

DIVISION B
DRINKING WATER
CHAPTER 40
SCOPE OF DIVISION—DEFINITIONS—FORMS—RULES OF PRACTICE
[Prior to 12/3/86, Water, Air and Waste Management [900]]

567—40.1(455B) Scope of division. The department conducts the public water supply program and establishes minimum standards for the construction of private water supply systems. The public water supply program includes the following: the establishment of drinking water standards, including maximum contaminant levels, treatment techniques, maximum residual disinfectant levels, action levels, monitoring, viability assessment, consumer confidence reporting, public notice requirements, public water supply system operator certification standards, environmental drinking water laboratory certification program, and a state revolving loan program consistent with the federal Safe Drinking Water Act, and the establishment of construction standards. The construction, modification and operation of any public water supply system requires a specific permit from the department. Certain construction permits are issued upon certification by a licensed professional engineer that a project meets standards, and, in certain instances, permits are issued by local authorities pursuant to 567—Chapter 9. Private water supplies are regulated by local boards of health.

Chapter 38 contains requirements for private water well construction permits, including test wells and monitoring wells.

Chapter 39 contains requirements for the proper closure or abandonment of wells.

Chapter 40 includes rules of practice, including designation of forms, applicable to the public in the department's administration of the subject matter of this division.

Chapter 41 contains the drinking water standards and specific monitoring requirements for the public water supply program.

Chapter 42 contains the public notification, public education, consumer confidence reporting, and record-keeping requirements for the public water supply program.

Chapter 43 contains specific design, construction, fee, operating, and operation permit requirements for the public water supply program.

Chapter 44 contains the drinking water state revolving fund program for the public water supply program.

Chapter 49 contains the nonpublic water supply well requirements.

Chapters 50 to 52 contain the provisions for water withdrawal and allocation.

Chapter 55 contains the provisions for public water supply aquifer storage and recovery.

Chapter 81 contains the provisions for the certification of public water supply system operators.

Chapter 82 contains the provisions for the certification of water well contractors.

Chapter 83 contains the provisions for the certification of laboratories to provide environmental testing of drinking water supplies.

[ARC 9915B, IAB 12/14/11, effective 1/18/12]

567—40.2(455B) Definitions.

“Act” means the Safe Drinking Water Act as amended (42 U.S.C. 300f et seq.).

“Action level” is the concentration of lead or copper in water which determines, in some cases, the treatment requirements that a water system is required to complete.

“Acute health effect” means the health effect of a contaminant which is an immediate rather than a long-term risk to health.

“Animal confinement” means a lot, yard, corral, or similar structure in which the concentration of livestock or poultry is such that a vegetative cover is not maintained.

“Animal pasturage” means a fenced area where vegetative cover is maintained and in which animals are enclosed.

“Animal waste” means animal wastes consisting of excreta, leachings, feed losses, litter, washwaters or other associated wastes.

“Animal waste stockpiles” means the stacking, composting or containment of animal wastes.

“Animal waste storage basin or lagoon” means a fully or partially excavated or diked earthen structure used for containing animal waste, including earthen sideslopes or floor.

“Animal waste storage tank” means a completely fabricated structure, with or without a cover, either formed in place or transported to the site, used for containing animal wastes.

“Antisiphon device” means a device which will prevent back siphonage by means of a relief valve which automatically opens to the atmosphere, preventing the creation of subatmospheric pressure within a pipe, thereby preventing water from reversing its flow.

“Authority” means the Iowa finance authority (IFA) as established by Iowa Code chapter 16.

“Backflow” means the flow of water or other liquids, mixtures, or substances into the distribution system of a potable water supply from any source other than its permitted source.

“Backflow preventer” is a device or means to prevent backflow into a potable water system.

“Back siphon” means the flowing back of used, contaminated, or polluted water, from a plumbing fixture or vessel as a result of negative or subatmospheric pressure within the distribution system.

“Bag filters” means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are 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” means a water treatment process that uses a well to recover surface water that has naturally infiltrated into groundwater 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”* means the best technology, treatment techniques, or other means which the state finds, after examination, for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration).

“Cartridge filters” means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

“Cistern” means a tank in which rainwater from roof drains is stored.

