV light and fail to achieve the *Cryptosporidium* inactivation required in subsection (B) of this section by meeting the criteria in § 2419(D)(3)(b) are in violation of the treatment technique requirement.

D. Use of two disinfectants. Unfiltered systems must meet the combined *Cryptosporidium* inactivation requirements of this section and *Giardia lamblia* and virus inactivation requirements of § 804(A) using a minimum of two disinfectants, and each of two disinfectants must separately achieve the total inactivation required for either *Cryptosporidium*, *Giardia lamblia*, or viruses.

**§ 2412 SCHEDULE FOR COMPLIANCE WITH *CRYPTOSPORIDIM* TREATMENT REQUIREMENTS**

A. Following initial bin classification under § 2409(C), filtered systems must provide the level of treatment for *Cryptosporidium* required under § 2410 according to the schedule in subsection (C) of this section.

B. Following initial determination of the mean *Cryptosporidium* level under § 2411(A)(1), unfiltered

systems must provide the level of treatment for *Cryptosporidium* required under § 2411 according to the schedule in subsection (C) of this section.

C. *Cryptosporidium* treatment compliance dates

**TABLE 2400.6 *CRYPTOSPORIDIUM* TREATMENT COMPLIANCE DATES TABLE**

| Systems that serve . . . | Must comply with *Cryptosporidium* treatment requirements no later than . . . [a] |
|---|---|
| (1) At least 100,000 people | (a) April 1, 2012. |
| (2) From 50,000 to 99,999 people | (b) October 1, 2012 |
| (3) From 10,000 to 49,999 people | (c) October 1, 2013 |
| (4) Fewer than 10,000 people | (d) October 1, 2014 |

[a]The Director may allow up to an additional two years for complying with the treatment requirement for systems making capital improvements.

D. If the bin classification for a filtered system changes following the second round of source water monitoring, as determined under § 2409(D), the system must provide the level of treatment for *Cryptosporidium* required under § 2410 on a schedule the Director approves.

E. If the mean *Cryptosporidium* level for an unfiltered system changes following the second round of monitoring, as determined under § 2411(A)(2), and if the system must provide a different level of *Cryptosporidium* treatment under § 2411 due to this change, the system must meet this treatment requirement on a schedule the Director approves.

**§ 2413 REQUIREMENTS FOR UNCOVERED FINISHED WATER STORAGE FACILITIES**

A. Systems using uncovered finished water storage facilities must comply with the conditions of this section.

B. Systems must notify the Director of the use of each uncovered finished water storage facility no later than April 1, 2008.

C. Systems must meet the conditions of paragraph (C)(1) or (2) of this section for each uncovered finished water storage facility or be in compliance with a Director-approved schedule to meet these conditions no later than April 1, 2009.

1. Systems must cover any uncovered finished water storage facility.

2. Systems must treat the discharge from the uncovered finished water storage facility to the distribution system to achieve inactivation and/or removal of at least 4-log virus, 3-log Giardia lamblia, and 2-log *Cryptosporidium* using a protocol approved by the Director.

D. Failure to comply with the requirements of this section is a violation of the treatment technique requirement.

**Requirements for Microbial Toolbox Components**

**§ 2414 MICROBIAL TOOLBOX OPTIONS FOR MEETING *CRYPTOSPORIDIUM* TREATMENT REQUIREMENTS**

A. 1. Systems receive the treatment credits listed in Table 2400.7 by meeting the conditions for microbial toolbox options described in §2415 through § 2419. Systems apply these treatment credits to meet the treatment requirements in §§ 2410 or 2411, as applicable.

2. Unfiltered systems are eligible for treatment credits for the microbial toolbox options described in § 2419 only.

B. The following table summarizes options in the microbial toolbox:

**TABLE 2400.7 MICROBIAL TOOLBOX SUMMARY TABLE: OPTIONS, TREATMENT CREDITS, AND CRITERIA**

| Toolbox Option | *Cryptosporidium* treatment credit with design and implementation criteria |
|---|---|
| **Source Protection and Management Toolbox Options** | |
| (1) Watershed control program | 0.5-log credit for Director-approved program comprising required elements, annual program status report to Director, and regular watershed survey. Unfiltered systems are not eligible for credit. Specific criteria are in § 2415(A). |
| (2) Alternative source/intake management | No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies. Specific criteria are in § 2415(B). |
| **Pre Filtration Toolbox Options** | |
| (3) Presedimentation basin with coagulation | 0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative Director-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through basins. Specific criteria are in § 2416(A). |
| (4) Two-stage lime softening | 0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment. Specific criteria are in § 2416(B). |
| (5) Bank filtration | 0.5-log credit for 25-foot setback; 1.0- log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent fines; average turbidity in wells must be less than 1 NTU. Systems using wells followed by filtration when conducting source water monitoring must sample the well to determine bin classification and are not eligible for additional credit. Specific criteria are in § 2418(C). |
| **Treatment Performance Toolbox Options** | |
| (6) Combined filter performance | 0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month. Specific criteria are in § 2417(A). |
| (7) Individual filter performance. | 0.5-log credit (in addition to 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter. Specific criteria are in § 2417(B). |
| (8) Demonstration of performance | Credit awarded to unit process or treatment train based on a demonstration to the Director with a Director-approved protocol. Specific criteria are in § 2417(C). |
| **Additional Filtration Toolbox Options** | |
| (9) Bag or cartridge filters (individual filters) | Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety. Specific criteria are in § 2418(A). |

| | |
|---|---|
| (10) Bag or cartridge filters (in series) | Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety. Specific criteria are in § 2418(A). |
| (11) Membrane filtration | Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing. Specific criteria are in § 2418(B). |
| (12) Second stage filtration. | 0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter. Specific criteria are in § 2418(C). |
| (13) Slow sand filters | 2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option. Specific criteria are in § 2418(D). |
| **Inactivation Toolbox Options** | |
| (14) Chlorine dioxide | Log credit based on measured CT in relation to CT table. Specific criteria are in § 2419(B). |
| (15) Ozone | Log credit based on measured CT in relation to CT table. Specific criteria are in § 2419(B). |
| (16) UV | Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions. Specific criteria are in § 2419(D). |

**§ 2415 SOURCE TOOLBOX COMPONENTS**

A. Watershed control program. Systems receive 0.5-log *Cryptosporidium* treatment credit for implementing a watershed control program that meets the requirements of this section.

1. Systems that intend to apply for the watershed control program credit must notify the Director of this intent no later than two years prior to the treatment compliance date applicable to the system in § 2412.

2. Systems must submit to the Director a proposed watershed control plan no later than one year before the applicable treatment compliance date in § 2412. The Director must approve the watershed control plan for the system to receive watershed control program treatment credit. The watershed control plan must include the elements in paragraphs (A)(2)(a) through (d) of this section.

   a. Identification of an “area of influence” outside of which the likelihood of *Cryptosporidium* or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under paragraph (A)(5)(b) of this section.

   b. Identification of both potential and actual sources of *Cryptosporidium* contamination and an assessment of the relative impact of these sources on the system's source water quality.

   c. An analysis of the effectiveness and feasibility of control measures that could reduce *Cryptosporidium* loading from sources of contamination to the system's source water.

   d. A statement of goals and specific actions the system will undertake to reduce source water *Cryptosporidium* levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

3. Systems with existing watershed control programs (i.e., programs in place on January 5, 2006) are eligible to seek this credit. Their watershed control plans must meet the criteria in paragraph (A)(2) of this section and must specify ongoing and future actions that will reduce source water *Cryptosporidium* levels.

4. If the Director does not respond to a system regarding approval of a watershed control plan submitted under this section and the system meets the other requirements of this section, the watershed control program will be considered approved and 0.5 log *Cryptosporidium* treatment credit will be awarded unless and until the Director subsequently withdraws such approval.

5. Systems must complete the actions in paragraphs (A)(5)(a) through (c) of this section to maintain the 0.5-log credit.

   a. Submit an annual watershed control program status report to the Director. The annual watershed control program status report must describe the system's implementation of the approved plan and assess the adequacy of the plan to meet its goals. It must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the Director or as the result of the watershed survey conducted under paragraph (A)(5)(b) of this section. It must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation that making a significant change to its approved watershed control program is necessary, the system must notify the Director prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must also list in its notification the actions the system will take to mitigate this effect.

   b. Undergo a watershed sanitary survey every three years for community water systems and every five years for noncommunity water systems and submit the survey report to the Director. The survey must be conducted according to Director-guidelines and by persons the Director approves.

      i. The watershed sanitary survey must meet the following criteria: encompass the region identified in the Director-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water *Cryptosporidium* levels; and identify any significant new sources of *Cryptosporidium*.

      ii. If the Director determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by a date the Director requires, which may be earlier than the regular date in paragraph (A)(5)(b) of this section.

   c. The system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The Director may approve systems to withhold from the public portions of the annual status report, watershed control plan, and watershed sanitary survey based on water supply security considerations.

6. If the Director determines that a system is not carrying out the approved watershed control plan, the Director may withdraw the watershed control program treatment credit.

B. Alternative source

1. A system may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the Director approves, a system may determine its bin classification under § 2409 based on the alternative source monitoring results.

2. If systems conduct alternative source monitoring under paragraph (B)(1) of this section, systems must also monitor their current plant intake concurrently as described in §2402.

3. Alternative source monitoring under paragraph (B)(1) of this section must meet the requirements for source monitoring to determine bin classification, as described in §§ 2402 through 2405 and Appendix G 2401-G through 2402-G. Systems must report the alternative source monitoring results to the Director, along with supporting information documenting the operating conditions under which the samples were collected.

4. If a system determines its bin classification under § 2409 using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in § 2412.

## § 2416 PRE-FILTRATION TREATMENT TOOLBOX COMPONENTS

A. Presedimentation. Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this subsection.

1. The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or GWUDI source.

2. The system must continuously add a coagulant to the presedimentation basin.

3. The presedimentation basin must achieve the performance criteria in paragraph (3)(a) or (b) of this section.

a. Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent and must be calculated as follows: $\log_{10}$ (monthly mean of daily influent turbidity)-$\log_{10}$ (monthly mean of daily effluent turbidity).

b. Complies with Director-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

B. Two-stage lime softening. Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or GWUDI source.

C. Bank filtration. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this subsection. Systems using bank filtration when they begin source water monitoring under § 2402(A) must collect samples as described in § 2404(D) and are not eligible for this credit.

1. Wells with a ground water flow path of at least 25 feet receive 0.5-log treatment credit; wells with a ground water flow path of at least 50 feet receive 1.0-log treatment credit. The ground water flow path must be determined as specified in paragraph (C)(4) of this section.

2. Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

3. Only horizontal and vertical wells are eligible for treatment credit.

4. For vertical wells, the ground water flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the ground water flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

5. Systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the Director and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the Director determines that microbial removal has been compromised, the Director may revoke treatment credit until the system implements corrective actions approved by the Director to remediate the problem.

6. Springs and infiltration galleries are not eligible for treatment credit under this section, but are eligible for credit under § 2419(C).

7. Bank filtration demonstration of performance. The Director may approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this subsection. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in paragraphs (C)(1)-(5) of this section.

a. The study must follow a Director-approved protocol and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and

related hydrogeologic and water quality parameters during the full range of operating conditions.

b. The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

**§ 2417 TREATMENT PERFORMANCE TOOLBOX COMPONENTS**

A. Combined filter performance. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this subsection. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in Appendix D-801-D (A) and (C).

B. Individual filter performance. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit, which can be in addition to the 0.5-log credit under subsection (A) of this section, during any month the system meets the criteria in this subsection. Compliance with these criteria must be based on individual filter turbidity monitoring as described in §§ 1306 or 2107, as applicable.

1. The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

2. No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

3. Any system that has received treatment credit for individual filter performance and fails to meet the requirements of paragraph (B)(1) or (2) of this section during any month does not receive a treatment technique violation under § 2412(C) if the Director determines the following:

a. The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing treatment plant design, operation, and maintenance.

b. The system has experienced no more than two such failures in any calendar year.

C. Demonstration of performance. The Director may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this subsection. This treatment credit may be greater than or less than the prescribed treatment credits in § 2410 or § 2416 through § 2419 and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

1. Systems cannot receive the prescribed treatment credit for any toolbox option in §§ 2416 through 2419 if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this subsection.

2. The demonstration of performance study must follow a Director-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system.

3. Approval by the Director must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The Director may designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

**§ 2418 ADDITIONAL FILTRATION TOOLBOX COMPONENTS**

A. Bag and cartridge filters. Systems receive *Cryptosporidium* treatment credit of up to 2.0-log for individual bag or cartridge filters and up to 2.5-log for bag or cartridge filters operated in series by meeting the criteria in paragraphs (A)(1) through (10) of this section. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of paragraphs (A)(2) through (9) of this section to the Director. The filters must treat the entire plant flow taken from a Part VIII source.

1. The *Cryptosporidium* treatment credit awarded to bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted according to the criteria in paragraphs (A)(2) through (A)(9) of this section. A factor of safety equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing results to determine removal

credit. Systems may use results from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria specified in paragraphs (A)(2) through (9) of this section.

2. Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium*. Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

3. Challenge testing must be conducted using *Cryptosporidium* or a surrogate that is removed no more efficiently than *Cryptosporidium*. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discreetly quantifying the specific microorganism or surrogate used in the test; gross measurements such as turbidity may not be used.

4. The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using the following equation:

   Maximum Feed Concentration = $1 \times 10^4 \times$ (Filtrate Detection Limit)

5. Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

6. Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which establishes the maximum pressure drop under which the filter may be used to comply with the requirements of this part.

7. Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

$$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$$

   Where:
   LRV = log removal value demonstrated during challenge testing;
   $C_f$ = the feed concentration measured during the challenge test; and
   $C_p$ = the filtrate concentration measured during the challenge test.
   In applying this equation, the same units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, then the term $C_p$ must be set equal to the detection limit.

8. Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter ($LRV_{filter}$) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.

9. If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest $LRV_{filter}$ among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the 10th percentile of the set of $LRV_{filter}$ values for the various filters tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

10. If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted to the Director.

B. Membrane filtration

1. Systems receive *Cryptosporidium* treatment credit for membrane filtration that meets the criteria of this subsection. Membrane cartridge filters that meet the definition of membrane filtration in § 104 are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under paragraph (B)(1)(a) and (b) of this section.

a. The removal efficiency demonstrated during challenge testing conducted under the conditions in paragraph (B)(2) of this section.

b. The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in paragraph (B)(3) of this section.

2. Challenge Testing. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the Director. Challenge testing must be conducted according to the criteria in paragraphs (B)(2)(a) through (g) of this section. Systems may use data from challenge testing conducted prior to January 5, 2006 if the prior testing was consistent with the criteria in paragraphs (b)(2)(a) through (g) of this section.

a. Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

b. Challenge testing must be conducted using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity may not be used.

c. The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

$$\text{Maximum Feed Concentration} = 3.16 \times 10^6 \times (\text{Filtrate Detection Limit})$$

d. Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

e. Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation:

$$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where:
LRV = log removal value demonstrated during the challenge test;
$C_f$ = the feed concentration measured during the challenge test; and
$C_p$ = the filtrate concentration measured during the challenge test.
Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term $C_p$ is set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

f. The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the 10th percentile of the representative LRVs among the modules tested. The percentile is defined by (i/(n+1)) where i is the rank of n individual data points ordered lowest to highest. If necessary, the 10th percentile may be calculated using linear interpolation.

g. The challenge test must establish a quality control release value (QCRV) for a non-destructive performance test that demonstrates the *Cryptosporidium* removal capability of the membrane filtration module. This performance test must be applied to each production membrane module used by the system that was not directly challenge tested in order to verify *Cryptosporidium* removal capability. Production modules that do not meet the established QCRV are not eligible for the treatment

credit demonstrated during the challenge test.

h. If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the non-destructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of, and determine a new QCRV for, the modified membrane must be conducted and submitted to the Director.

3. Direct integrity testing. Systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded to the membrane filtration process and meets the requirements described in paragraphs (B)(3)(a) through (f) of this section. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate).

a. The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

b. The direct integrity method must have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

c. The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded to the membrane filtration process by the Director, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either paragraph (B)(3)(c)(i) or (ii) of this section as applicable to the type of direct integrity test the system uses.

i. For direct integrity tests that use an applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10} (Q_p /(VCF \times Q_{breach}))$$

Where:
$LRV_{DIT}$ = the sensitivity of the direct integrity test;
$Q_p$ = total design filtrate flow from the membrane unit;
$Q_{breach}$ = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured, and
VCF = volumetric concentration factor.
The volumetric concentration factor is the ratio of the suspended solids concentration on the high pressure side of the membrane relative to that in the feed water.

ii. For direct integrity tests that use a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

$$LRV_{DIT} = LOG_{10}(C_f)-LOG_{10}(C_p)$$

Where:
$LRV_{DIT}$ = the sensitivity of the direct integrity test;
$C_f$ = the typical feed concentration of the marker used in the test;
and $C_p$ = the filtrate concentration of the marker from an integral membrane unit.

d. Systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the Director.

e. If the result of a direct integrity test exceeds the control limit established under paragraph (B)(3)(d) of this section, the system must remove the membrane unit from service. Systems must conduct a direct integrity test to verify any repairs, and may return the membrane unit to service only if the direct integrity test is within the established control limit.

f. Systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The Director may approve less frequent testing, based on demonstrated process reliability, the

use of multiple barriers effective for *Cryptosporidium*, or reliable process safeguards.

