

Date Received _____

Date Reviewed _____

Reviewed By _____

Plan #: _____

Surface Water Treatment Plan Submittal

NONCOMMUNITY PUBLIC WATER SYSTEMS

In accordance with Minnesota Rules 4720.0010, this form must be completed and submitted to the Minnesota Department of Health (MDH) for the installation or modification of water treatment associated with a noncommunity public water supply.

Responsible party of facility _____ Name of facility _____

Phone number _____ Email _____

Facility street address, City, ZIP _____

County name _____ PWSID # _____

Mailing street address, City, ZIP _____

Signature _____ Date _____

Treatment Designer Information

Name _____ On behalf of (company) _____

Plumbing license # _____ Contractor license # _____ Engineer license # _____

Mailing street address, City, ZIP _____

Phone number _____ Fax # _____ Email _____

Signature _____ Date _____

Water Operator Information (Nontransient Systems Only)

A person may not operate a water treatment facility unless the system or facility maintains at least one person that is certified in a class equal to or higher than the class of the facility; and has responsibility for the daily on-site operation of the facility. (Minnesota Statutes Chapter 115.57)

A minimum of a Class D operator is required for systems treating for a regulated contaminant or disinfecting. A higher class may be required depending on the facility.

Name _____ Class _____ Operator license # _____

Surface Water Intake Site Plan

Include with the submitted plans a site plan which shows the location of the water intake and potential sources of contamination. Include the following:

- Location of all surface water intakes, including depth, height above the lake bottom, and distance from shore.
- Potential contamination sources (such as septic tanks, drainfields, docking facilities, and river inputs) and the separation distance from where the intake meets the shoreline.
- Indicate Northern cardinal direction.
- Location of wells in the water supply system and their Unique Well IDs.

Plumbing Materials

Check all that apply, circle ASTM or AWWA standard(s)

- PE (ASTM D2239/D2737/D3035, AWWA C901)* COPPER (ASTM B42/B75/B88/B251/B302/B447)
 PVC (ASTM D1785/D2241, AWWA C900)** PEX (ASTM F876/F877, AWWA C904)
 CPVC (ASTM D2846/F441/F442) Other: _____

*PE cannot be installed within a building after the pressure tank, non-pressurized storage, or treatment device, whichever is furthest upstream

**PVC may only be for building supply or treatment applications and cannot otherwise be installed within or under the foundation of any building.

Treatment Facility Information

- Name of Surface Water Source: _____
- Facility flow rate (gpm): Average: _____ Peak: _____ Flow restrictor installed
- Operating pressure: _____ psi to _____ psi
- Is a new intake, pump house, or treatment building being constructed? Yes No
- Will the system be de-pressurized during part of the year? Yes No
- Specify any existing treatment, including the target contaminant(s) for removal, and if it will be removed as part of this project: _____

Chemical Feed

Check all that apply, include target chlorine and corrosion control inhibitor where applicable

- Sodium Hypochlorite (liquid) Phosphates (inhibitor)
 Gas Chlorine Silicates (inhibitor)
 Ozone Other: _____

Target free chlorine residual (mg/L): _____ Target inhibitor residual (mg/L): _____

Orthophosphate/Polyphosphate Blend Ratio: _____ / _____

Provide calculations used to determine the chlorine residual required in the storage/contact tank(s) [contact the Minnesota Department of Health if assistance with this calculation is needed].

Treatment Floor Plan

On a separate page, provide a site diagram of the water treatment system. Engineering or technical drawings are also acceptable. Please include the following in one or more diagrams of the project:

- Proposed treatment and storage equipment
- Existing components of the system
- All piping materials, and pipe sizes

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- Valves
- Water meters
- Cross connection control devices
- Water sampling taps
- Chemical injection points
- Wastewater discharge receptacles
- Direction of flow
(process flow diagram may be separate)

Equipment Specifications

Please provide specifications for new water treatment, storage, and supply equipment. In addition, provide the following information for new and existing equipment where applicable. Additional pages may be submitted as needed:

Source

For source pumps:

- Make/Model: _____ Variable Speed? Yes No
Type: _____ Capacity (gpm): _____ VFD Make/Model: _____

For hydropneumatic pressure tanks:

- Make/Model: _____ Operating pressure (psi): _____
Capacity (gal): _____ Tank material: _____ Number of Tanks: _____

Chlorinators/Chemical Feed Equipment

- Make/Model: _____ Capacity (gpd): _____
Feed Tank Material: _____ Number of Backup Pumps: _____

Note: Feed tank is to be equipped with a tight-fitting, overlapping lid and spill containment. Verify that the chlorine feed pump will be controlled to operate when the intake pump operates.