“Clean compliance history” means, for the purposes of 567—paragraph 41.2(1)“e”(4)“2,” a record of no monitoring violations and no coliform treatment technique trigger exceedances or treatment technique violations under 567—subrule 41.2(1).

“Coagulation” means a process using coagulation chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

“Combined distribution system (CDS)” means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

“Commission” means the environmental protection commission of the state of Iowa.

“Community water system (CWS)” means a public water supply system which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

“Compliance cycle” means the nine-year (calendar year) cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year 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 continues every nine years thereafter.

“Compliance period” means a three-year (calendar year) period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance 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 continues every three years thereafter.

“Composite correction program (CCP)” is a systematic, comprehensive procedure that identifies and corrects the unique combination of factors, in the areas of design, operation, maintenance, and administration, that limit the performance of a filtration plant. The CCP is comprised of two elements:

comprehensive performance evaluation, which is the evaluation phase, and comprehensive technical assistance, which is the performance improvement phase.

“*Comprehensive performance evaluation (CPE)*” is a thorough review and analysis of a treatment plant’s performance-based capabilities and associated administrative, operation and maintenance practices. The CPE 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 surface water or influenced groundwater treatment plant requirements pursuant to 567—Chapters 41, 42, and 43, 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 a CPE report.

“*Comprehensive technical assistance (CTA)*” is the performance improvement phase of the composite correction plan that is implemented if the comprehensive performance evaluation results indicate improved performance potential by a filtration plant, in which the system must identify and systematically address plant-specific factors.

“*Confluent growth*” means 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 public water supply*” means an active public water supply which purchases or obtains all or a portion of its water from another, separate public water supply, also called a wholesale system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

“*Conservation easements*” means an interest in land that entitles a person to use the land possessed by another (affirmative easement), or to restrict uses of the land subject to the easement (negative easement). A conservation easement restricts the landowner to uses that are compatible with resource conservation.

“*Contaminant*” means any physical, chemical, biological, or radiological substance or matter in water.

“*Contiguous*” means directly adjacent or touching along all or most of one side of a legally defined piece of property. Tracts of land involved in the same operation or water supply and separated only by roads, railroads, or bike trails are deemed contiguous tracts.

“*Conventional filtration treatment*” means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

“*Corrosion inhibitor*” means 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.

“*Corrosive water*” means a water which due to its physical and chemical characteristics may cause leaching or dissolving of the constituents of the transporting system in which it is contained.

“*Cross connection*” means any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce into the potable system any used water, industrial fluid, gas, or other substance other than the intended potable water with which the system is supplied.

“*Customers*” in consumer confidence reports are defined as billing units or service connections to which water is delivered by a community water system.

“*Deep well*” means a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

“*Department*” means the Iowa department of natural resources, which has jurisdiction over all nontribal public water systems in Iowa.

“*Diatomaceous earth filtration*” means 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, additional filter

media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

“Direct filtration” means a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

“Director” means the director of the Iowa department of natural resources or a designee.

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

“Disinfection” means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

“Disinfection profile” is a summary of *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in 567—paragraph 43.9(2) “b” and 567—subrule 43.10(2).

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

“Drinking water state revolving fund” or *“DWSRF”* means the department-administered fund intended to develop drinking water revolving loans to help finance drinking water infrastructure improvements, source water protection, system technical assistance, and other activities intended to encourage and facilitate public water supply system rule compliance and public health protection established by Iowa Code sections 455B.291 to 455B.299.

“DWSRF funds” means the combination of a particular fiscal year’s federal capitalization grant appropriation plus the 20 percent state of Iowa match and any additional funds made available through the program.

“Effective corrosion inhibitor residual” means a concentration of corrosion inhibitor sufficient to form a passivating film on the interior walls of a pipe.

“Eligible cost” means the cost of all labor, material, machinery, equipment, loan initiation and loan service fees, project planning, design and construction engineering services, legal fees and expenses directly related to the project, capitalized interest during construction of the project, and all other expansion, construction, and rehabilitation of all or part of a project included in the funding request placed on the draft intended use plan as a fundable project, subject to approval by the commission.