4. Indirect integrity monitoring. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the criteria in paragraphs (B)(4)(a) through (e) of this section. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous direct integrity testing of membrane units in accordance with the criteria in paragraphs (B)(3)(a) through (e) of this section is not subject to the requirements for continuous indirect integrity monitoring. Systems must submit a monthly report to the Director summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

   a. Unless the Director approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

   b. Continuous monitoring must be conducted at a frequency of no less than once every 15 minutes.

   c. Continuous monitoring must be separately conducted on each membrane unit.

   d. If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified in paragraphs (B)(3)(a) through (e) of this section.

   e. If indirect integrity monitoring includes a Director-approved alternative parameter and if the alternative parameter exceeds a Director-approved control limit for a period greater than 15 minutes, direct integrity testing must immediately be performed on the associated membrane units as specified in paragraphs (B)(3)(a) through (e) of this section.

C. Second stage filtration. Systems receive 0.5-log *Cryptosporidium* treatment credit for a separate second stage of filtration that consists of sand, dual media, GAC, or other fine grain media following granular media filtration if the Director approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a surface water or GWUDI source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The Director must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

D. Slow sand filtration (as secondary filter). Systems are eligible to receive 2.5-log *Cryptosporidium* treatment credit for a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or GWUDI source and no disinfectant residual is present in the influent water to the slow sand filtration process. The Director must approve the treatment credit based on an assessment of the design characteristics of the filtration process. This subsection does not apply to treatment credit awarded to slow sand filtration used as a primary filtration process.

**§ 2419 INACTIVATION TOOLBOX COMPONENTS**

A. Calculation of CT values

1. CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under subsection (B) or (C) of this section must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in Appendix D-801-D (A) through (B).

2. Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measurable disinfectant residual level and a liquid volume. Under this approach, systems must add the *Cryptosporidium* CT values in each segment to determine the total CT for the treatment plant.

B. CT values for chlorine dioxide and ozone

1. Systems receive the *Cryptosporidium* treatment credit listed in Table 2400.8 by meeting the corresponding chlorine dioxide CT value for the applicable water temperature, as described in subsection (A) of this section.

**TABLE 2400.8 CT VALUES (mg-min/L) FOR *CRYPTOSPORIDIUM* INACTIVATION BY CHLORINE DIOXIDE[1]**

| | Water Temperature, °C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Log credit | ≤.5 | 1 | 2 | 3 | 5 | 7 | 10 | 15 | 20 | 25 | 30 |
| (a) 0.25 | 159 | 153 | 140 | 128 | 107 | 90 | 69 | 45 | 29 | 19 | 12 |
| (b) 0.5 | 319 | 305 | 279 | 256 | 214 | 180 | 138 | 89 | 58 | 38 | 24 |
| (c) 1.0 | 637 | 610 | 558 | 511 | 429 | 360 | 277 | 179 | 116 | 75 | 49 |
| (d) 1.5 | 956 | 915 | 838 | 767 | 643 | 539 | 415 | 268 | 174 | 113 | 73 |
| (e) 2.0 | 1275 | 1220 | 1117 | 1023 | 858 | 719 | 553 | 357 | 232 | 150 | 98 |
| (f) 2.5 | 1594 | 1525 | 1396 | 1278 | 1072 | 899 | 691 | 447 | 289 | 188 | 122 |
| (g) 3.0 | 1912 | 1830 | 1675 | 1534 | 1286 | 1079 | 830 | 536 | 347 | 226 | 147 |

[1]Systems may use this equation to determine log credit between the indicated values: Log credit = (0.001506 x $(1.09116)^{Temp}$) x CT.

2. Systems receive the *Cryptosporidium* treatment credit listed in Table 2400.9 by meeting the corresponding ozone CT values for the applicable water temperature, as described in subsection (A) of this section.

**TABLE 2400.9 CT VALUES (mg-min/L) FOR *CRYPTOSPORIDIUM* INACTIVATION BY OZONE[1]**

| | Water Temperature, °C | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Log credit | ≤0.5 | 1 | 2 | 3 | 5 | 7 | 10 | 15 | 20 | 25 | 30 |
| (a) 0.25 | 6.0 | 5.8 | 5.2 | 4.8 | 4.0 | 3.3 | 2.5 | 1.6 | 1.0 | 0.6 | 0.39 |
| (b) 0.5 | 12 | 12 | 10 | 9.5 | 7.9 | 6.5 | 4.9 | 3.1 | 2.0 | 1.2 | 0.78 |
| (c) 1.0 | 24 | 23 | 21 | 19 | 16 | 13 | 9.9 | 6.2 | 3.9 | 2.5 | 1.6 |
| (d) 1.5 | 36 | 35 | 31 | 29 | 24 | 20 | 15 | 9.3 | 5.9 | 3.7 | 2.4 |
| (e) 2.0 | 48 | 46 | 42 | 38 | 32 | 26 | 20 | 12 | 7.8 | 4.9 | 3.1 |
| (f) 2.5 | 60 | 58 | 52 | 48 | 40 | 33 | 25 | 16 | 9.8 | 6.2 | 3.9 |
| (g) 3.0 | 72 | 69 | 63 | 57 | 47 | 39 | 30 | 19 | 12 | 7.4 | 4.7 |

[1]Systems may use this equation to determine log credit between the indicated values: Log credit = (0.0397 x $(1.09757)^{Temp}$) x CT.

C. Site-specific study. The Director may approve alternative chlorine dioxide or ozone CT values to those listed in subsection (B) of this section on a site-specific basis. The Director must base this approval on a site-specific study a system conducts that follows a Director-approved protocol.

D. Ultraviolet light. Systems receive *Cryptosporidium*, Giardia lamblia, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in Table 2400.10. Systems must validate and monitor UV reactors as described in paragraphs (D)(2) and (3) of this section to demonstrate that they are achieving a particular UV dose value for treatment credit.

1. UV dose table. The treatment credits listed in this table are for UV light at a wavelength of 254 nm as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing, as described in paragraph (D)(2) of this section. The UV dose values in this table are applicable only to post-filter applications of UV in filtered systems and to unfiltered systems.

**TABLE 2400.10 UV DOSE TABLE FOR CRYPTOSPORIDIUM, GIARDIA LAMBLIA, AND VIRUS INACTIVATION CREDIT**

| Log credit | *Cryptosporidium* UV dose ($mJ/cm^2$) | *Giardia lamblia* UV dose ($mJ/cm^2$) | Virus UV dose ($mJ/cm^2$) |
|---|---|---|---|
| (a) 0.5 | 1.6 | 1.5 | 39 |
| (b) 1.0 | 2.5 | 2.1 | 58 |
| (c) 1.5 | 3.9 | 3.0 | 79 |
| (d) 2.0 | 5.8 | 5.2 | 100 |
| (e) 2.5 | 8.5 | 7.7 | 121 |
| (f) 3.0 | 12 | 11 | 143 |
| (g) 3.5 | 15 | 15 | 163 |
| (h) 4.0 | 22 | 22 | 186 |

2. Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in paragraph (D)(1) of this section (i.e., validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

   a. When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.

   b. Validation testing must include the following: Full scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp.

   c. The Director may approve an alternative approach to validation testing.

3. Reactor monitoring

   a. Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under paragraph (D)(2) of this section. This monitoring must include UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters the Director designates based on UV reactor operation. Systems must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol the Director approves.

   b. To receive treatment credit for UV light, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described in paragraphs (D)(1) and (2) of this section. Systems must demonstrate compliance with this condition by the monitoring required under paragraph (D)(3)(a) of this section.

**Reporting and Recordkeeping Requirements**

**§ 2420 REPORTING REQUIREMENTS**

A. Systems must report sampling schedules under § 2403 and source water monitoring results under § 2405 unless they notify the Director that they will not conduct source water monitoring due to meeting the criteria of § 2402.

B. Systems must report the use of uncovered finished water storage facilities to the Director as described in § 2413.

C. Filtered systems must report their *Cryptosporidium* bin classification as described in § 2409.

D. Unfiltered systems must report their mean source water *Cryptosporidium* level as described in § 2411.

E. Systems must report disinfection profiles and benchmarks to the Director as described in § 2407 through § 2408 prior to making a significant change in disinfection practice.

F. Systems must report to the Director in accordance with Table 2400.11 for any microbial toolbox options used to comply with treatment requirements under §§ 2410 or 2411. Alternatively, the Director may approve a system to certify operation within required parameters for treatment credit rather than reporting monthly operational data for toolbox options.

**TABLE 2400.11 MICROBIAL TOOLBOX REPORTING REQUIREMENTS**

| Toolbox option | Systems must submit the following information | On the following schedule |
|---|---|---|
| (1) Watershed control program (WCP) | (a) Notice of intention to develop a new or continue an existing watershed control program | No later than two years before the applicable treatment compliance date in § 2412. |
| | (b) Watershed control plan | No later than one year before the applicable treatment compliance date in § 2412. |
| | (c)Annual watershed control program status report | Every 12 months, beginning one year after the applicable treatment compliance date in § 2412. |
| | (d) Watershed sanitary survey report | For community water systems, every three years beginning three years after the applicable treatment compliance date in § 2412. For noncommunity water systems, every five years beginning five years after the applicable treatment compliance date in § 2412. |
| (2) Alternative source/intake management. | Verification that system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results | No later than the applicable treatment compliance date in § 2412. |
| (3) Presedimentation | Monthly verification of the following: (a) Continuous basin operation (b) Treatment of 100% of the flow (c) Continuous addition of coagulant (d) At least 0.5-log mean reduction of influent turbidity or compliance with alternative Director-approved performance criteria. | Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (4) Two-stage lime softening | Monthly verification of the following: (a) Chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration (b) Both stages treated with 100% of the plant flow. | Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (5) Bank filtration | (a) Initial demonstration of the following : (i) Unconsolidated, predominantly sandy aquifer (ii) Setback distance of at least 25 ft. (0.5-log credit) or 50 ft. (1.0-log credit) | No later than the applicable treatment compliance date in § 2412. |
| | (b) If monthly average of daily max turbidity is greater than 1 NTU then system must report result and submit an assessment of the cause. | Report within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (6) Combined filter | Monthly verification of combined filter effluent (CFE) turbidity levels less | Monthly reporting within 10 days following the month in which the |

| | | |
|---|---|---|
| performance. | than or equal to 0.15 NTU in at least 95 percent of the 4 hour CFE measurements taken each month. | monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (7) Individual filter performance. | Monthly verification of the following: (i) Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter (ii) No individual filter greater than 0.3 NTU in two consecutive readings 15 minutes apart | Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (8) Demonstration of Performance | (a) Results from testing following a Director- approved protocol. | No later than the applicable treatment compliance date in § 2412. |
| | (b) As required by the Director, monthly verification of operation within conditions of Director approval for demonstration of performance credit. | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (9) Bag filters and cartridge filters | (a) Demonstration that the following criteria are met: (i) Process meets the definition of bag or cartridge filtration; (ii) Removal efficiency established through challenge testing that meets criteria in this part. | No later than the applicable treatment compliance date in § 2412. |
| | (b) Monthly verification that 100% of plant flow was filtered. | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (10) Membrane Filtration | (a) Results of verification testing demonstrating the following: (i) Removal efficiency established through challenge testing that meets criteria in this part; (ii) Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline. | No later than the applicable treatment compliance date in § 2412. |
| | (b) Monthly report summarizing the following: (i) All direct integrity tests above the control limit; (ii) If applicable, any turbidity or alternative Direct-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken. | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (11) Second Stage filtration | Monthly verification that 100% of flow was filtered through both stages and that first stage was preceded by coagulation step. | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (12) Slow sand filtration (as secondary filter) | Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100% of flow from Part VIII sources. | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (13) Chlorine dioxide | Summary of CT values for each day as described in § 2419 | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |

| | | |
|---|---|---|
| (14) Ozone | Summary of CT values for each day as described in § 2419. | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |
| (15) UV | (a) Validation test results demonstrating operating conditions that achieve required UV dose. | No later than the applicable treatment compliance date in § 2412. |
| | (b) Monthly reporting summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in § 2419(D). | Within 10 days following the month in which monitoring was conducted, beginning on the applicable treatment compliance date in § 2412. |

**§ 2421 RECORDKEEPING REQUIREMENTS**

A. Systems must keep results from the initial round of source water monitoring under § 2402(A) and the second round of source water monitoring under § 2402(B) until 3 years after bin classification under § 2409 for filtered systems or determination of the mean *Cryptosporidium* level under §2409 for unfiltered systems for the particular round of monitoring.

B. Systems must keep for 3 years any notification to the Director that they will not conduct source water monitoring due to meeting the criteria of § 2402(D).

C. Systems must keep the results of treatment monitoring associated with microbial toolbox options under §§ 2415 through 2419 and with uncovered finished water reservoirs under § 2413, as applicable, for 3 years.

**Requirements for Sanitary Surveys Performed by PWSSP**

**§ 2422 REQUIREMENTS TO RESPOND TO SIGNIFICANT DEFICIENCIES IDENTIFIED IN SANITARY SURVEY PERFORMED BY PWSSP**

A. A sanitary survey is an onsite review of the water source (identifying sources of contamination by using results of source water assessments where available), facilities, equipment, operation, maintenance, and monitoring compliance of a PWS to evaluate the adequacy of the PWS, its sources and operations, and the distribution of safe drinking water.

B. For the purposes of this section, a significant deficiency includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that PWSSP determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

C. For sanitary surveys performed by PWSSP, systems must respond in writing to significant deficiencies identified in sanitary survey reports no later than 45 days after receipt of the report, indicating how and on what schedule the system will address significant deficiencies noted in the survey.

D. Systems must correct significant deficiencies identified in sanitary survey reports according to the schedule approved by PWSSP, or if there is no approved schedule, according to the schedule reported under subsection (C) of this section if such deficiencies are within the control of the system.

# PART XXV
# GROUNDWATER

## § 2501 GROUNDWATER SAMPLING AND ANALYTICAL REQUIREMENTS

A. Applicability

This part applies to all groundwater systems, which are defined as all public water systems that use groundwater, including consecutive systems receiving finished groundwater, except for public water systems that combine all of their groundwater with surface water or with groundwater under the direct influence of surface water prior to treatment under Part 700 of these regulations.

B. General Requirements

All groundwater systems must comply with the following requirements:

1. Sanitary survey information requirements for all groundwater systems as described in § 303.

2. Microbial source water monitoring requirements for groundwater systems that do not treat all of their groundwater to at least 99.99% (4-log) treatment of viruses (using inactivation or removal) before or at the first customer as described in § 2503.

3. Treatment technique requirements, described in § 2504, that apply to groundwater systems that have fecally contaminated source waters, as determined by source water monitoring conducted under § 2503, or that have significant deficiencies that are identified by the Director. A groundwater system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this part must implement one or more of the following corrective action options;

   a. correct all significant deficiencies;

   b. provide an alternate source of water;

   c. eliminate the source of contamination; or

   d. provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or an approved combination of 4-log virus inactivation and removal) before or at the first customer.

4. Groundwater systems that provide at least 4-log treatment of viruses (using inactivation, removal, or an approved combination of 4-log virus inactivation and removal) before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in § 2504(B).

5. If requested by the Director, groundwater systems must provide the Director with any existing information that will enable the Director to perform a hydrogeologic sensitivity assessment. For the purposes of this part, “hydrogeologic sensitivity assessment” is a determination of whether groundwater systems obtain water from hydrogeologically sensitive settings.

C. Compliance date

Unless otherwise noted, groundwater systems must comply with the requirements of this part upon approval of this part by the Navajo Nation Resources and Development Committee.

## § 2502 GROUNDWATER SOURCE MICROBIAL MONITORING AND ANALYTICAL METHODS

A. Triggered Source Water Monitoring

1. General requirements

A groundwater system must conduct triggered source water monitoring if the conditions identified in paragraphs (A)(1)(a) and either (A)(1)(b) or (A)(1)(c) of this section exist.

   a. The system does not provide at least 4-log treatment of viruses (using inactivation, removal, or an approved combination of 4-log virus inactivation and removal) before or at the first customer for each groundwater source; and

   b. The system is notified that a sample collected under §§ 2704 through 2707 is total

coliform-positive and the sample is not invalidated under § 2703(C).

