Montana Department of Public Health and Human Services
Food and Consumer Safety Section

CIRCULAR FCS 1-2012

MONTANA STANDARDS FOR NON-PUBLIC WATER SUPPLIES SERVING LICENSED ESTABLISHMENTS

Chapter 1 – Applicability

1.1 The standards and requirements of this circular apply to non-public water supplies serving licensed establishments as defined in 2.5.

1.2 A drinking water supply that meet the standards described in this circular might not meet the standards applicable to a public water system as defined by the Montana Department of Environmental Quality (DEQ) and US EPA. Any drinking water system that meets the definition of a public water supply must be constructed to public water system standards and be approved by DEQ.

1.3 A licensed establishment must meet applicable local regulations when they are more stringent.

Chapter 2- Definitions

2.1 "Cistern" means a tank used to contain potable water when no on-site source is capable of meeting the design capacity requirements as specified in Chapter 6. "Cistern" can also mean a licensed water hauler tank connected directly to a licensed establishment. "Cistern" does not include a potable water holding tank serving a mobile, temporary, pushcart, or semi-permanent retail food establishment.

2.2 "Deviation" means a departure from a condition in this circular which is approved by the regulatory authority in accordance with Chapter 7.

2.3 "Existing water supply" means a well or other source of drinking water that is currently serving a licensed establishment, or that has served a licensed establishment within the last 12 months.

2.4 "Groundwater source" means a subsurface drinking water source from a dug, drilled, bored or driven well or infiltration lines.

2.5 "Licensed establishment" means retail food establishments regulated under MCA Title 50, Chapter 50; wholesale food manufacturers regulated under MCA Title 50, Chapter 57; public accommodations regulated under MCA Title 50, Chapter 51; trailer courts and campgrounds regulated under MCA Title 50, Chapter 52; daycares regulated under MCA Title 22, Chapter 2, Part 7; schools regulated under Title 50, Chapter 1, Part 2; tattoo and body piercing establishments regulated under Title 50, Chapter 48; pools, spas and other

recreational water features regulated under Title 50, Chapter 53, and developmentally disabled group homes regulated under Title 53, Chapter 20, Part 3.

2.6 "Mixing zone" means an area established in a local health authority permit or final decision on nondegradation issued by DEQ where water quality standards may be exceeded, subject to conditions that are imposed by DEQ and that are consistent with the rules adopted by the Board of Environmental Review. "Mixing zone" also means a limited area of a surface water body or a portion of an aquifer, where initial dilution of a discharge takes place and where water quality changes.

2.7 "New water supply" means a well or other source of drinking water that has not served a licensed establishment within the last 12 months, even if the water supply already exists and has served another use.

2.8 "Pit" means a cavity or hole in the ground, natural or artificial, large enough for a person to enter, not designed for continuous occupancy by a person, and has limited or restricted means of entry or exit. "Pit" includes an underground vault or other underground enclosed space.

2.9 "Regulatory authority" means the local sanitarian, local board of health, local health officer, or department of public health and human services.

2.10 "Surface water source" means a drinking water source from any tributary stream, ditch or drainage basin, natural lake and artificial reservoir. For the purposes of this circular, surface water includes any groundwater directly connected to surface water or open to the atmosphere.

Chapter 3 – Water Source Development

3.1 Source Assessment

Applicants of a new water supply must complete a written source water assessment that includes the following information:

3.1.1 Facility Information

a. Business name, location address and legal description
b. Type of establishment(s) served (i.e. tourist home, day care center, etc.)
c. Owner name and mailing address
d. Primary contact person and phone number
e. Date of this submittal
f. Copy of any pertinent Certificate of Subdivision Approval with lot layout map if the parcel is less than 20 acres in size

3.1.2 Water System Information.

a. Description of the type of water source (i.e. well, spring, etc.)
b. How many people will be served (include workers and customers)
c. Estimated peak instantaneous demand
d. Description of any existing or proposed water treatment devices

e. A drawn plan view (from above) of the building and water system layout from the water source to pressure tank and plumbing, showing all parts of the connected plumbing system, even those not directly serving the establishment.
f. Materials used in the water system.
g. A well log, if the well already exists (If a well log is not available for an existing well, provide a Groundwater Information Center (GWIC) record created for the source.)
h. A lab analysis for coliform bacteria within the last 30 days and nitrate ("mg/L NO^3-N" or similar) within the last 12 months, if the source already exists
i. Intended depth and grout placement method for a proposed well.