“Enhanced coagulation” means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

“Enhanced softening” means the improved removal of disinfection byproduct precursors by precipitative softening.

“Federal cross-cutters” means the federal laws and authorities that apply to projects funded through the DWSRF.

“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” means a process for removing particulate matter from water by passage through a porous media.

“Finished water” means water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion chemicals).

“First draw sample” means a one-liter sample of tap water, collected in accordance with 567—paragraph 41.4(1) “c” that has been standing in plumbing pipes at least six hours and is collected without flushing the tap.

“Fiscal year” means the federal fiscal year starting October 1 and ending September 30.

“*Flocculation*” means 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.

“*Flowing stream*” means a course of running water flowing in a definite channel.

“*GAC10*” means granular activated carbon filter beds with an empty-bed contact time of ten minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 is 120 days when used as a best available technology for compliance with the maximum contaminant level locational running annual average for total trihalomethanes and haloacetic acids.

“*GAC20*” means 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.

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

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

“*Haloacetic acids (HAA5)*” means 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*” means one of the chemical elements chlorine, bromine or iodine.

“*Health advisory (HA)*” means a group of levels set by EPA below which no harmful health effect is expected from a given contaminant in drinking water. The HAs used by the department are listed in the most current edition of the EPA “Drinking Water Regulations and Health Advisories” bulletin. The lifetime HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects over a lifetime of exposure, with a margin of safety. The long-term HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects up to approximately seven years (10 percent of an individual’s lifetime of exposure), with a margin of safety.

“*Human consumption*” means water used as part of or in connection with drinking; washing; food processing or incidental to commercial food preparation, such as: water used in beverages or other food items; ice used in drinks or in salad bars; water for washing of vegetables or other food items; water used for washing dishes; pans or utensils used in food preparation or service; water used for cleanup and washing of food preparation or service areas; water for bathing, showering, hand washing, or oral hygiene purposes. Human consumption does not include: water for production of packaged or bulk food products regulated by other state or federal regulatory agencies, such as livestock slaughtering or bottled or canned food and beverages; cooling water; industrial or commercial wash waters used for nonfood products; irrigation water; water used in toilets or urinals.

“*Impoundment*” means a reservoir, pond, or lake in which surface water is retained for a period of time, ranging from several months upward, created by constructing a barrier across a watercourse and used for storage, regulation or control of water.

“*Influenced groundwater (IGW)*” means any groundwater which is under the direct or indirect influence of surface water, as determined by the presence of (1) significant occurrence of insects or other macroorganisms, algae or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*; or (2) significant and relatively rapid shifts in water characteristics such as turbidity (particulate content), temperature, conductivity, or pH which correlate to climatological or surface water conditions, or other parameters as specified in 567—43.5(455B).

“*Initial compliance period*” means the first full three-year compliance period of a compliance cycle.

“*Intended use plan (IUP)*” means a plan identifying the intended uses of funds available for loans in the DWSRF for each fiscal year as described in Section 1452 of the Safe Drinking Water Act.

“*Lake or reservoir*” means a natural or man-made basin or hollow on the Earth’s surface in which water collects or is stored that may or may not have a current or single direction of flow.

“*Large water system*” means a water system that serves more than 50,000 persons.

“*Lead free,*” when used with respect to solder and flux, refers to solders and flux containing not more than 0.2 percent lead; when used with respect to pipes and pipe fittings, refers to pipes and pipe fittings

containing not more than 8.0 percent lead; and, when used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion, refers to fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300-g-6(e).

“Lead service line” means 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. A lead gooseneck is not considered a lead service line unless it exceeds 10 feet.

“Legionella” means a genus of bacteria, some species of which have caused a type of pneumonia called legionnaires’ disease.

“Level 1 assessment” means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform bacteria monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 1 assessment is conducted by the system operator or owner. Minimum elements of the assessment 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 groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system owner or operator must conduct the assessment consistent with any department 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.

“Level 2 assessment” means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform bacteria 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. A Level 2 assessment is conducted by a department water supply inspector and will typically include the system operator. Minimum elements of the assessment 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 groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The department may tailor specific assessment elements with respect to the size and type of the system and the size, type and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

“Locational running annual average (LRAA)” means the average of the analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

“Maintenance” means the replacement of equipment or materials that are necessary to maintain the operation of the public water supply system but do not alter capacity, water quality or treatment method or effectiveness.

