Office of Drinking Water (ODW)

Approvals - Frequently Asked Questions (FAQs)

About this document and consultation:

The following questions and answers are intended to assist water system owners, operators, and equipment suppliers seeking approval to construct or alter a public or semi-public water system under The Drinking Water Safety Act.

Category – Permit Process and Requirements

- What are the disinfection and filtration requirements for my water system?
    - Refer to the "Office of Drinking Water – Disinfection Requirements" documents.

- What is a permit to construct or alter a public or semi-public water system?
    - A permit is a document issued by the Office of Drinking Water to provide legal permission for an individual to begin to construct or alter a public or semi-public water system in Manitoba. The Permit includes a project description, specifies terms and conditions under which the project can proceed in accordance with The Drinking Water Safety Act, a deadline date for the work to be completed, and a unique permit number. Additional recommendations or advice may be provided in the accompanying approval letter.

- How do I get a permit to construct or alter a public or semi-public water system?
    - As per Section 3 of The Drinking Water Safety Regulation, to obtain a permit you must submit a completed application form and supporting materials including an accurate project description, drawings or schematics, and manufacturers or suppliers specifications documents. The application form and submission instructions can be found under the "Permit application forms" section here: https://www.gov.mb.ca/sd/water/drinking-water/permit/index.html

- Do I need a permit to construct or alter BEFORE I start the work?
    - Yes. The Drinking Water Safety Act (Section 7) requires that a permit be obtained **before** commencing construction or alteration of a public or semi-public water system. Enforcement action may be initiated, if construction or alteration of a public or semi-public water system occurs without pre-approval or permit.

- What types of work do I need a permit for?
    - The types of water system projects requiring a permit include but are not limited to:
    - Constructing a brand new water system.
    - Upgrading a water treatment system including installing a disinfection system (e.g. a UV system).
    - Installing chlorine contact tanks and water storage reservoirs.
    - Extending watermains for system expansions involving more than a few service connections or short extensions with complicated construction conditions.
    - Developing a new water source for an existing water system, such as a surface intake or groundwater well.
    - Constructing treated water storage, and booster pumping, pressure reducing, or rechlorination stations.

- Are there circumstances when I do not need a permit to do works?
    - Yes. Some types of work do not require a permit, such as routine Operations-and-Maintenance (O&M) work. In other instances, approval to complete the works can be obtained through the Minor Alternation process which is a less formal version of a permit.

- What types of work are considered routine Operations-and-Maintenance (O&M)?
    - Examples of projects that do not require approval include:
    - Replacing basic equipment such as pumps, pipes, valves, filter media and pressure tanks (except where upsizing may affect compliance with chorine contact time requirements).
    - Installing, replacing, or altering instruments and controls.
    - Installing a chlorine pump for chlorine residuals.
    - Installing or altering chemical storage or safety equipment or installing a backup power system.
    - Maintenance activities including watermain repairs.
    - Renewing or replacing watermains, with the expectation that water-sewer main separation distances be considered in piping alignment.
    - Installing service connections on an existing watermain, with the expectation that the proponent has confirmed there is adequate supply to meet demands.
    - Replacing or altering existing service connections (i.e., installing meters).

- How do I confirm if my project requires a permit, is a minor alteration, or can be considered routine operations-and-maintenance (O&M)?
    - Contact the Office of Drinking Water, Approvals Unit to discuss your plans early on in project planning at drinkingwater.approvals@gov.mb.ca. Approvals staff will confirm whether the project requires a permit application, and if not, will provide next steps guidance for obtaining the minor alteration approval. Enforcement may be initiated, if construction or alteration of a public or semi-public water system occurs without pre-approval or permit.

- What type of information do I have to include in the drawings or schematics?
    - Drawings or schematics must be supplied with every permit application to construct or alter a water system. Smaller projects (non-engineered) can use hand-drawn or simple computer-aided drawings or schematics. Larger projects (engineered) must provide stamped drawings or schematics. The drawings must include how the proposed water treatment equipment (or distribution system) will be installed. Drawings or schematics should label the new equipment and include information about sizing. Ensure the drawings clearly identify and differentiate between the new and existing treatment equipment (or infrastructure). Contact the Office of Drinking Water's Approvals Unit if you are uncertain if you need stamped (engineered) drawings or schematics and for more information.
    - For treatment equipment, the flow direction must be provided, and the type and number of the various treatment units and configuration (in-parallel or in-series) must be shown.
    - For distribution systems the following is required: the site map, with the number of service connections, estimated peak population served, pipeline details including location, direction, depth of bury, length, diameter, pipe type (HDPE, PVC, poly), pipe pressure rating, horizontal and vertical distances between potable water infrastructure and wastewater infrastructure, type and number of pipeline crossings (e.g. sewer, roadway, gas, etc…), along with any associated infrastructure such as standpipes and valves.

- Do I need to submit manufacturers or suppliers specification pdfs for the permit application?
    - Yes. Manufacturers or suppliers specifications pdfs must be supplied with *every* permit application to construct or alter a water system. These documents are critical to accurately review proposed treatment equipment. The documents must specify any potable water certifications (e.g. NSF, FDA, CSA, etc…). When the specifications show various models, the proposed model must be noted in the application.

Category – UV Disinfection Systems

- Can I install a UV disinfection system for my public or semi-public water system *before* receiving approval from the Office of Drinking Water?
    - No. As per Section 7 of The Drinking Water Safety Act (Section 7), UV disinfection systems must be reviewed and approved *before* installation to ensure the permit approval process is followed. The UV system must meet appropriate certifications, is compatible with the water chemistry, and does not adversely affect the safety of water supplied from the system.