2. Sampling Requirements

A groundwater system must collect, within 24 hours of notification of the total coliform-positive sample, at least one groundwater source sample from each groundwater source in use at the time the total coliform-positive sample was collected except as provided in paragraph (A)(2)(b) of this section.

a. The Director may extend the 24-hour time limit, on a case-by-case basis, if the system cannot collect the groundwater source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Director must specify how much time the system has to collect the sample.

b. If approved by the Director, systems with more than one groundwater source may meet the requirements of this paragraph (A)(2) by sampling a representative groundwater source or sources. If required by the Director, systems must submit for Director approval a triggered source water monitoring plan that identifies one or more groundwater sources that are representative of each monitoring site in the system's sample siting plan under § 2703, and that the system intends to use for representative sampling under this paragraph (A)(2).

c. A groundwater system serving 1,000 people or fewer may use a repeat sample collected from a groundwater source to meet both the requirements of Part XXVII and to satisfy the monitoring requirements of subsection (A)(2) of this section for that groundwater source only if the Director approves the use of E.coli as a fecal indicator for source water monitoring under subsection (A) of this section and approves the use of a single sample for meeting both the triggered source water source monitoring requirements in this subsection (A) and the repeat monitoring requirements in § 2708. If the repeat sample collected from the groundwater source is E-coli positive, the system must comply with paragraph (A)(3) of this section.

3. Additional Requirements

If the Director does not require corrective action under § 2504(A)(2) for a fecal indicator-positive source water sample collected under subsection (A)(2) of this section that is not invalidated under subsection (D) of this section, the system must collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator-positive sample.

4. Consecutive and Wholesale Systems

a. In addition to the other requirements of this subsection (A), a consecutive groundwater system that has a total coliform-positive sample collected under §§ 2704 through 2707 must notify the wholesale system(s) within 24 hours of being notified of the total coliform sample.

b. In addition to the other requirements of subsection (A) of this section, a wholesale groundwater system must comply with paragraphs (A)(4)(b)(i) and (A)(4)(b)(ii) of this section.

i. A wholesale groundwater system that receives notice from a consecutive system it serves that a sample collected under §§ 2704 through 2707 is total coliform-positive must, within 24 hours of being notified, collect a sample from its groundwater source(s) under subsection (A)(2) of this section and analyze it for a fecal indicator under subsection (C) of this section.

ii. If the sample collected under paragraph (A)(4)(b)(i) of this section is fecal indicator-positive, the wholesale groundwater system must notify all consecutive systems served by that groundwater source of the fecal indicator source water positive within 24 hours of being notified of the groundwater source sample monitoring result and must meet the requirements of subsection (A)(3) of this section.

5. Exceptions to the Triggered Source Water Monitoring Requirements

A groundwater system is not required to comply with the source water monitoring requirements of subsection (A) of this section if either of the following conditions exists:

a. The Director determines, and documents in writing, that the total coliform-positive sample collected under §§ 2704 through 2707 is caused by a distribution system deficiency; or

b. The total coliform-positive sample collected under §§ 2704 through 2707 is collected at a location that meets Director-approved criteria for distribution system conditions that will cause total coliform-positive samples.

B. Assessment Source Water Monitoring

If required by the Director, groundwater systems must conduct assessment source water monitoring that meets Director-determined requirements for such monitoring. A groundwater system conducting assessment source water monitoring may use a triggered source water sample collected under paragraph (A)(2) of this section to meet the requirements of this subsection (B). Assessment source water monitoring requirements may include:

1. Collection of a total of 12 groundwater source samples that represent each month the system provides groundwater to the public,

2. Collection of samples from each well unless the system obtains written Director approval to conduct monitoring at one or more wells within the groundwater system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting,

3. Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used,

4. Analysis of all groundwater source samples using one of the analytical methods listed in paragraph (C)(2) of this section for the presence of E. coli, enterococci, or coliphage,

5. Collection of groundwater source samples at a location prior to any treatment of the groundwater source unless the Director approves a sampling location after treatment, and

6. Collection of groundwater source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the Director approves an alternate sampling location that is representative of the water quality of that well.

C. Analytical Methods

1. A groundwater system subject to the source water monitoring requirement of subsection (A) of this section must collect a standard sample volume of at least 100mL for fecal indicator analysis regardless of the fecal indicator or analytical method used.

2. A groundwater system must analyze all groundwater sources samples collected under subsection (A) of this section using one of the analytical methods listed in Appendix H for the presence of E. Coli, enterococci, or coliphage.

D. Invalidation of a Fecal Indicator-positive groundwater source sample

1. A groundwater system may obtain Director invalidation of a fecal indicator-positive groundwater source sample collected under subsection (A) of this section only under the conditions specified in paragraphs (D)(1)(a) and (b) of this section.

   a. The system provides the Director with written notice from the laboratory that improper sample analysis occurred; or

   b. The Director determines and documents in writing that there is substantial evidence that a fecal indicator-positive groundwater source sample is not related to source water quality.

2. If the Director invalidates a fecal indicator-positive groundwater source sample, the groundwater system must collect another source water sample under subsection (A) of this section within 24 hours of being notified by the Director of its invalidation decision and have it analyzed for the same fecal indicator using the analytical methods in Appendix H of these regulations. The Director may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond its control. In the case of an extension the Director must specify how much time the system has to collect the sample.

E. Sampling Location

1. Any groundwater source sample required under subsection (A) of this section must be collected at a location prior to any treatment of the groundwater source unless the Director approves a sampling location after treatment.

2. If the system's configuration does not allow for sampling at the well itself, the system

may collect a sample at a Director approved location to meet the requirements of subsection (A) of this section if the sample is representative of the water quality of that well.

F. New Sources

If required by the Director, a groundwater system that places a new groundwater source into service after November 30, 2009, must conduct assessment source water monitoring under subsection (B) of this section. If required by the Director, the system must begin monitoring before the groundwater source is used to provide water to the public.

G. Public Notification

A groundwater system with a groundwater source sample collected under subsection (A) or (B) of this section that is fecal indicator-positive and that is not invalidated under subsection (D) of this section, including consecutive systems served by the groundwater source, must conduct public notification under § 603.

H. Monitoring Violations

Failure to meet the requirements of subsections (A)-(F) of this section is a monitoring violation and requires the groundwater system to provide public notification under § 605.

**§ 2503 TREATMENT TECHNIQUE REQUIREMENTS FOR GROUNDWATER SYSTEMS**

A. Groundwater Systems with Significant Deficiencies or Source Water Fecal Contamination

1. The treatment technique requirements of this section must be met by groundwater systems when a significant deficiency is identified or when a groundwater source sample collected under § 2503(A)(3) is fecal indicator-positive.

2. If required by the Director, a groundwater system with a groundwater source sample collected under § 2503(A)(2), § 2503(A)(4), or § 2503(B) that is fecal indicator-positive must comply with the treatment technique requirements of this section.

3. When a significant deficiency is identified at a Part 800 public water system that uses both groundwater and surface water or groundwater under the direct influence of surface water, the system must comply with the provisions of this paragraph except in cases where the Director determines that the significant deficiency is in a portion of the distribution system that is served solely by surface water or groundwater under the direct influence of surface water.

4. Unless the Director requires the groundwater system to implement a specific corrective action, the groundwater system must consult with the Director regarding the appropriate corrective action within 30 days of receiving written notice from the Director of a significant deficiency, written notice from a laboratory that a groundwater source sample collected under § 2503(A)(3) was found to be fecal indicator-positive, or written notice from the Director that a fecal indicator-positive collected under § 2503(A)(2), § 2503(A)(4), or § 2503(B) requires corrective action. For the purposes of this part, significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or failure or malfunction of the sources, treatment, storage, or distribution system that the Director determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

5. Within 120 days (or earlier if required by the Director) of receiving written notification from the Director of a significant deficiency, written notice from a laboratory that a groundwater source sample collected under § 2503(A)(3) was found to be fecal indicator-positive, or written notice from the Director that a fecal indicator-positive sample collected under § 2503(A)(2), § 2503(A)(4), or § 2503(B) requires corrective action, the groundwater system must either:

   a. Have completed corrective action in accordance with applicable PWSSP plan review processes or other guidance or direction, if any, including Director-specified interim measures; or

   b. Be in compliance with a Director-approved corrective action plan and schedule subject to the conditions specified in (A)(5)(b)(i) and (A)(5)(b)(ii) of this section.

      i. Any subsequent modifications to an approved corrective action plan and schedule must also be approved by the Director.

ii. If the Director specifies interim measures for protection of the public health pending Director approval of the corrective action plan and schedule or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the Director.

6. Corrective Action Alternatives
Groundwater systems that meet the conditions of paragraph (A)(1) or (A)(2) of this section must implement one or more of the following corrective action alternatives:

a. Correct all significant deficiencies;

b. Provide an alternate source of water;

c. Eliminate the source of contamination; or

d. Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source.

7. Special Notice to the Public of Significant Deficiencies or Source Water Fecal Contamination.

a. In addition to the applicable public notification requirements of § 2503, a community groundwater system that receives notice from the Director of a significant deficiency or notification of a fecal indicator-positive groundwater source sample that is not invalidated by the Director under §2503(D) must inform the public served by the water system under § 1204(H)(6) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the groundwater source is determined by the Director to be corrected under paragraph (A)(5) of this section.

b. In addition to the applicable public notification requirements of § 603, a non-community groundwater system that receives notice from the Director of a significant deficiency must inform the public served by the water system in a manner approved by the Director of any significant deficiency that has not been corrected within 12 months of being notified by the Director, or earlier if required by the Director. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

i. The nature of the significant deficiency and the date the significant deficiency was identified by the Director;

ii. The Director-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

iii. For systems with a large proportion of non-English speaking consumers, as determined by the Director, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

c. If required by the Director, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under paragraph (A)(7)(b) of this section.

B. Compliance Monitoring

1. Existing Groundwater Sources

A groundwater system that is not required to meet the source water monitoring requirements of this part for any groundwater source because it provides at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for any groundwater source before the compliance date of this part, must notify the Director in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first

customer for the specified groundwater source and begin compliance monitoring in accordance with paragraph (B)(3) of this section by the compliance date for this part. Notification to the Director must include engineering, operational, or other information that the Director requests to evaluate the submission. If the system subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for a groundwater source, the system must conduct groundwater source monitoring as required under § 2503.

2. New Groundwater Sources

A groundwater system that places a groundwater source in service on or after the compliance date for this part that is not required to meet the source water monitoring requirements of this part because the system provides at least 4-log treatment of viruses (using inactivation, removal, or a Director approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source must comply with the requirements of paragraphs (B)(2)(a), (B)(2)(b), and (B)(2)(c) of this section.

a. The system must notify the Director in writing that it provides at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source. Notification to the Director must include engineering, operational, or other information that the Director requests to evaluate the submission.

b. The system must conduct compliance monitoring as required under § 2504(B)(3) of this part within 30 days of placing the source in service.

c. The system must conduct groundwater source monitoring under § 2503 if the system subsequently discontinues 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for the groundwater source.

3. Monitoring Requirements

A groundwater system subject to the requirements of subsection (A) or paragraph (B)(1) or (B)(2) of this section must monitor the effectiveness and reliability of treatment for that groundwater source before or at the first customer as follows:

a. Chemical Disinfection

i. Groundwater systems serving more than 3,300 people.

A groundwater system that serves more than 3,300 people must continuously monitor the residual disinfectant concentration using analytical methods specified in Appendix D, § 801-D(A)(2) at a location approved by the Director and must record the lowest residual disinfectant concentration each day that water from the groundwater source is served to the public. The groundwater system must maintain the Director-determined residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. If there is a failure in the continuous monitoring equipment, the groundwater system must conduct grab sampling every four hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within 14 days.

ii. Groundwater systems serving 3,300 or fewer people.

A groundwater system that serves 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in Appendix D, § 801-D(A)(2) at a location approved by the Director and record the residual disinfection concentration each day that water from the groundwater source is served to the public. The groundwater system must maintain the Director-determined residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. The groundwater system must take a daily grab sample during the hour of peak flow or at another time specified by the Director. If any daily grab sample measurement falls below the Director-determined residual disinfectant concentration, the groundwater system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the Director-determined level. Alternatively, a groundwater system that serves

3,300 or fewer people may monitor continuously and meet the requirements of paragraph (B)(3)(a)(i) of this section.

b. Membrane Filtration

A groundwater system that uses membrane filtration to meet the requirements of this part must monitor the membrane filtration process in accordance with all Director-specified monitoring requirements and must operate the membrane filtration in accordance with all Director-specified compliance requirements. A groundwater system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when:

i. The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;

ii. The membrane process is operated in accordance with Director-specified compliance requirements; and

iii. The integrity of the membrane is intact.

c. Alternative Treatment

A groundwater system that uses a Director-approved alternative treatment to meet the requirements of this part by providing at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer must:

i. Monitor the alternative treatment in accordance with all Director-specified monitoring requirements; and

ii. Operate the alternative treatment in accordance with all compliance requirements that the Director determines to be necessary to achieve at least 4-log treatment of viruses.

C. Discontinuing Treatment

A groundwater system may discontinue 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of 4-log virus inactivation and removal) before or at the first customer for a groundwater source if the Director determines and documents in writing that 4-log treatment of viruses is no longer necessary for that groundwater source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of § 2503.

D. Failure to meet the monitoring requirements of subsection (B) of this section is a monitoring violation and requires the groundwater system to provide public notification under § 605.

**§ 2504 TREATMENT TECHNIQUE VIOLATIONS FOR GROUNDWATER SYSTEMS**

A. A groundwater system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if required by the Director) of receiving written notice from the Director of the significant deficiency, the system:

1. Does not complete corrective action in accordance with any applicable PWSSP plan review processes or other guidance and direction, including Director-specified interim actions and measures, or

2. Is not in compliance with a Director-approved corrective action plan and schedule.

B. Unless the Director invalidates a fecal indicator-positive groundwater source sample under § 2503(D), a groundwater system is in violation of the treatment technique requirement if, within 120 days (or earlier if required by the Director) of meeting the conditions of § 2504(A)(1) or § 2504(A)(2), the system:

1. Does not complete corrective action in accordance with any applicable PWSSP plan review processes or other guidance and direction, including Director-specified interim measures, or

2. Is not in compliance with a Director-approved corrective action plan and schedule.

C. A groundwater system subject to the requirements of § 2504(B)(3) that fails to maintain at least 4-log treatment of viruses (using inactivation, removal, or a Director-approved combination of

4-log virus inactivation and removal) before or at the first customer for a groundwater source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

D. Groundwater systems must give public notification under § 604 for the treatment technique violations specified in subsections (A), (B) and (C) of this section.

**§ 2505 REPORTING AND RECORDKEEPING FOR GROUNDWATER SYSTEMS**

A. Reporting

In addition to the requirements of § 502, a groundwater system regulated under this part must provide the following information to the Director:

1. A groundwater system conducting compliance monitoring under § 2504(B) must notify the Director any time the system fails to meet any Director-specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The groundwater system must notify the Director as soon as possible, but in no case later than the end of the next business day.

2. After completing any corrective action under § 2504(A), a groundwater system must notify the Director within 30 days of completion of the corrective action.

3. If a groundwater system subject to the requirements of § 2503(A) does not conduct source water monitoring under § 2503(A)(5)(b), the system must provide documentation to the Director within 30 days of the total coliform positive sample that it met the Director-specified criteria.

B. Recordkeeping

In addition to the requirements of § 503, a groundwater system regulated under this part must maintain the following information in its records:

1. Documentation of corrective actions. Documentation shall be kept for a period of not less than 10 years.

2. Documentation of notice to the public as required under § 2504(A)(7). Documentation shall be kept for a period of not less than three years.

3. Records of decisions under § 2503(A)(5)(b) and records of invalidation of fecal indicator-positive groundwater source samples under § 2503(D). Documentation shall be kept for a period of not less than five years.

4. For consecutive systems, documentation of notification to the wholesale system(s) of total-coliform positive samples that are not invalidated under § 2703. Documentation shall be kept for a period of not less than five years.

5. For systems, including wholesale systems, that are required to perform compliance monitoring under § 2504(B):

   a. Records of the Director-specified minimum disinfectant residual. Documentation shall be kept for a period of not less than ten years.

   b. Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the Director-prescribed minimum residual disinfectant concentration for a period of more than four hours. Documentation shall be kept for a period of not less than five years.

   c. Records of Director-specified compliance requirements for membrane filtration and of parameters specified by the Director for Director-approved alternative treatment and records of the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours. Documentation shall be kept for a period of not less than five years.

# PART XXVII
# AQUIFER PROTECTION REGULATIONS
# GENERAL PROVISIONS

## § 2601 PURPOSE AND SCOPE

A. Purpose

These regulations are promulgated to implement an Aquifer Protection Program, which is intended to maintain and preserve the quality of aquifers located within the Navajo Nation, prevent and abate pollution and contamination of the Nation's aquifers, protect public health, and provide for management of the aquifers for their best uses. It is the intent of these regulations to protect the overall quality of the Nation's aquifers at the level established by standards contained in Part II of these regulations and to enhance and restore the quality of degraded groundwater where feasible and necessary to protect human health and the environment.