“Man-made beta particle and photon emitters” means all radionuclides emitting beta particles or photons or both 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” means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

“Maximum contaminant level goal (MCLG)” means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MCLGs are nonenforceable health goals.

“Maximum residual disinfectant level (MRDL)” means 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.

“Maximum residual disinfectant level goal (MRDLG)” means 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.

“Medium-size water system” means a water system that serves greater than 3,300 and less than or equal to 50,000 persons.

“Membrane filtration” means 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 which 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.

“Nonacute health effect” means the health effect of a contaminant which is a long-term rather than immediate risk to health.

“Noncommunity water system” means a public water system that is not a community water system. A noncommunity water system is either a “transient noncommunity water system (TNC)” or a “nontransient noncommunity water system (NTNC).”

“Nontransient noncommunity water system” or *“NTNC”* means a public water system other than a community water system which regularly serves at least 25 of the same persons four hours or more per day, for four or more days per week, for 26 or more weeks per year. Examples of NTNCs are schools, day-care centers, factories, offices and other public water systems which provide water to a fixed population of 25 or more people. In addition, other service areas, such as hotels, resorts, hospitals and restaurants, are considered as NTNCs if they regularly serve at least 25 or more of the same persons for four or more hours per day, for four or more days per week, for 26 or more weeks of the year.

“Optimal corrosion control treatment” means the corrosion control treatment that minimizes the lead and copper concentrations at users’ taps while ensuring that the treatment does not cause the water system to violate any drinking water standards (567—Chapters 40 to 43).

“Performance evaluation sample” means a reference sample provided to a laboratory for the purpose of demonstrating that a laboratory can successfully analyze the sample within limits of performance specified by the department. The true value of the concentration of the reference material is unknown to the laboratory at the time of analysis.

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

“Plant intake” means the works or structures at the head of a conduit through which water is diverted from a surface water source (e.g., river, reservoir, or lake) into the treatment plant.

“Point of disinfectant application” is 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 treatment device (POE)” is 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)” is a treatment device applied to a single tap or multiple taps used for the purpose of reducing contaminants in drinking water at those taps, but is not intended to treat all of the water in the facility.

“Population served” means the total number of persons served by a public water supply that provides water intended for human consumption. For municipalities which serve only the population within their incorporated boundaries, it is the last official U.S. census population (or officially amended census population). For all other community public water supply systems, it is either the actual population counted which is verifiable by the department, or population as calculated by multiplying the number of service connections by an occupancy factor of 2.5 persons per service connection. For municipalities which also serve outside their incorporated boundaries, the served population must be

added to the official census population determined either by verifiable count or by the 2.5 persons per service connection occupancy factor. For nontransient noncommunity (NTNC) and transient noncommunity (TNC) systems, it is the average number of daily employees plus the average number of other persons served such as customers or visitors during the peak month of the year regardless if each person actually uses the water for human consumption. Where a system provides water to another public water supply system (consecutive public water supply system) which is required to have an operation permit, the population of the recipient water supply shall not be counted as a part of the water system providing the water. Community and nontransient noncommunity public water supply systems will pay their operation permit fees based upon the population served.

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

“Privy” means a structure used for the deposition of human body wastes.

“Project” includes the planning, design, construction, alteration or extension of any public water supply system but does not include the maintenance of a system.

“Project priority list” means the list of projects in priority order that may qualify for DWSRF loan assistance contained in the IUP document prepared pursuant to rule 567—44.8(455B). The priority list shall identify all projects eligible for funding and the points assigned to each project pursuant to 567—subrule 44.7(7).

“Public water supply system control” is defined as one of the following forms of authority over a service line: authority to set standards for construction, repair, or maintenance of the service line; authority to replace, repair, or maintain the service line; or ownership of the line. Contaminants added to the water under circumstances controlled by the water consumer or user, with the exception of those contaminants resulting from the corrosion of piping and plumbing caused by water quality, are excluded from this definition of control.

“Public water supply system (PWS)” 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 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any “special irrigation district.” A public water system is either a “community water system” or a “noncommunity water system.”

