

NAVAJO NATION
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.

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 CTcalc - 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.

$$\frac{CT_{calc}}{CT_{99.9}}$$

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

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

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 NNPDR or, for purposes of compliance with a revised NNPDR, 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) 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.

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 25°C 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 AND DEVELOPMENT COMMITTEE - means Resources and Development 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 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.

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 (UV₂₅₄) (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 NNPDR.

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 and 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, except that variances and exemptions from the MCL for total coliforms and variances from any of the treatment technique requirements of Part VIII, General Requirements for Surface Water Treatment, may not be granted.
- B. EPA has stayed the effective date of this section relating to the total coliform MCL of § 205 for systems that demonstrate to the Director that the violation of the total coliform MCL is due to a persistent growth of total coliforms in the distribution system rather than fecal or pathogenic contamination, a treatment lapse or deficiency, or a problem in the operation or maintenance of the distribution system.

§ 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 anytime 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.