B. Scope

These regulations prescribe aspects of aquifer protection, including the classification of groundwater, antidegradation provisions, standards for groundwater quality, and various procedures for the management and protection of groundwater.

## § 2602 LEGAL AUTHORITY AND ADMINISTRATION

A. Authority

These regulations are promulgated pursuant to the Navajo Nation Safe Drinking Water Act ("NNSDWA"), 22 N.N.C. §§ 2501-2586, and the Navajo Nation Clean Water Act ("NNCWA"), 4 N.N.C. §§ 1301-1394. NNSDWA § 2538(A) requires NNEPA to "develop by regulation a program to protect wellhead areas within the Navajo Nation from contaminants that may have an adverse effect on public health" by determining wellhead protection areas and identifying sources of contaminants in those areas. NNCWA § 1371 authorizes NNEPA to "develop a program to protect surface and ground water from pollution on a watershed basis."

B. Program administration

The Public Water Systems Supervision Program ("PWS Program") is responsible for administering these Aquifer Protection Regulations.

C. Coordination with other authorities and entities

1. NNEPA is authorized by NNSDWA § 2538(A)(1) to specify the duties of other Navajo Nation entities and public water supply systems with respect to the development and implementation of a wellhead protection program.

2. These regulations are intended to complement existing statutory provisions and regulatory programs impacting groundwater quality, including but not limited to the Navajo Nation Safe Drinking Water Act, Navajo Nation Clean Water Act, Navajo Nation Solid Waste Act, Navajo Nation Storage Tank Act, Navajo Nation Water Code, Navajo Nation Solid Waste Regulations, Navajo Nation Pollutant Discharge Elimination System Program Regulations, Navajo Nation Underground Injection Control Regulations, Navajo Nation Surface Water Quality Standards, and Navajo Nation Primary Drinking Water Regulations.

3. The PWS Program may coordinate with the entities implementing the requirements listed in paragraph 2 and with other programs to the extent relevant and appropriate to protecting the Nation's aquifers.

## § 2603 DEINITIONS

(1) "Aquifer" means a geologic unit that contains sufficient saturated permeable material to yield usable quantities of water to a well or spring.

(2) "Background" means the levels of chemical, physical, biological, and radiological constituents or parameters prior to an activity or pollution event, as determined by methods acceptable to NNEPA.

(3) “Best available technology” means the best available technology, process, operating method, or other alternative to achieve the greatest degree of discharge reduction for a facility, including but not limited to the use of synthetic and/or clay liners for sediment ponds, effluent pretreatment, and subsurface contaminant transport mechanisms.

(4) “Contaminant” means any physical, chemical, biological or radiological substance or matter in water.

(5) “Director” means the Executive Director of the Navajo Nation Environmental Protection Agency or his or her designee.

(6) “Discharge” means the addition of a pollutant from a facility either directly to an aquifer or to the land surface or the vadose zone in such a manner that there is a reasonable probability that the pollutant will reach an aquifer.

(7) “Drinking water protected use” means the protection and maintenance of aquifer water quality for human consumption.

(8) “Facility” means any land, building, installation, structure, equipment, device, conveyance, area, source, activity or practice from which there is, or with reasonable probability may be, a discharge.

(9) “Groundwater” means water below the land surface in a zone of saturation.

(10) “Mg/l” means milligrams per liter.

(11) “Millirem” means 1/26000 of a rem. A rem means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system.

(12) “Navajo Nation” or “Nation” means:

a. When referring to the body politic, except as the context may otherwise require, the same meaning as set forth in 1 N.N.C. § 552.

b. When referring to governmental territory, all lands and waters within the territorial boundaries of the Navajo Nation, including:

i. all lands and waters within the exterior boundaries of the Navajo Indian Reservation or of the Eastern Navajo Agency or within the boundaries of Navajo dependent Indian communities, including all lands within the boundaries of Navajo chapter governments, all without regard to the nature of title thereto;

ii. all lands and waters held in trust by the United States, restricted by the United States, or otherwise set apart under the superintendence of the United States for the use or benefit of the Navajo Nation, the Navajo Tribe, any Band of Navajo Indians, or any individual Navajo Indians as such; and

iii. all other lands and waters over which the Navajo Nation may exercise governmental jurisdiction in accordance with federal or international law.

(13) “Non-drinking water protected use” means the protection and maintenance of aquifer water quality for a use other than for human consumption.

(14) “NNEPA” means the Navajo Nation Environmental Protection Agency.

(15) “pCi” means picocurie, or the quantity of radioactive material producing 2.22 nuclear transformations per minute.

(16) “Person” means an individual, public or private corporation, company, partnership, firm, association or society of persons, the federal, state or local governments or any of their programs or agencies, any Indian tribe, including the Navajo Nation, or any of its agencies, divisions, departments, programs, enterprises, companies, chapters or other political subdivisions.

(17) “Pollutant” means a fluid, contaminant, toxic waste, toxic pollutant, dredged spoil, solid waste, substance or chemical, pesticide, herbicide, fertilizer or other agricultural chemical, incinerator residue, sewage, garbage, sewage sludge, munition, petroleum product chemical waste, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, cellar dirt, mining waste, industrial waste, municipal or agricultural waste, or any other liquid, solid, gaseous or hazardous substance.

(18) “Toxic Pollutant” means a substance that will cause significant adverse reactions if ingested. Significant adverse reactions are reactions that may indicate a tendency of a substance or mixture to cause long-lasting or irreversible damage to human health.

(19) “Uniform Regulations” means the Navajo Nation Uniform Regulations for Permit Review, Administrative Enforcement Orders, Hearings, and Rulemakings under Navajo Nation Environmental Acts.

(20) “Vadose zone” means the zone between the ground surface and any aquifer.

(21) “Well” means a bored, drilled or driven shaft, pit or hole whose depth is greater than its largest surface dimension.

**§ 2604 FEES**

A. Fee schedule

The following fees must accompany any associated submission to the Director:

1. Application for aquifer protection permit modification: $1,500

2. Request for review of administrative permit modifications, including corrections of typographical errors, administrative information, and minor technical errors (such as errors in calculation, locational information, and citations of law): $2600

3. Request for all other permit modifications, including changes to monitoring or reporting requirements or discharge limitations: $500

4. Contamination investigation and/or corrective action plan: $1,000

5. Application for renewal of aquifer protection permit: $1,000

6. Annual registration fee: $500

B. Revisions to fee schedule

The Director shall revise this fee schedule periodically as he or she deems appropriate, pursuant to the provisions for rulemakings in NNSDWA § 2507(D) and Uniform Rules §§ 401-4260.

**Part II. Aquifer Identification. Classification and Water Quality Standards**

**§ 2605 AQUIFER IDENTIFICATION, DELINEATION AND STUDIES**

A. Special classes of aquifers

1. Underground sources of drinking water

The NNSDWA is intended to protect underground sources of drinking water (“USDWs”). *See* NNSDWA, 22 N.N.C. §§ 2501-2502. A USDW, as defined in § 2601.5 of the Navajo Nation Underground Injection Control (“NNUIC”) Regulations, is:

An aquifer or portion of an aquifer:

a. which supplies any public water system; or

b. which contains a sufficient quantity of groundwater to supply a public water system; and

i. currently supplies drinking water for human consumption; or

ii. contains fewer than 260,000 mg/L total dissolved solids; and

c. which is not an exempted aquifer.

*See also* 40 C.F.R. § 144.3.

Aquifers on the Navajo Nation that are used as USDWs are listed in Section V of the NNUIC Program Description submitted with the Navajo Nation's primacy application for a Class II UIC Program. For convenience, this list is duplicated in Appendix 1 to these regulations.

2. Exempted aquifers

Aquifers exempted from use as USDWs are defined in NNUIC Regulations § 2603.1 as follows:

a. The exempted aquifer does not currently serve as a source of drinking water; and

b. It cannot now and will not in the future serve as a source of drinking water because:

i. It is mineral, hydrocarbon, or geothermal energy-producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible;

ii. It is situated at a depth or location that makes recovery of water for drinking water purposes economically or technologically impractical;

iii. It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or

iv. It is located over a Class III well mining area subject to subsidence or catastrophic collapse.

Exempted aquifers on the Navajo Nation consist of those portions of aquifers defined by a ¼ mile radius of a Class II UIC well. The Class II UIC wells on the Navajo Nation in 26008, when the Class II UIC primacy application was approved, are listed in Appendix H to the NNUIC Program Description. *See* 40 C.F.R. § 147.3400. Those interested in the current list of Class II UIC wells may obtain a list from the NNEPA UIC Program.

B. Identification and delineation of aquifers

1. If the Navajo Nation contains aquifers that have not yet been identified or for which boundaries have not yet been delineated by any federal or tribal agency, those aquifers shall be identified and aquifer boundaries shall be delineated by the Navajo Nation Division of Natural Resources, Water Resources Department. Aquifer boundaries shall be identical to hydrologic basin and sub-basin boundaries, excluding hard rock areas which contain little or no water.

2. The Director may modify or add an aquifer boundary if the Director learns of new technical information or data which supports taking such an action.

C. Studies

Independent aquifer studies, including groundwater sampling and monitoring, shall be performed where appropriate to provide information for aquifer identification, boundary delineation and reclassification. Such studies, sampling and monitoring may be performed by the PWS Program, the Water Resources Department, the NNEPA Underground Injection Control Program, or some combination of those entities.

**§ 2606 NARRATIVE AQUIFER WATER QUALITY STANDARDS**

A. A discharge shall not cause a pollutant to be present in an aquifer classified for a drinking water protected use in a concentration which endangers human health.

B. A discharge shall not cause or contribute to a violation of an aquifer water quality standard or an exceedance of the background concentration of a pollutant, if the background concentration exceeds the aquifer water quality standard.

C. A discharge shall not cause a pollutant to be present in an aquifer which impairs existing or reasonably foreseeable uses of water in an aquifer.

**§ 2607 NUMERIC AQUIFER WATER QUALITY STANDARDS**

A. Except as provided in Section 2604, the aquifer water quality standards in this Section apply to aquifers that are classified for drinking water protected use.

B. The following are the aquifer water quality standards for inorganic chemicals:

| **Pollutant** | **mg/L** |
|---|---|
| Antimony | 0.006 |
| Arsenic | 0.0260 |
| Asbestos | 7 million fibers/liter (longer than 260 mm) |
| Barium | 2 |
| Beryllium | 0.004 |
| Cadmium | 0.005 |
| Chromium | 0.1 |
| Cyanide (as Free Cyanide) | 0.2 |
| Fluoride | 4.0 |
| Lead | 0.05 |
| Mercury | 0.002 |
| Nickel | 0.1 |
| Nitrate (as N) | 260 |
| Nitrite (as N) | 1 |
| Nitrate and nitrite (as N) | 260 |
| Selenium | 0.05 |
| Thallium | 0.002 |

C. The following are the aquifer water quality standards for organic chemicals:

| **Pollutant** | **mg/L** |
|---|---|
| Benzene | 0.005 |
| Benzo (a) pyrene | 0.0002 |
| Carbon Tetrachloride | 0.005 |
| o-Dichlorobenzene | 0.6 |
| para-Dichlorobenzene | 0.075 |
| 1,2-Dichloroethane | 0.005 |
| 1,1-Dichloroethylene | 0.007 |
| cis-1,2-Dichloroethylene | 0.07 |
| trans-1,2-Dichloroethylene | 0.1 |
| 1,2-Dichloropropane | 0.005 |
| Dichloromethane | 0.005 |
| Di (2-ethylhexyl) adipate | 0.4 |
| Di (2-ethylhexyl) pthalate | 0.006 |
| Ethylbenzene | 0.7 |
| Hexachlorobenzene | 0.001 |
| Hexachlorocyclopentadiene | 0.05 |
| Monochlorobenzene | 0.1 |
| Pentachlorophenol | 0.001 |
| Styrene | 0.1 |
| 2,3,7,8-TCDD (Dioxin) | 0.00000003 |
| Tetrachloroethylene | 0.005 |
| Toluene | 1 |
| Trihalomethanes (Total) | 0.08 |
| 1,2,4-Trichlorobenzene | 0.07 |
| 1,1,1-Trichloroethane | 0.260 |
| 1,1,2-Trichloroethane | 0.005 |
| Trichloroethylene | 0.005 |
| Vinyl Chloride | 0.002 |
| Xylenes (Total) | 260 |

D. The following are the aquifer water quality standards for pesticides and polychlorinated biphenyls (PCBs):

| **Pollutant** | **(mg/L)** |
|---|---|
| Alachlor | 0.002 |
| Atrazine | 0.003 |
| Carbofuran | 0.04 |
| Chlordane | 0.002 |
| Dalapon | 0.2 |
| 1,2-Dibromo-3-Chloropropane (DBCP) | 0.0002 |
| 2,4,-Dichlorophenoxyacetic Acid(2,4-D) | 0.07 |
| Dinoseb | 0.007 |
| Diquat | 0.02 |
| Endothall | 0.1 |
| Endrin | 0.002 |
| Ethylene Dibromide (EDB) | 0.00005 |
| Glyphosate | 0.7 |
| Heptachlor | 0.0004 |
| Heptachlor Epoxide | 0.0002 |
| Lindane | 0.0002 |
| Methoxychlor | 0.04 |
| Oxamyl | 0.2 |
| Picloram | 0.5 |
| Polychlorinated Biphenols (PCBs) | 0.0005 |
| Simazine | 0.004 |
| Toxaphene | 0.003 |
| 2,4,5-Trichlorophenoxypropionic Acid (2,4,5-TP or Silvex) | 0.05 |

E. The following are the aquifer water quality standards for radionuclides:

1. The maximum concentration for gross alpha particle activity, including radium-2260 but excluding radon and uranium, shall not exceed 15 pCi/L.

2. The maximum concentration for combined radium-2260 and radium-228 shall not exceed 5 pCi/L.

3. The maximum concentration for uranium shall not exceed 30 micrograms per liter (µg/L).

4. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

5. Except for the radionuclides listed in this subsection, the concentration of man-made radionuclides causing 4 millirem total body or organ dose equivalents shall be calculated on the basis of a 2-liter-per-day drinking water intake using the 168-hour data listed in “Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure,” National Bureau of Standards Handbook 69, National Bureau of Commerce, as amended August 1963 (and no future editions), incorporated herein by reference and on file with the Office of the Secretary of State and with the Department. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year. The following average annual concentrations are assumed to produce a total body or organ dose of 4 millirem/year:

| Radionuclide | Critical Organ | pCi/L |
|---|---|---|
| Tritium | Total body | 260,000 |
| Strontium-90 | Bone Marrow | 8 |

F. The aquifer water quality standard for microbiological contaminants is based upon the presence or absence of total coliforms in a 2600-milliliter sample. If a sample is total coliform-positive, a 2600-milliliter repeat sample shall be taken within two weeks of the time the sample results are reported. Any total coliform-positive repeat sample following a total coliform-positive sample constitutes a violation of the aquifer water quality standard for microbiological contaminants.

G. The following are the aquifer water quality standards for turbidity:

1. One nephelometric turbidity unit as determined by a monthly average except that five or fewer nephelometric turbidity units may be allowed if it can be determined that the higher turbidity does not interfere with disinfection, prevent maintenance of effective disinfectant agents in water supply distribution systems, or interfere with microbiological determinations.

2. Five nephelometric turbidity units based on an average of two consecutive days.

**§ 2608 NATURAL BACKGROUND**

Where the concentration of a pollutant exceeds an aquifer water quality standard and the exceedance is not caused by human activity but is due solely to naturally-occurring conditions, as demonstrated pursuant to Section 309, the exceedance shall not be considered a violation of the aquifer water quality standard.

**§ 2609 AQUIFER CLASSIFICATION AND RECLASSIFICATION**

A. All aquifers in the Navajo Nation are classified for drinking water protected use except for aquifers that are reclassified to non-drinking water protected use pursuant to subsection (3) of this Section.

B. Aquifer water quality standards in reclassified aquifers

1. Aquifer water quality standards for drinking water protected use apply to reclassified aquifers except as provided in Section 2604 and where expressly superseded by aquifer water quality standards adopted by the Director pursuant to Subpart 4 of the Navajo Nation Uniform Regulations and subsection (3) of this Section.

2. The Director shall adopt aquifer water quality standards for reclassified aquifers only for pollutants that are specifically identified in a petition for reclassification.

3. Aquifer water quality standards for reclassified aquifers shall be sufficient to protect the use of the reclassified aquifer.