“Regional water system” means a public water supply system in which the projected number of service connections in at least 50 percent of the length of the distribution system does not average more than eight service connections per linear mile of water main.

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

“Repeat compliance period” means any subsequent compliance period after the initial compliance period.

“Residual disinfectant concentration” (“C” in CT calculations) means the concentration of disinfectant measured in mg/l in a representative sample of water.

“Sanitary defect” means 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 sewer pipe” means a sewer complying with the department’s standards for sewer construction.

“Sanitary survey” means a review and on-site inspection conducted by the department of the water source, facilities, equipment, operation and maintenance and records of a public water supply system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water and identifying improvements necessary to maintain or improve drinking water quality, pursuant to 567—subrule 43.1(7).

“*SDWA*” means the Safe Drinking Water Act.

“*Seasonal system*” means a noncommunity 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.

“*Sedimentation*” means a water treatment process for removal of solid particles from a suspension before filtration by gravity or separation.

“*Septic tank*” means a watertight structure into which wastewater is discharged for solids separation and digestion.

“*Service connections*” means the total number of active and inactive service lines originating from a water distribution main for the purpose of delivering water intended for human consumption. For municipalities, rural water districts, mobile home parks, housing developments, and similar facilities, this includes, but is not limited to, occupied and unoccupied residences and buildings, provided that there is a service line connected to the water main (or another service line), and running onto the property. For rental properties which are separate public water supply systems, this includes, but is not limited to, the number of rental units such as apartments. Connections to a system that delivers water by a constructed conveyance other than a pipe are excluded from the definition, if:

1. The water is used exclusively for purposes other than human consumption;
2. The department determines that alternative water to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulation is provided for human consumption; or
3. The department determines that the water provided for human consumption 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 national primary drinking water regulations.

“*Service line sample*” means a one-liter sample of water, collected in accordance with 567—paragraph 41.4(1)“*c*” for the purpose of determining the concentration of lead and copper which has been standing for at least six hours in a service line.

“*Shallow well*” means a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

“*Significant deficiency*” includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

“*Significant noncompliance*” means the failure to comply with any national primary drinking water standard as adopted by the state of Iowa according to criteria established by the administrator of the federal Environmental Protection Agency.

“*Single-family structure*” means a building constructed as a single-family residence that is currently used as either a residence or a place of business.

“*Slow sand filtration*” means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/h (0.02 ft/min)) resulting in substantial particulate removal by physical and biological mechanisms.

“*Small water system*” means a water system that serves 3,300 persons or fewer.

“*Special irrigation district*” means an irrigation district in existence prior to May 18, 1994, that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system comply with numbered paragraphs “2” and “3” in the definition of “service connections.”

“*Standard methods*” means “Standard Methods for the Examination of Water and Wastewater,” American Public Health Association, 1015 15th Street N.W., Washington, DC 20005.

“*Standard sample*” means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

“*Standard specifications*” means specifications submitted to the department for use as a reference in reviewing future plans for proposed water main construction.

“*Supplier of water*” means any person who owns or operates a public water supply system.

“*Surface water*” means all water which is open to the atmosphere and subject to surface runoff.

“*SUVA*” means 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 (in m^{-1}) by its concentration of dissolved organic carbon (in mg/L).

“*Ten States Standards*” means the “Recommended Standards for Water Works,” 2012 edition as adopted by the Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

“*Too numerous to count*” means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

“*Total organic carbon (TOC)*” means total organic carbon in milligrams per liter, 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.

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

“*Transient noncommunity water system (TNC)*” means a noncommunity water system that does not regularly serve at least 25 of the same persons over six months per calendar year.

“*Treatment technique (TT)*” means a treatment process required to minimize the level of a contaminant in drinking water. A treatment technique is specified in cases where it is not technically or economically feasible to establish an MCL, and it is an enforceable procedure or level of technological performance which public water systems must follow to ensure control of a contaminant.

“*Trihalomethane (THM)*” means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

“*Two-stage lime softening*” means 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*” means a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere. Such facilities are prohibited.