Filtration

For sand filters:

- Make/Model: _____ Number of Units: _____
- Height (inches): _____ Diameter (inches): _____ Arrangement: Series Parallel
- Filtration Rate for each unit (gpm/ft²): _____
- Media type(s): _____
- Source of backwash water: Treated Untreated Backwash pump capacity (gpm): _____

Note: On the site plan, show the location of the discharge of backwash water.

- Backwash controls: Time Breakthrough Volume Manual
- Provide a cross-section drawing of the pressure sand filter showing the layers and depth of filtering media.

For pre-treatment cartridge filters:

- Make/Model: _____ Number of Units: _____

For other pre-treatment filters:

- Type of filter: _____

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Make/Model: _____ Number of Units: _____

For final barrier (filtration for removal of *Giardia* and *Cryptosporidium*):

- Make/Model: _____ Number of Units: _____
Flow rate through each unit (gpm): _____
- Verification (documentation) that the filter (housing plus filter) will be capable of at least 2-log reduction of *Cryptosporidium* sized particles (2-5 microns).

Storage and Distribution

- Provide cross-section drawing of storage/contact tank(s). Show the location of the water inlet and outlet pipes. Include all dimensions. If more than one storage tank is used, show how the tanks are piped together.

For atmospheric storage tanks:

- Make/Model: _____ Baffled Tank? Yes No
Capacity (gal): _____ Tank material: _____ Number of Tanks: _____

For pressurized storage tanks:

- Make/Model: _____ Baffled Tank? Yes No
Capacity (gal): _____ Tank material: _____ Number of Tanks: _____

For distribution pumps:

- Make/Model: _____ Variable Speed? Yes No
Type: _____ Capacity (gpm): _____ VFD Make/Model: _____

For hydropneumatic pressure tanks:

- Make/Model: _____ Operating pressure (psi): _____
Capacity (gal): _____ Tank material: _____ Number of Tanks: _____

Monitoring

For turbidimeters:

- Make/Model: _____ Number of Standbys: _____

For chlorine residual testing equipment:

- Make/Model: _____ Number of Standbys: _____

Third Party Standards

Equipment, materials, and additives in contact with potable water must be certified to the following American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standards.

- Provide ANSI/NSF certification listing if any Drinking Water Treatment Chemicals are involved in the treatment system (Standard 60).
- Provide ANSI/NSF certification listing for “Drinking Water System Components” (Standard 61).
- Provide ANSI/NSF certification listing for “Drinking Water Treatment Units” if product is certified, including ANSI/NSF 42, 44, 53, 55, and 58.

Design Requirements and Recommendations

- Treatment facilities must be designed to supply all potable water fixtures within the distribution system, including showers, sinks, and dishwashers. This does not apply if treatment is not intended to remove a regulated contaminant.
- All materials, devices, and methods of construction used for the plumbing system shall comply with the standards set in the Minnesota Plumbing Code (see Minnesota Rules, Chapter 4714, Section 301.1).
- A sample tap must be installed and maintained on the system so that an untreated source water sample can be collected. Sample taps should also be installed prior to any treatment unit.
- The treatment equipment shall be labeled by the licensed plumbing contractor or water conditioning contractor that assembled the complete system so as to clearly identify the type of equipment and name and address of the installed and/or the manufacturer (Minnesota Rules, Chapter 4714, Section 611.1.3).
- The completed system shall be equipped with flow meters capable of measuring instantaneous flow and total gallons.
- A check valve should be installed prior to any chlorine injection point to prevent back-siphonage of chlorine into the source water. Chemical feeders shall be such that chemicals cannot be siphoned into the water system. A pressure relief valve should be installed on the discharge line from any positive displacement chemical feed pumps.
- The turbidimeter must meet design and performance criteria as specified in USEPA method 180.1

Note: Please email completed form to attn.: MDH Surface Water Engineer at Health.NoncommunityPlanReview@state.mn.us or fax or mail (attn.: MDH Surface Water Engineer).

Minnesota Department of Health
Drinking Water Protection Section
Noncommunity Water Supply Unit
11 E. Superior Street Suite 290
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www.health.state.mn.us

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Fax: 218-723-2359
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*To obtain this information in a different format, call:
651-201-4700.*