4. Aquifer water quality standards for reclassified aquifers shall be no less stringent than applicable federal groundwater protection standards.

a. An aquifer that is reclassified to non-drinking water protected use and issued an Underground Injection Control permit for the construction and operation of an injection well, pursuant to 40 CFR Parts 144 and 146, including a Class III injection well for uranium in-situ recovery activities, remains subject to regulations promulgated pursuant to the Uranium Mill Tailings Radiation Control Act, 42 U.S.C. § 7901 *et seq*., including 40 CFR Part 192.

b. The management of uranium byproduct materials during and following processing of uranium ores and restoration of disposal sites following any use of such sites shall conform to the standards of 40 CFR Part 192, Subpart D. In particular, surface impoundments associated with conventional uranium milling operations, heap leach operations, and in-situ recovery activities shall comply with the standards of 40 CFR § 192.32.

c. The management of uranium byproduct materials prior to, during and following the processing of uranium ores utilizing uranium in-situ recovery methods and the restoration of groundwater at such sites shall conform to the standards of 40 CFR Part 192, Subpart F. In particular, except for those wellfields currently in and remaining in restoration, stability monitoring or long-term monitoring at licensed facilities, all operating wellfields, new wellfields and expansions of wellfields shall comply with the groundwater protection standards of 40 CFR § 192.52(c).

d. Pursuant to 40 CFR § 192.31, “uranium byproduct material” means the tailings or wastes produced by the extraction or concentration of uranium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction operations and which remain underground do not constitute “byproduct material” for the purpose of 40 CFR Part 192, Subpart F.

C. Aquifer reclassification

1. Any person may petition the Director to reclassify an aquifer or part of an aquifer to a non-drinking water protected use. A written petition for reclassification shall include the following information:

a. A description of the aquifer or part of an aquifer proposed for reclassification.

b. The proposed protected use for which the reclassification is being requested.

c. The pollutant and aquifer water quality standards for which the reclassification is being requested.

d. A hydrogeologic report which demonstrates that the aquifer or part of an aquifer proposed for reclassification is or will be so hydrologically isolated from other aquifers or other parts of the same aquifer that there is no reasonable probability that poorer quality water from the identified aquifer or part of an aquifer will cause or contribute to a violation of aquifer water quality standards in other aquifers or parts of the same aquifer. This report and demonstration of hydrologic isolation for the area containing such aquifer, and immediate adjacent geologic units, shall include at least the following:

i. Hydrogeologic area maps and cross sections.

ii. An analysis of subsurface geology, including geologic and hydrologic separation.

iii. Water level elevation or piezometric level contour maps.

iv. Analysis of hydrologic characteristics of the aquifer and the immediate adjacent geologic units.

v. Description of existing water quality and analysis of water chemistry.

vi. Projected annual quantity of water to be withdrawn.

vii. Identification of pumping centers, cones of depression and areas of recharge.

viii. A water balance.

ix. Existing flow direction and evaluation of the effects of seasonal and future pumping on flow.

x. An evaluation as to whether the reclassification will contribute to or cause a violation of aquifer water quality standards in other aquifers, or in parts of the aquifer not being proposed for reclassification.

e. Documentation demonstrating that water from the aquifer or part of the aquifer for which reclassification is proposed is not being used as drinking water. This documentation shall include at least the following:

i. A list of all wells or springs, including their location, ownership and use, within the aquifer or part of the aquifer being proposed for reclassification.

ii. A comprehensive list of agencies, persons and other information sources consulted for aquifer use documentation.

f. A cost-benefit analysis demonstrating that the short-term and long-term benefits to the public that would result from the degradation of the quality of the water in the identified aquifer or part of an aquifer below established standards would significantly outweigh the short-term and long-term costs to the public of such degradation. Benefits and costs to be considered include economic, social and environmental. The cost-benefit analysis shall identify potential future uses of the aquifer being proposed for reclassification and other opportunity costs associated with reclassification and shall contain a description of the cost-benefit methodology used, including all assumptions,

data, data sources and criteria considered and all supporting statistical analyses.

2. Upon receipt of a petition for reclassification, the Director shall review the petition for compliance with the requirements of subsection (3)(a) of this Section. If additional information is needed, the petitioner shall be notified of specific deficiencies in writing within 30 calendar days of receipt of the petition.

3. Within 180 calendar days of receipt of a complete petition for reclassification, the Director shall:

   a. Determine standards sufficient to protect the use proposed in subsection (3)(a)(ii) of this Section for the pollutants identified in subsection (3)(a)(iii) of this Section; and

   b. Provide public notice of the proposed reclassification, the proposed standards for the reclassified aquifer or part of an aquifer, and the public hearing required under subsection (3)(d) of this Section, pursuant to the procedures for public notice described in Section 402 of the Navajo Nation Uniform Regulations.

4. The Director shall hold at least one public hearing on the proposed reclassification and the proposed standards for the reclassified aquifer or part of an aquifer at a location as near as practicable to the aquifer proposed for reclassification. The Director shall follow the procedures for public hearings described in Section 404 of the Navajo Nation Uniform Regulations.

5. Any person may submit comments on the proposed reclassification or proposed standards for the reclassified aquifer or part of an aquifer during the public comment period or at the public hearing in accordance with Sections 403 and 404 of the Navajo Nation Uniform Regulations.

6. Within 180 calendar days after the public hearing required pursuant to subsection (3)(d) of this Section, the Director shall:

   a. Grant or deny the petition;

   b. If the Director grants the petition, issue standards for pollutants identified in subsection (3)(a)(iii) of this Section that apply to the reclassified aquifer or part of an aquifer;

   c. Issue public notice of the decision and standards and a response to comments document in accordance with Sections 407 and 408 of the Navajo Nation Uniform Regulations; and

   d. Notify the petitioner of such decision and the reason for such determination in writing.

D. The Director may rescind an aquifer reclassification and return an aquifer to a drinking water protected use if the Director determines that any of the conditions under which the reclassification was granted are no longer valid.

**§ 2610 PETITION FOR ADOPTION OF A NUMERIC AQUIFER WATER QUALITY STANDARD**

A. Any person may petition the Director to adopt, by rule, a numeric aquifer water quality standard for a pollutant for which no numeric aquifer water quality standard exists.

B. A petition for rule adoption to establish a numeric aquifer water quality standard shall include:

1. The name, current address and signature of the person submitting the petition.

2. A statement that the petition is for the adoption of a numeric aquifer water quality standard for a pollutant for which no numeric aquifer water quality standard exists.

3. Technical information that the pollutant is a toxic pollutant.

4. Technical information upon which the Director reasonably may base the establishment of a numeric aquifer water quality standard.

5. Evidence that the pollutant that is the subject of the petition is or may in the future be present in an aquifer or part of an aquifer that is classified for drinking water protected use. Evidence may include, but is not limited to, any of the following:

a. A laboratory analysis of a water sample which indicates the presence of the pollutant in an aquifer or part of an aquifer that is classified for drinking water protected use.

b. A hydrogeological study which demonstrates that the pollutant that is the subject of the petition may be present in an aquifer in the future. The hydrogeological study shall include the following:

i. A description of the use that results in a discharge of the pollutant that is the subject of the petition.

ii. A description of the mobility of the pollutant in the vadose zone and in the aquifer.

iii. A description of the persistence of the pollutant in the vadose zone and in the aquifer.

C. Within 180 calendar days of the receipt of a complete petition for rule adoption to establish a numeric aquifer water quality standard, the Director shall make a written determination of whether the petition should be granted or denied. The Director shall give written notice by regular mail of the determination to the petitioner.

D. If the petition for rule adoption is granted, the Director shall initiate rulemaking proceedings to adopt a numeric aquifer water quality standard in accordance with the rulemaking procedures set forth in Subpart 4 of the Navajo Nation Uniform Regulations. The Director shall, within one year of the date that the petition for adoption of a numeric aquifer water quality standard is granted, either adopt a rule establishing a numeric aquifer water quality standard or publish a notice of termination of rulemaking.

E. If the petition for rule adoption is denied, the Director shall issue a denial letter to the petitioner that explains the reasons for the denial. The denial of a petition for rule adoption to establish a numeric aquifer water quality standard is not subject to judicial review.

**Part III. Aquifer Permit Program**

**§ 2611 APPLICATION FOR AQUIFER PROTECTION PERMIT**

A. No person may construct, install, or operate any new facility or modify an existing facility, when such facility is not permitted by rule under Section 2602, which discharges or is likely to result in a discharge of pollutants that may move directly or indirectly into an aquifer, without first having an aquifer protection permit from NNEPA. Such facilities include but are not limited to: land application of wastes; waste storage pits; waste storage piles; landfills and dumps; large feedlots; mining, milling and metallurgical operations, including heap leach facilities; and pits, ponds, and lagoons. An aquifer protection permit application shall be submitted at least 180 days before the permit is needed.

B. All persons who constructed, modified, or installed or who operate any facility of the type described in subsection (1) that was in existence prior to the effective date of these regulations must submit an application for an aquifer protection permit within one year after the effective date of these regulations.

C. The provisions of Subpart 2 of the Navajo Nation Uniform Regulations, including requirements for permit application, issuance, modification, revocation, and termination, public notice of permit actions, and public hearings, apply to all aquifer protection permits except aquifer protection permits by rule.

D. A person applying for an aquifer protection permit remains subject to all other relevant permitting requirements under federal and tribal laws, including permitting requirements applicable to the construction, modification, or operation of a facility.

**§ 2612 AQUIFER PROTECTION PERMIT BY RULE**

A. Except as provided in subsection (3) of this Section, the following facilities are considered to be permitted by rule and are not subject to aquifer protection permit requirements under Sections 2611, 2613-2617:

1. Facilities with effluent or leachate for which it has been demonstrated to the satisfaction of NNEPA that such effluent or leachate will conform to and will not deviate from applicable aquifer water quality standards and does not contain any contaminant that may present a threat to human health, the environment or potential beneficial uses of the aquifer. NNEPA may require samples to be analyzed for the presence of contaminants before the effluent or leachate discharges directly or indirectly into an aquifer. If the discharge is by seepage through natural or altered natural materials, NNEPA may require samples of the solution to be analyzed for the presence of pollutants before or after seepage;

2. The noncommercial use of consumer products generally available to and used by the public;

3. Household gardening, lawn watering, lawn care, landscape maintenance, and related activities, except for the direct land application of wastewater;

4. Application of agricultural chemicals, including fertilizers, herbicides and pesticides (including but not limited to insecticides, fungicides, rodenticides, and fumigants), when used in accordance with current scientifically based manufacturer recommendations for crops, soil and climate and in accordance with state and federal statutes, regulations, rules, permits, and orders adopted to avoid aquifer contamination;

5. Water used for irrigated agriculture, except for the direct land application of wastewater from municipal, industrial or mining facilities;

6. Ponds used for watering livestock and wildlife;

7. Flood control systems, including detention basins, catch basins and wetland treatment facilities used for collecting or conveying storm water runoff;

8. Natural groundwater seeping or flowing into conventional mine workings which re-enters the ground by natural gravity flow prior to pumping or transporting out of the mine and without being used in any mining or metallurgical process;

9. Leachate which results entirely from the direct natural infiltration of precipitation through undisturbed materials;

10. Wells and facilities regulated under the Navajo Nation Underground Injection Control Regulations;

11. Land application of livestock wastes, within expected crop nitrogen uptake;

12. Subsurface wastewater disposal systems approved by NNEPA;

13. Produced water pits, reserve pits, and other oil field waste treatment, storage, and disposal facilities regulated by NNEPA;

14. Facilities that treat, store, or dispose of hazardous waste and have been issued a permit under the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6921-6939f;

15. Solid waste landfills permitted under the Resource Conservation and Recovery Act or the Navajo Nation Solid Waste Act;

16. Structures that are designed and constructed not to discharge and that are built on an impermeable barrier that can be visually inspected for leakage;

17. Animal feeding operations that use liquid waste handling systems which are not located within 2600 feet for wells in a confined aquifer, or within a 250-day time of travel for wells and springs in unconfined aquifers, and which meet either of the following criteria:

a. Operations constructed prior to the effective date of these regulations which incorporated liquid waste handling systems and which are either less than 4 million gallons capacity or serve fewer than 26000 animal units, or

b. Operations with fewer than the following numbers of confined animals:

i. 1,500 slaughter and feeder cattle,

ii. 1,050 mature dairy cattle, whether milked or dry cows,

iii. 3,750 swine each weighing over 25 kilograms (approximately 55 pounds),

iv. 18,750 swine each weighing 25 kilograms or less (approximately 55 pounds),

v. 750 horses,

vi. 15,000 sheep or lambs,

vii. 82,500 turkeys,

viii. 150,000 laying hens or broilers that use continuous overflow watering but dry handle wastes,

ix. 45,000 hens or broilers,

x. 7,500 ducks, or

xi. 1,500 animal units;

18. Animal feeding operations which do not utilize liquid waste handling systems;

19. Mining, processing or milling facilities handling less than 260 tons per day of metallic and/or nonmetallic ore and waste rock, not to exceed 2500 tons/year in aggregate, unless the processing or milling uses chemical leaching;

20. Pipelines and storage tanks installed or operated under the Navajo Nation Storage Tank Act;

21. Land application of municipal sewage sludge for beneficial use in compliance with the requirements of the Navajo Nation Clean Water Act;

22. Municipal wastewater treatment systems receiving no wastewater from a significant industrial discharger; and

23. Facilities and modifications thereto which NNEPA determines, after a review of the application, will have a de minimis actual or potential effect on groundwater quality.

B. No facility permitted by rule may cause an aquifer to exceed applicable aquifer water quality standards. If the background concentration of a contaminant exceeds the aquifer water quality standard, the facility may not cause an increase over background. This subsection does not apply to facilities undergoing corrective action.

C. The submission of an application for an aquifer protection permit may be required by the Director for any discharge permitted by rule if it is determined that the discharge may be causing or is likely to cause increases above applicable aquifer water quality standards or otherwise is interfering or may interfere with probable future beneficial use of the aquifer.

**§ 2613 APPLICATION REQUIREMENTS FOR AQUIFER PROTECTION PERMIT**

All applications for an aquifer protection permit shall comply with Section 2602 of the Navajo Nation Uniform Regulations and shall be accompanied by the fee listed in Section 2604 of these regulations. All applications for an aquifer protection permit must be performed under the direction, and bear the seal, of a professional engineer or professional geologist. Unless otherwise determined by NNEPA, the application for a permit to discharge wastes or pollutants to an aquifer shall include the following:

A. The name, address and telephone number of the applicant and of the facility owner, if different than the applicant. A corporate application must be signed by an officer of the corporation.

B. The location of the facility.

C. The facility name, facility type, and expected facility life.

D. A plat map showing all water wells, including the status and use of each well, topography, springs, water bodies, drainages, and man-made structures within a one-mile radius of the discharge. The plat map must also show the location and depth of existing and proposed aquifer water quality monitoring wells.

E. An independent hydrogeologic report containing geologic, hydrologic, and agricultural descriptions of the geographic area within a one-mile radius of the point of discharge, including soil types, groundwater flow direction, groundwater quality, aquifer material, and well logs.

F. The type, source, and chemical, physical, radiological, and toxic characteristics of the effluent or leachate to be discharged; the average and maximum daily amount of effluent or leachate discharged (gpd), the discharge rate (gpm), and the expected concentrations of any pollutant (mg/L) in each discharge or combination of discharges. If more than one discharge point is used, information for each point must be given separately.

G. Information which shows that the discharge can be controlled and will not migrate into or adversely affect the quality of any other groundwater or surface water located within the Navajo Nation; that the discharge is compatible with the receiving groundwater; and that the discharge will comply with applicable aquifer water quality standards.

H. For areas where the aquifer has not been classified by NNEPA, information on the quality of the receiving groundwater sufficient to determine the applicable protection levels.

I. A proposed groundwater sampling and monitoring plan detailing actions that will be undertaken by the applicant and information related to such actions, as follows:

1. Installation, use and maintenance of groundwater monitoring devices;

2. Groundwater monitoring to determine groundwater flow direction and gradient, background groundwater quality at the site, and the quality of groundwater at compliance monitoring points;

3. Delineation of a compliance monitoring area, as defined by compliance monitoring points;

4. A description of the hydrologic and geologic data used to determine the dimensions of the compliance monitoring area;

5. Monitoring of the vadose zone;

6. Construction of monitoring wells and sampling of groundwater, which will conform to U.S. EPA’s “Handbook of Suggested Practices for Design and Installation of Ground-Water Monitoring Wells” (EPA/600/4-89/034, March 1991), U.S. EPA’s “Practical Guide for Groundwater Sampling” (EPA/600/S2-85/2604, Feb. 1986), and the American Society for Testing and Materials’ “Standard Practice for Design and Installation of Groundwater Monitoring Wells in Aquifers” (D5092), unless otherwise specified by NNEPA;

7. A description of and the justification for parameters to be monitored;

8. Use of quality assurance and control provisions for monitoring data; and

9. Measures that will be taken to prevent groundwater contamination after the cessation of facility operation, including post-operational monitoring.

J. Plans and specifications relating to the construction, modification, and operation of any discharge system.

K. A description of the aquifer most likely to be affected by the discharge, including water quality information of the receiving aquifer prior to discharge, the depth to the

groundwater, the saturated thickness, flow direction, porosity, hydraulic conductivity, and flow systems characteristics.