“*Unregulated contaminant*” means a contaminant for which no MCL has been set, but which does have federal monitoring requirements for certain public water systems set forth in CFR Title 40, Part 141.40, and additional reporting requirements in rule 567—42.3(455B).

“*Viability*” means the technical, financial, and managerial ability to comply with applicable national primary drinking water standards as adopted by the state of Iowa. Viability is the ability of a system to remain in compliance insofar as the requirements of the SDWA.

“*Virus*” means a virus of fecal origin which is infectious to humans by waterborne transmission.

“*Waterborne disease outbreak*” means 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 Iowa department of public health.

“*Water distribution system*” means that portion of the water supply system in which water is conveyed from the water treatment plant or other supply point to the premises of the consumer, including any storage facilities and pumping stations.

“*Water main pipe*” means a water main complying with the department’s standards for water main construction.

“*Wholesale system*” means 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.

[ARC 9915B, IAB 12/14/11, effective 1/18/12; ARC 3735C, IAB 4/11/18, effective 5/16/18; ARC 6190C, IAB 2/9/22, effective 3/16/22]

567—40.3(17A,455B) Forms. The following forms are used by the public to apply for department approvals and to report on activities related to the public water supply program of the department. All forms may be obtained from the department’s website at www.iowadnr.gov (water supply pages) or from the Environmental Services Division, Administrative Support Station, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319-0034. Properly completed application forms shall be submitted to the Water Supply Section, Environmental Services Division. Water supply system monthly and other operation reporting forms shall be submitted to the appropriate field office (see 567—subrule 42.4(3)). Properly completed laboratory forms (reference 567—Chapter 83) shall be submitted to the State Hygienic Laboratory or as otherwise designated by the department.

40.3(1) Construction permit application forms. Schedules “1a” through “16d” are required.

<u>Schedule No.</u>	<u>Name of Form</u>	<u>Form Number</u>
“1a”	General Information	542-3178
“1b”	Minor Water Main Construction Permit	542-3151
“1c”	Fee Schedule	542-3179
“2a”	Water Mains, General	542-3030
“2b”	Water Mains, Specifications	542-3031
“2c”	Notification of Minor Water Main Construction	542-3152
“3a”	Water System, Preliminary Data	542-3032
“3b”	Water Quality Data	542-3029
“3c”	Surface Water Quality Data	542-3028
“4”	Site Selection	542-3078
“5a”	Well Construction	542-1005
“5b”	Well Appurtenances	542-3026
“5c”	Well Profile	542-1006
“5d”	Surface Water Supply	542-3139
“6a”	Distribution Water Storage Facilities	542-3140
“7”	Schematic Flow Diagram	542-3142
“8”	Aeration	542-3143
“9”	Clarification/Sedimentation	542-3144
“10”	Suspended Solids Contact	542-3145
“11”	Cation Exchange Softening	542-3146
“12”	Filters	542-3147
“13a”	Chemical Addition	542-3241
“13b”	Dry Chemical Addition	542-3130
“13c”	Gas Chlorination	542-3131
“13d”	Fluoridation	542-3132
“13e”	Sampling and Tests	542-3133
“14”	Pumping Station	542-3134
“15”	Process Water Storage Facilities	542-3135
“16a”	Wastewater, General	542-3136
“16b”	Waste Treatment Ponds	542-3137
“16c”	Filtration and Mechanical	542-3138
“16d”	Discharge to Sewer	542-3103

40.3(2) Operation permit application forms.

- a. Form 13-2 — application for a new water supply 542-1300
- b. Form 13-3 — renewal application for an existing water supply 542-1301

40.3(3) *Water supply reporting forms.* The monthly water supply operation report forms are available from the department's water supply operations section website. The laboratory analyses for compliance samples are reported via electronic means directly to the department by each certified laboratory.

40.3(4) *Laboratory certification application forms.* Reserved.
[ARC 9915B, IAB 12/14/11, effective 1/18/12; ARC 3735C, IAB 4/11/18, effective 5/16/18]

567—40.4(17A,455B) Public water supply construction permit application procedures.