3.1.3 Inventory Region. Provide a map or marked aerial photo showing the following:
a. Location of groundwater source or intake showing the distance to any existing or proposed building(s), sewer line(s), septic tank(s), and drainfield(s)
b. General parts of the wastewater system
c. Wastewater mixing zone(s) for this property and adjacent properties
d. Detailed description of land uses and activities within a 100- foot radius of the groundwater source or intake, including but not limited to roadways, driveways, parking areas, utilities, culverts, stormwater collection or conveyance features, buildings, shed or other structures
e. General land uses and activities within a 500-foot radius of the groundwater source or intake, identifying sewered residential, sewered commercial, unsewered residential, unsewered commercial, irrigated agricultural, grassland or forest

3.2 Design Capacity

3.2.1 The total developed water source capacity of the water system must meet projected maximum daily demand and peak instantaneous demand. Adequate storage in accordance with Chapter 6 will be required if the source capacity is not able to meet peak instantaneous demand.

3.2.2 The active volume of the hydropneumatic tanks must be sufficient to limit pump cycling to the manufacturer's recommendations.

3.2.3 Projected maximum daily demand must meet or exceed the projected wastewater flows established in Circular DEQ 4 2009 Edition for residential and nonresidential uses.

3.3 Groundwater Source Location

3.3.1 Before installation of a new groundwater source, the location must be approved by the regulatory authority, based on the requirements of this Chapter.

3.3.1 A groundwater source must be located at least 100 feet from surface water, stormwater infiltration structures, drainfields, lagoons or other facility used to dispose of wastewater.

3.3.2 A groundwater source must be located at least 50 feet from a sealed component that conveys, retains or treats wastewater such as a septic tank, sewer line, holding tank or lined pond.

3.3.3 A groundwater source may not be located in the 100 year floodplain.

3.3.4 A groundwater source may not be located in a wastewater mixing zone.

3.3.5 A groundwater source must be protected from potential sources of pollution.

Chapter 4 - Water System Design and Construction

4.1 Materials, Security and Protection

4.1.1 All materials used in the water system, including pipes, hoses, tubing, fittings, valves, storage facilities, coatings and fire hydrants must conform to applicable AWWA and ANSI/NSF standards at the time of installation . In the absence of such standards, all materials must be appropriate for potable water and approved by the regulatory authority.

4.1.2 All water system components must be secured and protected from physical damage, tampering, freezing and other possible contamination.

4.2 Well Construction

4.2.1 Wells must be constructed in accordance with ARM Title 36 Chapter 21 subchapter 6, except when this rule is more stringent.

4.2.2 Wells must be at least 25 feet deep.

4.2.3 Wells may not be located in pits.

4.3 Upper Terminal Well Construction

4.3.1 The top of the well casing must extend at least 18 inches above the finished ground surface or well house floor.

4.3.2 The top of the well casing at a site subject to flooding must be surrounded by an earth mound meeting the following:

a. at least two feet above the 100-year flood level or highest known flood elevation, whichever is greater; and
b. extending at least 25 feet in all directions from the wellhead.

4.3.3 A well must be capped with a sanitary seal to prevent the entry of potential contaminants.

4.6 Well Vents

4.6.1 A well must be vented.

4.6.2 A vent must be designed to prevent entry of rainwater and insects, with 24 mesh or smaller screen or corrosion resistant screen cloth, or other equivalent design.

4.7 Distribution Piping

4.7.1 Piping must be watertight.

4.7.2 The water system must be provided with a means of discharging to waste, but may not be directly connected to a sewer.

4.7.3 The water system should be equipped with a sampling tap, preferably smooth-nosed.

4.8 Pumping Facilities

4.8.1 Pumping facilities must be designed to provide the necessary quantity of potable water in accordance with 3.2.

4.8.2 Pumping facilities must be accessible and may not be subject to flooding, located in pits, or subject to contamination.

4.8.3 A pump must be provided with an accurate and functioning pressure gauge on its discharge line, pressure-relieving device, and pressure operated start-stop controls.

4.9 Valves

4.9.1 The water system must have adequate control valves and other components needed for satisfactory operation, maintenance and repair.

4.10 Water Storage and Pressure Tanks

4.10.1 The material and design used for finished water storage structure(s) must provide stability, durability and protect the quality of the stored water. A porous material such as wood or concrete block is not suitable as a potable water contact surface.

4.10.2 Pressure tanks must be completely housed and located above ground surface, protected from flooding, and not in a pit.

4.10.3 Pressure tanks must be installed according to manufacturer's instructions.

4.10.4 Where multiple tanks are used, each tank must have isolation piping and valves to allow operation of the system when a tank is being repaired or maintained.

4.10.5 Each tank must have a means of draining, an air blow-off, and a means for adding air.

4.10.6 Storage tanks must be sized to provide adequate chlorine contact time, when applicable. Tanks with a common inlet and outlet will not be considered for chlorine contact time.

4.11 Pressure

4.11.1 The water system must be designed to maintain at least 35 psi during normal operation and must not drop below 20 psi during peak use.