L. A proposed compliance sampling and monitoring plan that includes provisions for effluent sampling and flow monitoring to determine the volume and chemistry of the discharge onto or below the surface of the ground and for sampling compliance monitoring points and nearby water wells. Proposed sampling and monitoring methods must conform to the most appropriate methods in the American Public Health Association et al.'s "Standard Methods for the Examination of Water and Wastewater," 22nd edition (26014), or the most recent version of this publication; U.S. EPA's "Methods for Chemical Analysis of Water and Wastes" (EPA-600/4-79-0260, March 1983); U.S. Geological Survey's "Techniques of Water-Resource Investigations Report," Book 9; and U.S. Geological Survey's "National Handbook of Recommended Methods for Water-Data Acquisition," unless otherwise specified by NNEPA.

M. A description of the flooding potential of the discharge site, including the 2600-year flood plain, and any applicable flood protection measures.

N. Methods and procedures for inspections of facility operations.

O. A closure and post-closure management plan demonstrating measures to prevent groundwater contamination during the closure and post-closure phases of an operation.

P. Evidence that the applicant is maintaining financial assurance of ability to pay for possible corrective action. Financial assurance may be established by evidence of insurance, guarantee, surety bond, letter of credit, or any other method satisfactory to NNEPA depending on the totality of the circumstances. The type and amount of financial assurance shall reflect the probable difficulty of corrective action considering such factors as topography, geology of the site and hydrology and the financial stability of the applicant. NNEPA may require the applicant to increase the amount of financial assurance in accordance with this paragraph.

Q. Any other information required by the Director.

**§ 2614 ISSUANCE OF AQUIFER PROTECTION PERMIT**

A. Upon receipt of an application for an aquifer protection permit, the Director shall review the application for compliance with the requirements of Section 2603. If additional information is necessary, the petitioner shall be notified of specific deficiencies in writing within 30 calendar days of receipt of the petition.

B. Following receipt of a complete application, the Director shall provide public notice of the application in accordance with Section 2607 of the Navajo Nation Uniform Regulations.

C. If the Director receives a request for a hearing pursuant during the public comment period or finds significant public interest in a draft permit, the Director shall publish a notice of the public hearing in accordance with Section 2607 of the Navajo Nation Uniform Regulations and shall hold a public hearing within thirty days after publication of the hearing notice in accordance with Section 2608 of the Navajo Nation Uniform Regulations.

D. After the close of the public comment period and consideration of public comments received during the public comment period, NNEPA may issue an aquifer protection permit for a new facility if NNEPA determines, after reviewing the information provided under Section 2603, that:

1. The applicant has demonstrated that applicable aquifer water quality standards will be met or, if the background concentration of a contaminant exceeds the aquifer water quality standard, the facility will not cause an increase over background;

2. The proposed groundwater sampling and monitoring plan and proposed compliance sampling and monitoring plan will provide adequate information for NNEPA to determine compliance with applicable requirements under these regulations;

3. The applicant will be using best available technology to minimize the discharge of any pollutant; and

4. There will be no impairment of present and future beneficial uses of the aquifer.

E. After the close of the public comment period and consideration of public comments received during the public comment period, NNEPA may issue an aquifer protection permit for an existing facility provided:

1. The applicant has demonstrated that applicable aquifer water quality standards will be met or, if the background concentration of a contaminant exceeds the aquifer water quality standard, the facility will not cause an increase over background;

2. The proposed groundwater sampling and monitoring plan and proposed compliance sampling and monitoring plan will provide adequate information for NNEPA to determine compliance with applicable requirements under these regulations;

3. The applicant utilizes treatment and discharge minimization technology commensurate with plant process design capability and similar or equivalent to that utilized by facilities that produce similar products or services with similar production process technology; and

4. There is no current or anticipated impairment of present and future beneficial uses of the groundwater.

**§ 2615 PERMIT TERM**

A. The aquifer protection permit will be valid for 5 years from the date of issuance. Permits may be renewed for 5-year periods or extended for a period to be determined by NNEPA but not to exceed 5 years.

B. In the event that new aquifer water quality standards are adopted by NNEPA, permits may be reopened to revise and extend the terms of the permit, including to include pollutants covered by new standards.

**§ 2616 AQUIFER PROTECTION PERMIT RENEWAL**

The permittee for a facility with an aquifer protection permit must apply for renewal or extension of an aquifer protection permit at least 180 days prior to the expiration of the existing permit. If a permit expires before an application for renewal or extension is acted upon by NNEPA, the permit will continue in effect until it is renewed, extended or denied. Permit renewal applications containing provisions that diverge significantly from the terms of the original permit must be performed under the direction, and bear the seal, of a professional engineer or professional geologist.

**§ 2617 TERMINATION OF AQUIFER PROTECTION PERMIT**

An aquifer protection permit may be terminated or a renewal denied by NNEPA in accordance with Section 2604 of the Navajo Nation Uniform Regulations if one of the following applies:

A. The permittee’s failure to comply with any condition of the permit and to take appropriate remedial action in a timely manner;

B. The permittee's failure to disclose any significant relevant fact in the application or during the permit approval process;

C. A determination that the permitted facility endangers human health or the environment and can only be regulated to acceptable levels by plan modification or termination; or

D. The permittee requests termination of the permit.

**§ 2618 PERMIT COMPLIANCE MONITORING**

A. In addition to provisions in an approved compliance sampling and monitoring plan, NNEPA may include in an aquifer protection permit additional requirements for groundwater monitoring and may specify additional compliance monitoring points where applicable aquifer water quality standards are to be met. NNEPA will determine the location of any additional compliance monitoring point based upon the hydrology, type of pollutants, and other factors that may affect groundwater quality.

B. The distance to any compliance monitoring point identified in an aquifer protection permit must be as close as practicable to the point of discharge. No compliance monitoring point shall be located beyond the property boundaries of the permitted facility without written agreement of the affected property owners and approval by NNEPA.

C. Results obtained pursuant to monitoring and the methods used to obtain these results shall be periodically reported to the Director according to a schedule specified in the aquifer protection permit.

**§ 2619 BACKGROUND WATER QUALITY DETERMINATION**

A. Background contaminant concentrations shall be determined and specified in the aquifer protection permit. The determination of background concentration shall take into account any degradation.

B. Background contaminant concentrations may be determined from existing information or from data collected by the permit applicant. Existing information shall be used if the permit applicant demonstrates that the quality of the information and its means of collection are adequate to determine background water quality. If existing information is not adequate to determine background water quality, the applicant shall submit a plan to determine background water quality to NNEPA for approval prior to data collection. One or more upgradient, lateral hydraulically equivalent point or other monitoring wells approved by NNEPA may be required for each potential discharge site.

C. After a permit has been issued, the permittee shall continue to monitor background water quality contaminant concentrations in order to determine natural fluctuations in concentrations. Applicable up-gradient and on-site groundwater monitoring data shall be included in compliance monitoring reports submitted to the Director pursuant to the schedule specified in the aquifer protection permit.

**§ 2620 NOTICE OF COMMENCEMENT AND DISCONTINUATION OF AQUIFER DISCHARGE OPERATIONS**

A. The permittee shall notify NNEPA immediately upon commencement of an aquifer discharge and submit a written notice within 30 days of commencing the discharge.

B. The permittee shall notify NNEPA of the date of and reason for any discontinuation of an aquifer discharge within 30 days of such discontinuation.

**§ 2621 REPORTING OF MECHANICAL PROBLEMS OR DISCHARGE SYSTEM FAILURES**

The permittee shall notify NNEPA within 24 hours of the discovery of any mechanical problems or discharge system failures that could affect the chemical characteristics or the volume of the discharge. A written statement confirming the oral report shall be submitted to NNEPA within five days of the failure.

**§ 2622 OUT-OF-COMPLIANCE STATUS**

A. If the value of a single analysis of any compliance parameter in any compliance monitoring sample exceeds an applicable permit limit, the permitee shall:

1. Notify NNEPA in writing within 30 days of receipt of data;

2. Immediately initiate monthly sampling if the value exceeds both the background concentration of the pollutant and an applicable permit limit, unless NNEPA determines that other periodic sampling is appropriate, for a period of two months or until the compliance status of the facility can be determined.

B. Violation of Permit Limits. Out-of-compliance status exists when:

1. The value for two consecutive samples from a compliance monitoring point exceeds one or more permit limits; or

2. The concentration value of any pollutant in two or more consecutive samples is statistically significantly higher than the applicable permit limit. The statistical significance shall be determined using the methods described in U.S. EPA’s “Statistical Methods for Evaluating Groundwater Monitoring Data from Hazardous Waste Facilities,” (53 Fed. Reg. 397260, Oct. 11, 1988) and supplemental guidance in U.S. EPA’s “Guidance For Data Quality Assessment” (EPA/600/R-96/084, Jan. 1998).

C. Failure to Maintain Best Available Technology

1. In the event the permittee fails to maintain best available technology, the permittee shall submit to the Director a notification and description of the failure according to Section 311. Notification shall be given orally within 24 hours of the permittee's

discovery of the failure and shall be followed by written notification, including the information necessary for NNEPA to make a determination under subsection (3)(b) of this Section, within five days of the permittee's discovery of the failure.

2. The Director shall use the information provided in subsection (3)(a) of this Section and any additional information provided by the permittee to determine whether out-of-compliance status is warranted. The Director shall not find that out-of-compliance status is warranted if the Director determines that the permittee has an affirmative defense, as specified in subsection (3)(c) of this Section.

3. In the event the permittee is subject to out-of-compliance status for violating permit conditions relating to best available technology, the permittee may affirmatively defend against such classification by demonstrating:

   a. The permittee submitted notification according to Section 311;

   b. The failure was not intentional or caused by the permittee's negligence, either in action or in failure to act;

   c. The permittee has taken adequate measures to meet permit conditions in a timely manner or has submitted to NNEPA, for NNEPA’s approval, an adequate plan and schedule for meeting permit conditions; and

   d. The permittee has not discharged pollutants in violation of aquifer protection permit limits.

D. Where it is infeasible to reestablish best available technology, the permittee may propose alternative best available technology for approval by the Director.

**§ 2623 CORRECTIVE ACTION**

A. Application of this Section

1. This section shall apply to any person who spills or discharges any substance which may cause pollution of groundwater in violation of any applicable aquifer water quality standard or background concentration level and any permittee in out-of-compliance status.

2. Corrective action shall include preparation of a contamination investigation and preparation and implementation of a corrective action plan.

3. This section shall not apply to any facility where corrective or remedial action for aquifer contamination meeting or exceeding the standards of this section has been initiated under another tribal, state or federal program. Corrective or remedial action taken under the Navajo Nation Storage Tank Act, Navajo Nation CERCLA, Navajo Nation Solid Waste Act, or federal Resource Conservation and Recovery Act are presumed to meet the standards of this section unless otherwise determined by NNEPA.

B. Notification and Interim Action

1. Any person who spills or discharges any substance which may cause pollution of an aquifer in violation of any applicable aquifer water quality standard, background concentration level, or aquifer protection permit term shall notify NNEPA within 24 hours of the spill or discharge. A written notification shall be submitted to NNEPA within five days after the spill or discharge.

2. Such person is encouraged to take immediate, interim action without following the steps outlined in this section if such action is required to control a source of pollutants. Interim action is also encouraged if required to protect public safety, public health and welfare, or the environment or to prevent further contamination. Such interim actions should include source abatement and control, neutralization, and other actions as appropriate. A person that has taken these actions shall remain subject to this section after the interim actions are completed unless s/he demonstrates that:

   a. No pollutants have been discharged into an aquifer in violation of an aquifer protection permit or, in the absence of an aquifer protection permit, in a manner that will endanger public health or the environment; and

b. No wastes remain in a location where there is probable cause to believe such wastes will cause pollution of an aquifer in violation of an aquifer protection permit or, in the absence of an aquifer protection permit, in a manner that will endanger public health or the environment, unless there has been a diesel fuel or oil release over 25 gallons and the responsible person demonstrates that:

i. Contaminated soil has been removed to the extent possible and groundwater has been returned to established background levels, to 500 mg/kg total petroleum hydrocarbons for sensitive areas, or to 5000 mg/kg total petroleum hydrocarbons for non-sensitive areas;

ii. Soil samples have been collected at locations and depths sufficient to document that cleanup has been achieved;

iii. Contaminated soil has been treated or disposed of at a location approved by NNEPA; and

iv. An interim action report has been submitted.

C. Contamination Investigation and Corrective Action Plan – General

1. NNEPA may require any person that is subject to this section to submit for approval a contamination investigation and corrective action plan and may require implementation of an approved corrective action plan. A person subject to this section who has been notified that NNEPA is exercising its authority to require submission of a contamination investigation and corrective action plan, shall, within 30 days of that notification, submit to NNEPA a proposed schedule for those submissions, which may include different deadlines for different elements of the contamination investigation and corrective action plan. NNEPA may accept, reject, or modify the proposed schedule.

2. NNEPA may waive any or all contamination investigation and corrective action plan requirements if the person subject to this section demonstrates that information which would otherwise be required is not necessary to the Director's evaluation of the contamination investigation or corrective action plan. Requests for waiver may be submitted to NNEPA as part of the contamination investigation or corrective action plan or in advance of the submission of those documents.

D. Contamination Investigation and Corrective Action Plan – Requirements

1. Contamination Investigation: The contamination investigation shall include a characterization of pollution, a characterization of the facility, a data report, and, if the corrective action plan proposes alternate corrective action concentration limits higher than applicable aquifer water quality standards or background concentrations, an endangerment assessment.

a. The characterization of pollution shall include a description of:

i. The amount, form, concentration, toxicity, environmental fate and transport, and other significant characteristics of substances present, for both groundwater contaminants and any contributing surficial contaminants;

ii. The areal and vertical extent of the contaminant concentration, distribution and chemical makeup; and

iii. The extent to which contaminant substances have migrated and are expected to migrate.

b. The characterization of the facility shall include descriptions of:

i. Contaminant substance mixtures present and media of occurrence;

ii. Hydrogeologic conditions underlying and upgradient and downgradient of the facility;

iii. Surface waters in the area of the facility;

iv. Climatologic and meteorologic conditions in the area of the facility;

v. Type, location and description of possible sources of pollution at the facility; and

vi. Groundwater withdrawals, pumpage rates, and usage within a 2-mile radius.

c. The report of data used and data gaps shall include:

i. Data packages including quality assurance and quality control reports;

ii. A description of the data used in the report; and

iii. A description of any data gaps encountered, how those gaps affect the analysis, and any plans to fill those gaps.

d. The endangerment assessment shall include descriptions of any risk evaluation necessary to support a proposal for a proposed corrective action concentration limit or an alternate corrective action concentration limit.

e. The contamination investigation shall include such other information as NNEPA requires.

2. Proposed Corrective Action Plan: The proposed corrective action plan shall include an explanation of the construction and operation of the proposed Corrective Action, addressing the factors to be considered by NNEPA as specified in subsection (5) of this Section and shall include such other information as NNEPA requires. It shall also include a proposed schedule for completion. If the proposed corrective action plan provides that any potential sources of pollutants are to be controlled in place, any cap or other method of source control shall be designed so that the discharge from the source following corrective action achieves groundwater quality standards or, if approved by NNEPA, alternate corrective action concentration limits.

3. The contaminant investigation and corrective action plan must be performed under the direction, and bear the seal, of a professional engineer or professional geologist.

E. Approval of the Corrective Action Plan

After public notice in a newspaper in the affected area and a 30-day period for public review and comment, the Director shall issue an order approving, disapproving, or modifying the proposed Corrective Action Plan. NNEPA shall consider the following factors and criteria in making that decision:

1. The completeness and accuracy of the Corrective Action Plan and of the information upon which it relies;

2. Whether the Corrective Action is protective of the public health and the environment;

3. Impacts as a result of any off-site activities (e.g., the transport and disposition of contaminated materials at an off-site facility);

4. Whether the Corrective Action meets corrective action concentration limits or alternate corrective action concentration limits, as appropriate;

5. Whether the Corrective Action will produce a permanent effect; and

6. Whether additional measures should be included in the Plan to better assure that the criteria and factors specified in this subsection are met. Such measures may include:

a. Requiring long-term groundwater or other monitoring;

b. Providing environmental hazard notices or other security measures;

c. Capping sources of groundwater contamination to avoid infiltration of precipitation;

d. Requiring long-term operation and maintenance of all portions of the corrective action; and

e. Periodic review to determine whether the corrective action is protective of public health and the environment.

F. Corrective Action Concentration Limits

1. Corrective actions shall achieve applicable aquifer water quality standards or background concentrations.

2. For contaminants for which no aquifer water quality standard has been established, the proposed corrective action plan shall include proposed corrective action concentration limits. These levels shall be approved, disapproved or modified by NNEPA after considering NNEPA maximum contaminant level goals, health advisories, and risk-based contaminant levels, standards established by other tribal, state and federal regulatory agencies, and other relevant information.