40.4(1) *General procedures.* Applications for written approval from the department for any new construction or for reconstruction pursuant to 567—Chapter 43 shall consist of complete plans and specifications, application fee, and appropriate water supply construction permit application schedules. Upon review, the department will issue a construction permit for approval of a project if the review shows that the project meets all departmental design standards in accordance with 567—Chapter 43. Approval of a project which does not meet all department design standards will be denied unless a variance as provided by 567—paragraph 43.3(2) “b” is granted. A variance may be requested at the time plans and specifications are submitted or after the design discrepancy is pointed out to the applicant.

The department may review submitted project plans and specifications and provide comments and recommendations to the applicant. Departmental comments and recommendations are advisory, except when departmental review determines that a facility does not comply with the plans or specifications as approved by the department or comply with the design standards pursuant to the criteria for certification of project design. The owner of the system must correct the deficiency in a timely manner as set forth by the department.

40.4(2) *Public water sources and below-ground level water storage facilities—site survey.* For public water sources and for below-ground level finished water storage facilities, a site survey and approval must be made by the department. The manner and procedures for applying for and processing a site survey are the same as in 40.4(1) except that the following information must be submitted by the applicant's engineer.

a. A preliminary engineering report or a cover letter which contains a brief description of the proposed source or storage facility and assurance that the project is in conformance with the long-range planning of the area.

b. Completed Schedule 1a — General Information

c. Completed Schedule 4 — Water Supply Facility Site Selection

d. A detailed map showing all potential sources of contamination (see 567—Chapter 43, Table A) within:

(1) 1,000 feet of a proposed well location. The scale shall not be smaller than 1 inch = 200 feet.

(2) 200 feet of a proposed below-ground level finished water storage facility.

(3) 2,500 feet from a proposed surface water source and a plat showing all facilities more than 2,500 feet from an impoundment (within the drainage area) that may be potential sources of contamination. The scale shall not be smaller than 1 inch = 660 feet.

(4) Six miles upstream of a proposed river intake.

40.4(3) *Modifications of an approved water supply construction project.* Persons seeking to make modifications to a water supply construction project after receiving a prior construction permit from the department shall submit an addendum to plans and specifications, a change order or revised plans and specifications at least 30 days prior to planned construction, and the appropriate fee. The department shall review the submitted material within 30 days of submission and shall issue a supplemental permit if the proposed modifications meet departmental standards.

40.4(4) *Certification of project design.* A permit shall be issued for the construction, installation or modification of a public water supply system or part of a system or for a water supply distribution system extension if a qualified, licensed professional engineer certifies that the plans and specifications

comply with federal and state laws and regulations or that a variance to standards has been granted by the department. Refer to Schedule 1a.

567—40.5(17A,455B) Public water supply operation permit application procedures. A person requesting a water supply operation permit pursuant to 567—43.2(455B) must complete the appropriate application form, which will be provided by the department. Upon receipt of a completed application, the department will review the application and, if approved, will prepare and issue a water supply operation permit or draft permit, as applicable, and transmit it to the applicant. An annual operation fee pursuant to 567—subrule 43.2(1) is due by September 1 of each year. A permit or renewal will be denied when the applicant does not meet one or more requirements for issuance or renewal of this permit. An operation permit may be denied for any of the following reasons: system failed to pay the operation fee; system is not viable; system is not in compliance with the applicable maximum contaminant levels, treatment techniques, or action levels; system is in significant noncompliance with the provisions of 567—Chapter 41, 42, or 43.

567—40.6(455B) Drinking water state revolving fund loan application procedures. A person requesting a drinking water state revolving fund loan pursuant to 567—44.7(455B) must complete the appropriate application form, which will be provided by the department. The department will review the application package pursuant to 567—44.9(455B). Eligible projects will be ranked according to priority, with the highest-ranked projects receiving funding priority.

567—40.7(455B) Viability assessment procedures. A person required to complete a viability assessment pursuant to 567—43.8(455B) must submit the appropriate information as outlined in 567—43.8(455B) to the department. Self-assessment worksheets which can be used to prepare the viability assessment are available from the Water Supply Section, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319-0034.

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

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[◇] Two or more ARCs

¹ Effective date of definitions “Population served” and “Service connections” and rule 40.5(17A,455B) delayed until adjournment of the 1995 General Assembly by the Administrative Rules Review Committee at its meeting held March 13, 1995.