Chapter 5 - Water Treatment and Disinfection

5.1 Disinfection Required

5.1.1 Continuous disinfection is required where the well casing is perforated within 25 feet of the ground surface.

5.1.2 Continuous disinfection is required where the water source is an aquifer with a seasonal high water table within 25 feet of ground surface.

5.1.3 Continuous filtration and disinfection is required for all surface water sources.

5.2 Treatment Processes and Equipment

5.2.4 All equipment must be designed to be operated within manufacturer's recommended parameters.

5.2.3 The establishment must provide a written operation plan for each treatment process.

5.2.1 At a minimum, surface water must be filtered through a 5 micron filter, followed by a 1 micron filter, followed by continuous chlorine or ultraviolet disinfection.

5.2.2 Any treatment process and equipment used to remove contaminants must be either a NSF approved treatment system or designed by a professional engineer, and approved by the regulatory authority.

5.2.3 A treatment process or device for a non-regulated contaminant does not require approval by the regulatory authority if the treatment device is ANSI or NSF approved and installed according to applicable plumbing codes. Examples include water softening and turbidity removal.

5.3 Chemical Application

5.3.1 Except as required by 5.1 and 5.2, chemicals may not be applied to drinking water unless specifically approved or required by the regulatory authority.

Chapter 6 – Cisterns

6.1 Use

6.1.1 Cisterns may be used only if a potable water source is supplied by a source approved by the regulatory authority.

6.2 Location

6.2.1 The cistern must be located at least 10 feet from a foundation and have positive drainage away from it to prevent surface water from entering and contaminating the interior.

6.2.2 A cistern may not be located in a pit.

6.2.3 Subsurface cisterns and above ground cisterns with underground piping must be located:

a. at least 100 feet from surface water, stormwater infiltration structure, drainfield, lagoon or other facility used to dispose of wastewater;
b. at least 50 feet from a sealed component that conveys, retains or treats wastewater such as a septic tank, sewer line, holding tank or lined pond; and
c. not within a known or established 100 year floodplain.

6.3 Construction

6.3.1 All cistern materials must conform to Circular DEQ 17 2002 Edition.

6.3.2 A cistern must be structurally sound and used in accordance with manufacturer's instruction.

6.3.3 A cistern must be watertight. A 24-hour water tightness test showing no water loss must be performed on each cistern before it is put into service.

6.3.4 Any access port to a cistern must be a minimum of 24" diameter to allow an average-sized person to reasonably enter and exit for cleaning and maintenance purposes.

6.3.5 For above ground cisterns, the access opening must extend at least 6" above the top of the cistern.

6.3.6 For subsurface cisterns, the top of the access opening must be at least 18" above the ground surface to prevent surface water from entering the cistern.

6.3.7 The access must have a shoebox style lid that extends at least 2" over the access opening. The access lid must be securely fastened to prevent unauthorized entry and have a seal to prevent surface water, precipitation and insects from entering the cistern.

6.3.8 A cistern must be vented to allow the free flow of air in and out of the cistern as the water level inside the cistern changes.

a. The vent must extend to the surface, above the expected snow level, and be designed to prevent the entry of water.
b. The vent opening must be screened with corrosion resistant, 24-mesh (or smaller) screen cloth to prevent the entry of insects, birds and other animals.

6.3.9 A licensed water hauler tank may be used as a temporary cistern if adequate backflow devices are used.

6.4 Cleaning and Disinfection

6.4.1 The cistern must be flushed to remove any sediment and thoroughly shock disinfected after construction, installation, repair or maintenance.

Chapter 7 – Deviations

7.1 Deviations Allowed

A deviation from the standards established in this circular may be granted by the regulatory authority, on a case-by-case basis.

7.2 Deviation Request Process

7.2.1 An establishment wanting a deviation must make a request in writing. The request must identify the applicant's name, the establishment location, and the specific section(s) of the standards to be considered.

7.2.2 The applicant must provide adequate justification for the deviation. A request for a deviation stating "engineering judgment" or "professional opinion" without supporting documentation will not be reviewed.

7.2.3 Each specific section of the standards proposed for a deviation will be reviewed separately.

7.2.4 The regulatory authority shall review the request, and make a final determination on whether a deviation to each standard will be approved, approved with conditions, denied, or denied requesting further information.

7.3 **Deviation Revocation**

7.3.1 Once a deviation is granted, the regulatory authority may revoke it under the following circumstances:

a. If a potential health risk may occur as the result of the deviation;
b. If the applicant or establishment fails to comply with the conditions of the deviation; or
c. If information is withheld or inaccurately supplied by the applicant during the review process.

7.3.2 The regulatory authority shall notify the applicant of a revocation in writing.

7.3 Appeals

7.3.1 Any person adversely affected by a decision to grant, deny or revoke a deviation may appeal the decision using the process established by the regulatory authority. If no local appeals process exists, an appeal may be made in writing to the department of public health and human services.