G. Alternate Corrective Action Concentration Limits

1. Higher Alternate Corrective Action Concentration Limits: A person submitting a proposed corrective action plan may request approval by NNEPA of an alternate corrective action concentration limit higher than the corrective action concentration limit specified in subsection (6) of this Section. The proposed limit shall be protective of human health and the environment and shall utilize best available technology. The corrective action plan shall include the following information in support of this request:

   a. The potential for release and migration of any contaminant that might remain after corrective action in concentrations higher than corrective action concentration limits;

   b. An evaluation of residual risks, in terms of amounts and concentrations of contaminants remaining after Corrective Action, including consideration of the persistence, toxicity, mobility, and propensity to bioaccumulate of such contaminants; and

   c. Any other information necessary to determine whether the conditions of this subsection have been met.

2. Lower Alternate Corrective Action Concentration Limits: NNEPA may require use of an alternate corrective action concentration limit that is lower than the corrective action concentration limit specified in subsection (6) of this Section if necessary to protect human health or the environment. Any person requesting that NNEPA consider requiring a lower alternate corrective action concentration limit shall provide supporting information as described in subsection (7)(d) of this Section.

3. The alternate corrective action concentration limit must be protective of human health and the environment. In making this determination, NNEPA may consider:

   a. Information presented in the contamination investigation;

   b. Other relevant cleanup or health standards, criteria, or guidance;

   c. Relevant and reasonably available scientific information;

   d. Any additional information relevant to the protectiveness of a corrective action; and

   e. The impact of additional proposed measures, such as those described in subsection (5)(f) of this Section.

4. An alternate corrective action concentration limit shall not be granted without good cause. In determining whether good cause exists, the Director may consider the factors specified in subsection (5) of this Section as well as whether the proposed remedy is cost-effective, considering such costs as:

   a. Capital costs;

   b. Operation and maintenance costs;

   c. Costs of periodic reviews, where required;

   d. Net present value of capital and operation and maintenance costs;

e. Potential future remedial action costs; and

f. Loss of resource value.

5. An alternate corrective action concentration limit that is higher than the corrective action concentration limits specified in subsection (6) of this Section must be conservative. NNEPA may consider the concentration level that can be achieved using best available technology if attainment of the corrective action concentration limit is not technologically achievable.

6. NNEPA may consider the relationship between the corrective action concentration limits and background concentrations in considering whether an alternate corrective action concentration limit is appropriate. However, no alternate corrective action concentration limit higher than existing groundwater contamination levels or groundwater contamination levels projected to result from existing conditions will be granted.

**§ 2624 AQUIFER PROTECTION PERMIT TRANSFER**

A. The permittee shall give written notice to the Director of any transfer of an aquifer protection permit within 30 days of the transfer.

B. The notice shall include a written agreement between the existing and new permittee establishing a specific date for transfer of permit responsibility, coverage and liability.

**§ 2625 ENFORCEMENT**

Where the Director has reason to believe that a violation of any part of these regulations has occurred, the Director may enforce these regulations pursuant to the Navajo Nation Clean Water Act, 4 N.N.C. § 1382(C), or the Navajo Nation Safe Drinking Water Act, 22 N.N.C. § 2582, and Subpart 3 of the Navajo Nation Uniform Regulations, including through the issuance of a compliance order or an administrative penalty order. For violations that are of a continuing nature, each and every day that the violation exists shall constitute a separate and distinct violation.

# PART XXVII
# REVISED TOTAL COLIFORM

**§ 2701 GENERAL**

A. General

The provisions of this part include both maximum contaminant level and treatment technique requirements.

B. Applicability

The provisions of this part apply to all public water systems.

C. Compliance date

Systems must comply with the provisions of this part beginning on the effective date of this part, pursuant to 40 C.F.R. § 142.12(e) (Interim Primary Enforcement Authority), unless otherwise specified in this part. The effective date of this part is the date that this part is approved by the Resources and Development Committee.

D. Violations of Navajo Nation primary drinking water regulations

Failure to comply with the applicable requirements of §§ 2701 through 2711, including requirements established by the Director pursuant to these provisions, is a violation of the Navajo Nation primary drinking water regulations under this Part XXVII.

**§ 2702 ANALYTICAL METHODS AND LABORATORY CERTIFICATION**

Analytical methods and laboratory certification requirements for sampling conducted pursuant to this part are codified at Appendix A of these regulations.

**§ 2703 GENERAL MONITORING REQUIREMENTS FOR ALL PUBLIC WATER SYSTEMS**

A. Sample siting plans

1. Pursuant to EPA direction under 40 C.F.R. § 141.851(d), not later than March 31, 2016 systems will have developed a written sample siting plan that identified sampling sites and a sample collection schedule that are representative of water throughout the distribution system and must update the plan every two years. These plans are subject to Director review and revision upon the effective date of this Part. Systems must collect total coliform samples according to the written sample siting plan. Monitoring required by §§ 2704 through 2708 may take place at a customer’s premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of Part XXV must be reflected in the sampling plan.

2. Systems must collect samples at regular time intervals throughout the month, except that systems that use only ground water and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.

3. Systems must take at least the minimum number of required samples even if the system has had an *E. coli* MCL violation or has exceeded the coliform treatment technique triggers in § 2709(A).

4. A system may conduct more compliance monitoring than is required by this Part to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine samples and must include the results in calculating whether the coliform treatment technique trigger in § 2709(A)(1)(a) and (b) has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

5. Systems must identify repeat monitoring locations in the sample siting plan. Unless the provisions of subsections (A)(5)(a) or (A)(5)(b) of this section are met, the system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a

tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one service connection away from the end of the distribution system, the system must still take all required repeat samples. However, the Director may allow an alternative sampling location in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sampling site. Except as provided for in subsection (A)(5)(b) of this section, systems required to conduct triggered source water monitoring under § 2503(A) must take ground water source sample(s) in addition to repeat samples required under this part.

a. Systems may propose repeat monitoring locations to the Director that the system believes to be representative of a pathway for contamination of the distribution system. A system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The system must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The Director may modify the SOP or require alternative monitoring locations as needed.

b. Ground water systems serving 1,000 or fewer people may propose repeat sampling locations to the Director that differentiate potential source water and distribution system contamination (e.g., by sampling at entry points to the distribution system). A ground water system with a single well required to conduct triggered source water monitoring may, with written Director approval, take one of its repeat samples at the monitoring location required for triggered source water monitoring under § 2503(A) if the system demonstrates to the Director's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the Director, the system may use that sample result to meet the monitoring requirements in both § 2503(A) and this section.

i. If a repeat sample taken at the monitoring location required for triggered source water monitoring is *E. coli*-positive, the system has violated the *E. coli* MCL and must also comply with § 2503(A)(3). If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the system may reduce the number of additional source water samples required under § 2503(A)(3) by the number of repeat samples taken at that location that were not *E. coli*-positive.

ii. If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring under § 2503(A), and more than one repeat sample is *E. coli*-positive, the system has violated the *E. coli* MCL and must also comply with § 2504(A).

iii. If all repeat samples taken at the monitoring location required for triggered source water monitoring are *E. coli*-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is *E. coli*-positive, the system has violated the *E. coli* MCL, but is not required to comply with § 2503(A)(3).

6. The Director may review, revise, and approve, as appropriate, repeat sampling proposed by systems under paragraphs (A)(5)(a) and (b) of this section. The system must demonstrate that the sample siting plan remains representative of the water quality in the distribution system. The Director may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

B. Special purpose samples

Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples taken pursuant to § 2708 are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.

C. Invalidation of total coliform samples

A total coliform-positive sample invalidated under this subsection (C) of this section does not count toward meeting the minimum monitoring requirements of this Part.

1. The Director may invalidate a total coliform-positive sample only if the conditions of subsection (C)(1)(a), (b), or (c) of this section are met.

   a. The laboratory establishes that improper sample analysis caused the total coliform-positive result.

   b. The Director, on the basis of the results of repeat samples collected as required under § 2708(A), determines that the total coliform-positive sample resulted from a domestic or other nondistribution system plumbing problem. The Director cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative (e.g., the Director cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the system has only one service connection).

   c. The Director has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under § 2708(A), and use them to determine whether a coliform treatment technique trigger in § 2709 has been exceeded. To invalidate a total coliform-positive sample under this subsection, the decision and supporting rationale must be documented in writing, and approved and signed by the supervisor of the NNEPA official who recommended the decision. The Director must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the system has taken, or will take, to correct this problem. The Director may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

2. A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P–A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The system must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Director may waive the 24-hour time limit on a case-by-case basis. Alternatively, the 24-hour time limit is automatically waived if the laboratory invalidates a total coliform sample under this subsection, the system has performed all proper operation and maintenance procedures to address the presence of coliforms in the system, and any of the following apply:

   a. The laboratory is more than a 5 hour drive from the sampling site;

   b. Severe weather conditions prevent the system from obtaining an additional sample and delivering it to the laboratory within the 24-hour time period; or

   c. The laboratory is closed for the weekend or a holiday and no other laboratory is available within a 5 hour drive of the sampling site.

**§ 2704 ROUTINE MONITORING REQUIREMENTS FOR NON-COMMUNITY WATER SYSTEMS SERVING 1,000 OR FEWER PEOPLE USING ONLY GROUND WATER**

A. General

1. The provisions of this section apply to non-community water systems using only ground water (except ground water under the direct influence of surface water, as defined in

§ 104) and serving 1,000 or fewer people.

2. Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in § 2708.

3. Once all monitoring required by this section and § 2708 for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in § 2709 have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by § 2709.

4. For the purpose of determining eligibility for remaining on or qualifying for quarterly monitoring under the provisions of subsections (F)(4) and (G)(2), respectively, of this section for transient non-community water systems, the Director may elect to not count monitoring violations under § 2710(C)(1) of these regulations if the missed sample is collected no later than the end of the monitoring period following the monitoring period in which the sample was missed. The system must collect the make-up sample in a different week than the routine sample for that monitoring period and should collect the sample as soon as possible during the monitoring period. The Director may not use this provision under subsection (H) of this section. This authority does not affect the provisions of §§ 2710(C)(1) and 2711(A)(4) of these regulations.

B. Monitoring frequency for total coliforms

Systems must monitor each calendar quarter that the system provides water to the public, except for seasonal systems or as provided under subsections (C) through (H) and (J) of this section. Seasonal systems must meet the monitoring requirements of subsection (I) of this section.

C. Transition to Part XXVII

1. Systems, including seasonal systems, must continue to monitor according to the total coliform monitoring schedule that was in effect for the system on the effective date of this Part as established in § 2701(C), unless any of the conditions for increased monitoring in subsection (F) of this section are triggered on or after the effective date of this Part, or unless otherwise directed by the Director.

2. The Director must perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Director has performed the special monitoring evaluation during each sanitary survey, the Director may modify the system’s monitoring schedule, as necessary, or the Director may allow the system to stay on its existing monitoring schedule, consistent with the provisions of this section. The Director may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in this section. For seasonal systems on quarterly or annual monitoring, this evaluation must include review of the approved sample siting plan, which must designate the time period(s) for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The seasonal system must collect compliance samples during these time periods.

D. Annual site visits

Systems on annual monitoring, including seasonal systems, must have an initial and recurring annual site visit by the Director that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in § 2709(B) to remain on annual monitoring. The periodic required sanitary survey may be used to meet the requirement for an annual site visit for the year in which the sanitary survey was completed.

E. Criteria for annual monitoring

Beginning on the effective date of these regulations, the Director may reduce the monitoring frequency for a well-operated ground water system from quarterly routine monitoring to no less than annual monitoring, if the system demonstrates that it meets the criteria for reduced monitoring in subsections (E)(1) through (E)(3) of this section, except for a system that has been on increased monitoring under the provisions of subsection (F) of this section. A system on increased monitoring under subsection (F) of this section must meet the provisions of subsection (G) of this

section to go to quarterly monitoring and must meet the provisions of subsection (H) of this section to go to annual monitoring.

1. The system has a clean compliance history for a minimum of 12 months;

2. The most recent sanitary survey shows that the system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets approved construction standards; and

3. The Director has conducted an annual site visit within the last 12 months and the system has corrected all identified sanitary defects. The system may substitute a Level 2 assessment that meets the criteria in § 2709(B) for the Director's annual site visit.

F. Increased monitoring requirements for systems on quarterly or annual monitoring

A system on quarterly or annual monitoring that experiences any of the events identified in subsections (F)(1) through (F)(4) of this section must begin monthly monitoring the month following the event. A system on annual monitoring that experiences the event identified in subsection (F)(5) of this section must begin quarterly monitoring the quarter following the event. The system must continue monthly or quarterly monitoring until the requirements in subsection (G) of this section for quarterly monitoring or subsection (H) of this section for annual monitoring are met. A system on monthly monitoring for reasons other than those identified in subsections (F)(1) through (F)(4) of this section is not considered to be on increased monitoring for the purposes of subsections (G) and (H) of this section.

1. The system triggers a Level 2 assessment or two Level 1 assessments under the provisions of § 2709 in a rolling 12-month period.

2. The system has an *E. coli* MCL violation.

3. The system has a coliform treatment technique violation.

4. The system has two Part XXVII monitoring violations or one Part XXVII monitoring violation and one Level 1 assessment under the provisions of § 2709 in a rolling 12-month period for a system on quarterly monitoring.

5. The system has one Part XXVII monitoring violation for a system on annual monitoring.

G. Requirements for returning to quarterly monitoring

The Director may reduce the monitoring frequency for a system on monthly monitoring triggered under subsection (F) of this section to quarterly monitoring if the system meets the criteria in subsections (G)(1) and (G)(2) of this section.

1. Within the last 12 months, the system must have a completed sanitary survey or a site visit by the Director or a voluntary Level 2 assessment by a party approved by the Director, be free of sanitary defects, and have a protected water source; and

2. The system must have a clean compliance history for a minimum of 12 months.

H. Requirements for systems on increased monitoring to qualify for annual monitoring

The Director may reduce the monitoring frequency for a system on increased monitoring under subsection (F) of this section if the system meets the criteria in subsection (G) of this section plus the criteria in subsections (H)(1) and (H)(2) of this section.

1. An annual site visit by the Director and correction of all identified sanitary defects. The system may substitute a voluntary Level 2 assessment by a party approved by the Director for the Director's annual site visit in any given year.

2. The system must have in place or adopt one or more additional enhancements to the water system barriers to contamination in subsections (H)(2)(a) through (H)(2)(e) of this section.

   a. Cross connection control, as approved by the Director.

   b. An operator that meets Part XIV Public Water System Operator Certification

provisions, or regular visits by a circuit rider certified under Part XIV.

c. Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by these regulations including Parts XI and XXIII and §208 and/or the Director.

d. Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under § 2504(B)(3).

e. Other equivalent enhancements to water system barriers as approved by the Director.

I. Seasonal systems

1. All seasonal systems must demonstrate completion of a Director-approved start-up procedure, which may include a requirement for startup sampling prior to serving water to the public.

2. A seasonal system must monitor every month that it is in operation unless it meets the criteria in subsections (I)(2)(a) through (c) of this section to be eligible for monitoring less frequently than monthly, except as provided under subsection (C) of this section.

a. Seasonal systems monitoring less frequently than monthly must have an approved sample siting plan that designates the time period for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). Seasonal systems must collect compliance samples during this time period.

b. To be eligible for quarterly monitoring, the system must meet the criteria in subsection (G) of this section.

c. To be eligible for annual monitoring, the system must meet the criteria under subsection (H) of this section.

3. The Director may exempt any seasonal system from some or all the start-up requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating, except that systems that monitor less frequently than monthly must still monitor during the vulnerable period designated by the Director.

J. Additional routine monitoring the month following a total coliform-positive sample

Systems collecting samples on a quarterly or annual frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three routine samples during the next month, except that the Director may waive this requirement if the conditions of subsection (J)(1), (2), or (3) of this section are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations under § 2709(A).

1. The Director may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Director, or an agent approved by the Director, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Director to determine whether additional monitoring and/or any corrective action is needed. The Director cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Director to perform sanitary surveys.

2. The Director may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Director has determined why the sample was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, NNEPA must document the decision to waive the following month’s additional monitoring requirement in writing, have it approved and signed by the supervisor of the NNEPA official who recommends

such a decision, and make this document available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

3. The Director may not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the Director determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in § 2708, and all repeat samples were total coliform-negative, the Director may waive the requirement for additional routine monitoring the next month.

**§ 2705 ROUTINE MONITORING REQUIREMENTS FOR COMMUNITY WATER SYSTEMS SERVING 1,000 OR FEWER PEOPLE USING ONLY GROUND WATER**

A. General

1. The provisions of this section apply to community water systems using only ground water (except ground water under the direct influence of surface water, as defined in § 104) and serving 1,000 or fewer people.

2. Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in § 2708.

3. Once all monitoring required by this section and § 2708 for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in § 2709 have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by § 2709.

B. Monitoring frequency for total coliforms

The monitoring frequency for total coliforms is one sample/month, except as provided for under subsections (C) through (F) of this section.

C. Transition to Part XXVII

1. All systems must continue to monitor according to the total coliform monitoring schedules that were in effect on the effective date of this part unless any of the conditions in subsection (E) of this section are triggered on or after the effective date of this part, or unless otherwise directed by the Director.

2. Beginning on the effective date of this part, the Director must perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule. After the Director has performed the special monitoring evaluation during each sanitary survey, the Director may modify the system’s monitoring schedule, as necessary, or it may allow the system to stay on its existing monitoring schedule, consistent with the provisions of this section. The Director may not allow systems to begin less frequent monitoring under the special monitoring evaluation unless the system has already met the applicable criteria for less frequent monitoring in this section.

D. Criteria for reduced monitoring

1. The Director may reduce the monitoring frequency from monthly monitoring to no less than quarterly monitoring if the system is in compliance with Part XIV Public Water System Operator Certification provisions and demonstrates that it meets the criteria in subsections (D)(1)(a) through (D)(1)(c) of this section. A system that loses its certified operator must return to monthly monitoring the month following that loss.

   a. The system has a clean compliance history for a minimum of 12 months.

   b. The most recent sanitary survey shows the system is free of sanitary defects (or has an approved plan and schedule to correct them and is in compliance with the plan and the schedule), has a protected water source and meets approved construction standards.

c. The system meets at least one of the following criteria:

i. An annual site visit by the Director that is equivalent to a Level 2 assessment or an annual Level 2 assessment by a party approved by the Director and correction of all identified sanitary defects (or an approved plan and schedule to correct them and is in compliance with the plan and schedule).

ii. Cross connection control, as approved by the Director.

iii. Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Director.

iv. Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under § 2504(B)(3).

v. Other equivalent enhancements to water system barriers as approved by the Director.

E. Return to routine monthly monitoring requirements

Systems on quarterly monitoring that experience any of the events in subsections (E)(1) through (E)(4) of this section must begin monthly monitoring the month following the event. The system must continue monthly monitoring until it meets the reduced monitoring requirements in subsection (D) of this section.

1. The system triggers a Level 2 assessment or two Level 1 assessments in a rolling 12 month period.

2. The system has an *E. coli* MCL violation.

3. The system has a coliform treatment technique violation.

4. The system has two Part XXVII monitoring violations in a rolling 12-month period.

F. Additional routine monitoring the month following a total coliform-positive sample

Systems collecting samples on a quarterly frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three routine samples during the next month, except that the Director may waive this requirement if the conditions of subsection (F)(1), (2), or (3) of this section are met. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations.

1. The Director may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Director, or an agent approved by the Director, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Director to determine whether additional monitoring and/or any corrective action is needed. The Director cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Director to perform sanitary surveys.

2. The Director may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Director has determined why the sample was total coliform-positive and has established that the system has corrected the problem or will correct the problem before the end of the next month in which the system serves water to the public. In this case, the Director must document this decision to waive the following month’s additional monitoring requirement in writing, have it approved and signed by the supervisor of the NNEPA official who recommends such a decision, and make this document available to the EPA and the public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem.

3. The Director may not waive the requirement to collect three additional routine samples the next month in which the system provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the Director determines that the system has corrected the contamination problem before the system takes the set of repeat samples required in § 2708, and all repeat samples were total coliform-negative, the Director may waive the requirement for additional routine monitoring the next month.

**§ 2706 ROUTINE MONITORING REQUIREMENTS FOR PART VIII PUBLIC WATER SYSTEMS SERVING 1,000 OR FEWER PEOPLE**

A. General

1. The provisions of this section apply to Part VIII public water systems of these regulations serving 1,000 or fewer people.

2. Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in § 2708.

3. Once all monitoring required by this section and § 2708 for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in § 2709 have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by § 2709.

4. Seasonal systems

a. Beginning on the effective date of this part, all seasonal systems must demonstrate completion of a NNEPA-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

b. The Director may exempt any seasonal system from some or all the start-up requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

B. Routine monitoring frequency for total coliforms

Part VIII systems of these regulations (including consecutive systems) must monitor monthly. Systems may not reduce monitoring.

C. Unfiltered Part VIII systems

A Part VIII system of these regulations that does not practice filtration in compliance with Parts VIII, XIII, XXI, and XXIV must collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in Appendix D(B)(2), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Director determines that the system, for logistical reasons outside the system’s control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in § 2709 has been exceeded.

**§ 2707 ROUTINE MONITORING REQUIREMENTS FOR PUBLIC WATER SYSTEMS SERVING MORE THAN 1,000 PEOPLE**

A. General

1. The provisions of this section apply to public water systems serving more than 1,000 persons.

2. Following any total coliform-positive sample taken under the provisions of this section, systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in § 2708.

3. Once all monitoring required by this section and § 2708 for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in § 2709 have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by § 2709.

4. Seasonal systems

a. Beginning on the effective date of this part, all seasonal systems must demonstrate completion of a NNEPA-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

b. The Director may exempt any seasonal system from some or all the start-up requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating.

B. Monitoring frequency for total coliforms

The monitoring frequency for total coliforms is based on the population served by the system, as follows:

**TABLE 2700.1 TOTAL COLIFORM MONITORING FREQUENCY FOR PUBLIC WATER SYSTEMS SERVING MORE THAN 1,000 PEOPLE**

| Population served | Minimum number of samples per month |
|---|---|
| 1,001 to 2,500 | 2 |
| 2,501 to 3,300 | 3 |
| 3,301 to 4,100 | 4 |
| 4,101 to 4,900 | 5 |
| 4,901 to 5,800 | 6 |
| 5,801 to 6,700 | 7 |
| 6,701 to 7,600 | 8 |
| 7,601 to 8,500 | 9 |
| 8,501 to 12,900 | 10 |
| 12,901 to 17,200 | 15 |
| 17,201 to 21,500 | 20 |
| 21,501 to 25,000 | 25 |
| 25,001 to 33,000 | 30 |
| 33,001 to 41,000 | 40 |
| 41,001 to 50,000 | 50 |
| 50,001 to 59,000 | 60 |
| 59,001 to 70,000 | 70 |
| 70,001 to 83,000 | 80 |
| 83,001 to 96,000 | 90 |
| 96,001 to 130,000 | 100 |
| 130,001 to 220,000 | 120 |
| 220,001 to 320,000 | 150 |
| 320,001 to 450,000 | 180 |
| 450,001 to 600,000 | 210 |
| 600,001 to 780,000 | 240 |
| 780,001 to 970,000 | 270 |
| 970,001 to 1,230,000 | 300 |
| 1,230,001 to 1,520,000 | 330 |
| 1,520,001 to 1,850,000 | 360 |
| 1,850,001 to 2,270,000 | 390 |
| 2,270,001 to 3,020,000 | 420 |
| 3,020,001 to 3,960,000 | 450 |
| 3,960,001 or more | 480 |

C. Unfiltered Part VIII systems

A Part VIII system of these regulations that does not practice filtration in compliance with Parts VIII, XIII, XXI, and XXV must collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in Appendix D(B)(2), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Director determines that the system, for logistical reasons outside the system’s control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring must be included in determining whether the coliform treatment technique trigger in § 2709 has been exceeded.

D. Reduced monitoring

Systems may not reduce monitoring, except for non-community water systems using only ground water (and not ground water under the direct influence of surface water) serving 1,000 or fewer people in some months and more than 1,000 persons in other months. In months when more than 1,000 persons are served, the systems must monitor at the frequency specified in subsection (B) of this section. In months when 1,000 or fewer people are served, the Director may reduce the monitoring frequency, in writing, to a frequency allowed under § 2704 for a similarly situated system that always serves 1,000 or fewer people, taking into account the provisions in § 2704(E) through (G).

**§ 2708 REPEAT MONITORING AND *E.COLI* REQUIREMENTS**

A. Repeat monitoring

1. If a sample taken under §§ 2704 through 2707 is total coliform-positive, the system must collect a set of repeat samples within 24 hours of being notified of the positive result. The system must collect no fewer than three repeat samples for each total coliform-positive sample found. The Director may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. Alternatively, the Director may implement criteria for the system to use in lieu of case-by-case extensions. In the case of an extension, the Director must specify how much time the system has to collect the repeat samples. The Director cannot waive the requirement for a system to collect repeat samples in subsections (A)(1) through (A)(3) of this section.

2. The system must collect all repeat samples on the same day, except that the Director may allow a system with a single service connection to collect the required set of repeat samples over a three-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 300 ml.

3. The system must collect an additional set of repeat samples in the manner specified in subsections (A)(1) through (A)(3) of this section if one or more repeat samples in the current set of repeat samples is total coliform-positive. The system must collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the Director extends the limit as provided in subsection (A)(1) of this section. The system must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the system determines that a coliform treatment technique trigger specified in § 2709(A) has been exceeded as a result of a repeat sample being total coliform-positive and notifies the Director. If a trigger identified in § 2709 is exceeded as a result of a routine sample being total coliform-positive, systems are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

4. After a system collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

5. Results of all routine and repeat samples taken under §§ 2704 through 2708 not invalidated by the Director must be used to determine whether a coliform treatment technique trigger specified in § 2709 has been exceeded.

B. *Escherichia coli (E. coli)* testing

1. If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if *E. coli* are present. If *E. coli* are present, the system must notify the Director by the end of the day when the system is notified of the test result, unless the system is notified of the result after the Director’s office is closed and the Director does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Director before the end of the next business day.

2. The Director has the discretion to allow a system, on a case-by-case basis, to forgo *E. coli* testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is *E. coli*-positive. Accordingly, the system must

notify the Director as specified in subsection (B)(1) of this section and the provisions of § 205(C) apply.

**§ 2709 COLIFORM TREATMENT TECHNIQUE TRIGGERS AND ASSESSMENT REQUIREMENTS FOR PROTECTION AGAINST POTENTIAL FECAL CONTAMINATION**

A. Treatment technique triggers

Systems must conduct assessments in accordance with subsection (B) of this section after exceeding treatment technique triggers in subsections (A)(1) and (A)(2) of this section.

1. Level 1 treatment technique triggers

   a. For systems taking 40 or more samples per month, the system exceeds 5.0% total coliform-positive samples for the month.

   b. For systems taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

   c. The system fails to take every required repeat sample after any single total coliform-positive sample.

2. Level 2 treatment technique triggers

   a. An *E. coli* MCL violation, as specified in § 2710(A).

   b. A second Level 1 trigger as defined in subsection (A)(1) of this section, within a rolling 12-month period, unless the Director has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

   c. For systems with approved annual monitoring, a Level 1 trigger in two consecutive years.

B. Requirements for assessments

1. Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the Director.

2. When conducting assessments, systems must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any NNEPA directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

3. Level 1 Assessments. A system must conduct a Level 1 assessment consistent with NNEPA requirements if the system exceeds one of the treatment technique triggers in subsection (A)(1) of this section.

   a. The system must complete a Level 1 assessment as soon as practical after any trigger in subsection (A)(1) of this section. In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the Director within 30 days after the system learns that it has exceeded a trigger.

b. If the Director reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Director must consult with the system. If the Director requires revisions after consultation, the system must submit a revised assessment form to the Director on an agreed-upon schedule not to exceed 30 days from the date of the consultation.

c. Upon completion and submission of the assessment form by the system, the Director must determine if the system has identified a likely cause for the Level 1 trigger and, if so, establish that the system has corrected the problem, or has included a schedule acceptable to the Director for correcting the problem.

4. Level 2 Assessments. A system must ensure that a Level 2 assessment consistent with NNEPA requirements is conducted if the system exceeds one of the treatment technique triggers in subsection (A)(2) of this section. The system must comply with any expedited actions or additional actions required by the Director in the case of an *E. coli* MCL violation.

a. The system must ensure that a Level 2 assessment is completed by the Director or by a party approved by the Director as soon as practical after any trigger in subsection (A)(2) of this section. The system must submit a completed Level 2 assessment form to the Director within 30 days after the system learns that it has exceeded a trigger. The assessment form must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified.

b. The system may conduct Level 2 assessments if the system has staff or management with the certification or qualifications specified by the Director unless otherwise directed by the Director. If a system requests permission and the Director approves, a system may conduct Level 2 assessments if the system has staff or management with the certification or qualifications specified by the Director.

c. If the Director reviews the completed Level 2 assessment form and determines that the assessment and corrective action is not sufficient (including any proposed timetable for any corrective actions not already completed), the Director must consult with the system. If the Director requires revisions after consultation, the system must submit a revised assessment form to the Director on an agreed-upon schedule not to exceed 30 days.

d. Upon completion and submission of the assessment form by the system, the Director must determine if the assessment identified a likely cause for the Level 2 trigger and determine whether the system has corrected the problem, or has included a schedule acceptable to the Director for correcting the problem.

C. Corrective action

Systems must correct sanitary defects found through either Level 1 or 2 assessments conducted under subsection (B) of this section. For corrections not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable approved by the Director in consultation with the system. The system must notify the Director when each scheduled corrective action is completed, and perform any follow-up monitoring required by the Director to confirm sanitary defects are corrected.

D. Consultation

At any time during the assessment or corrective action phase, either the water system or the Director may request a consultation with the other party to determine the appropriate actions to be taken. The system may consult with the Director on all relevant information that may impact on its ability to comply with a requirement of this subpart, including the method of accomplishment, an appropriate timeframe, and other relevant information.

**§ 2710 VIOLATIONS**

A. *E. coli* MCL violation

A system is in violation of the MCL for *E. coli* when any of the conditions identified in subsections (A)(1) through (A)(4) of this section occur.

1. The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

2. The system has a total coliform-positive repeat sample following an *E.coli*-positive routine sample.

3. The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

4. The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

B. Treatment technique violation

1. A treatment technique violation occurs when a system exceeds a treatment technique trigger specified in § 2709(A) and then fails to conduct the required assessment or corrective actions within the timeframe specified in § 2709(B) and (C).

2. A treatment technique violation occurs when a seasonal system fails to complete a NNEPA-approved start-up procedure prior to serving water to the public.

C. Monitoring violations

1. Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

2. Failure to analyze for *E. coli* following a total coliform-positive routine sample is a monitoring violation.

D. Reporting violations

1. Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment in a timely manner is a reporting violation.

2. Failure to notify the Director following an *E. coli*-positive sample as required by § 2708(B)(1) in a timely manner is a reporting violation.

3. Failure to submit certification of completion of NNEPA-approved start-up procedure by a seasonal system is a reporting violation.

**§ 2711 REPORTING AND RECORDKEEPING**

A. Reporting

1. *E. coli*

a. A system must notify the Director by the end of the day when the system learns of an *E. coli* MCL violation, unless the system learns of the violation after the Director’s office is closed and the Director does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Director before the end of the next business day, and notify the public in accordance with Part VI of these regulations.

b. A system must notify the Director by the end of the day when the system is notified of an *E. coli*-positive routine sample, unless the system is notified of the result after the Director’s office is closed and the Director does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Director before the end of the next business day.

2. A system that has violated the treatment technique for coliforms in § 2709 must report the violation to the Director no later than the end of the next business day after it learns of the violation, and notify the public in accordance with Part VI of these regulations.

3. A system required to conduct an assessment under the provisions of § 2709 of these regulations must submit the assessment report within 30 days. The system must notify the Director in accordance with § 2709(C) when each corrective action scheduled as a result of either a Level 1 or Level 2 assessment is completed for corrections not completed by the time of submission of the assessment form.

4. A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the Director within 10 days after the system discovers the violation, and notify the public in accordance with Part VI of these regulations.

5. A seasonal system must certify, prior to serving water to the public, that it has complied with the NNEPA-approved start-up procedure.

B. Recordkeeping

1. The system must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under § 2709 for Director review. This record must be maintained by the system for a period not less than five years after completion of the assessment or corrective action.

2. The system must maintain a record of any repeat sample taken that meets the Director’s criteria for an extension of the 24-hour period for collecting repeat samples as provided for under § 2708(A)(1) of these regulations.

**§ 2712 FEES**

A. Fee schedule

The following fees will be assessed in conjunction with the requirements of this Part. All fees must be paid to the Navajo Nation Public Water Systems Supervision Program.

1. Performance by NNEPA of Level 2 Assessment or annual site visit for systems on annual monitoring: $300, plus any additional staff time required to perform the assessment or site visit billed at $30 per hour.

B. Revisions to fee schedule

1. The Director shall revise this fee schedule periodically as he or she deems appropriate, pursuant to the provisions for rulemaking in the NNSDWA § 2507(D) and Uniform Rules §§ 401-410.

2. The fees set under this section shall increase automatically at the beginning of each calendar year to reflect any percentage increase by which the Consumer Price Index for the most recent year exceeds the Consumer Price Index for the year 2017.