- Can I buy or purchase a UV disinfection system, water treatment equipment or supplies before I get a permit from the Office of Drinking Water?
    - It is strongly recommended against purchasing a UV disinfection system, water treatment equipment or supplies before getting an approved permit from the Office of Drinking Water. During the permit process, all equipment and supplies are reviewed for potable water certification, effectiveness, and applicability for the proposed project. Equipment and supplies can be rejected during the permit process. If you purchase equipment or supplies prior to getting an approved permit, you risk purchasing equipment not recognized or approved by the Office of Drinking Water.

- I am planning to replace existing UV disinfection unit/s with new unit/s. Do I need a permit?
    - Semi-Public Water Systems (SPWS) and smaller Public Water Systems (PWS) that plan on replacing existing UV disinfection unit/s with new unit/s, do not require a permit. However, approval (*beforehand*) is required through the Minor Alteration process. Contact the Office of Drinking Water, Approvals Unit at drinkingwater.approvals@gov.mb.ca to explain your plans early in the project planning process to seek Minor Alteration approval.
    - Larger projects involving larger Public Water Systems (PWS) and larger UV systems requires a permit application.
    - Any project involving the installation of a new UV system, where there is no existing UV system, requires a permit application.

- What type of UV disinfection system can I use for my public or semi-public water system?
    - UV disinfection systems must have NSF certification to the NSF 55 Class A standard. Larger UV units can be certified to the US EPA UVDGM (dose-validated) standard, only if a flow restrictor is installed to ensure validated dose control. The Office of Drinking Water also accepts UV Pure Hallett models 500P, 750P, 1000P for low Ultraviolet Transmittance (UVT) applications, only if a flow restrictor is installed to ensure validated dose control.

- Do I need to install flow restrictors for my UV unit/s?
    - The type of UV unit being proposed will determine if a flow restrictor is required. UV disinfection systems with NSF certification to the NSF 55 Class A standard do not require an additional flow restrictor, as a flow restrictor is built into the device. Larger UV units that are certified to the US EPA UVDGM (dose-validated) standard require an external flow restrictor. Flow restrictors are necessary whenever the UV unit cannot automatically be within the designed flow rate to meet the required UV dose.

- Do I need to know my water chemistry to install a new UV disinfection system?
    - Yes. Water chemistry is required to install a new UV disinfection system. UV disinfection systems have manufacturer's water quality specifications that must be compatible with the system's water chemistry to ensure the system is operating within design conditions, and to avoid UV alarms (which can indicate the system is not being disinfected within the validated conditions).

- How does UVT affect UV disinfection systems?
    - UVT refers to Ultraviolet Transmittance with units of percentage (%). The higher the UVT value, the better the water can transmit Ultraviolet light. All UV disinfection systems have a range of acceptable values for UVT for the incoming water. If the UVT is too low for the UV disinfection system, the UV unit is not within validated conditions, and the UV light cannot effectively transmit to ensure the water is being disinfected appropriately.

- What type of pre-treatment do I require for my UV disinfection system?
    - Pre-filtration with a 5-micron cartridge is recommended to filter the water from particles and this pre-filter will assist with reducing potential UV alarms.

- Can I have a bypass around my treatment equipment or UV unit?
    - Yes, maintenance bypasses are permitted around treatment equipment. However, bypasses must be locked out and labelled with written procedures developed with the Drinking Water Officer for putting the bypasses into operation, which includes notification to the Drinking Water Officer.

Category – Water Meters

- Do I need a water meter or flow meter? Why?
    - Yes. If a public or semi-public water system does not currently have a water meter or flow meter, installation is necessary and will be stated as a requirement for any permit. Water use values assist in sizing treatment equipment, and if the system is required to install disinfection, this information is necessary. Water use values should be recorded daily (during the operating season) and kept for future reference.

Category – Chlorine Contact Time

- What is chlorine contact time (CT)?
    - The efficiency of disinfection using chlorine can be predicted based on a knowledge of the residual free chlorine concentration, temperature, pH, and contact time. This relationship is commonly referred to as the CT concept and is used by public drinking water suppliers as one tool for ensuring adequate inactivation of organisms during disinfection. (Health Canada, Guidelines for Canadian Drinking Water Quality, Guideline Technical Document: Chlorine, 2009.)
    - A minimum chlorine contact time of 20 minutes under peak conditions is required to achieve primary disinfection, bacteriological and microbial requirements as identified in the Drinking Water Safety Act and the Drinking Water Safety Regulation.
    - The type of chlorine contact time, hydraulic or effective, depends on the type of the system (public or semi-public), raw water source (secure groundwater, GUDI, or surface water), size of the system (peak population), and the seasonality of the system (seasonal or year-round). In order to determine the specific requirements, refer to the "Office of Drinking Water – Disinfection Requirements" [to be linked to website], or contact the Office of Drinking Water's Approvals Unit at drinkingwater.approvals@gov.mb.ca for more information.

- What is my chlorine contact time (CT) for my water system?
    - Chlorine contact time is calculated using the peak hourly flow rate for the water system and the lowest operating volume of the tank/s or reservoir cell/s and flow configuration; baffle factor is applied to calculate effective contact time.
    - You can request assistance in calculating the chlorine contact time (CT) from the Office of Drinking Water's Approvals Unit by contacting drinkingwater.approvals@gov.mb.ca

Category – Chlorine Contact Tanks and Treated Water Storage

- What types of tanks can I use for chlorine contact time?
    - Various types of tanks are acceptable, but the tanks *must* carry potable water certification, such as NSF 61, US FDA (Food and Drug Administration), etc... The required size is based on meeting the minimum requirement of 20 minutes of hydraulic or effective chlorine contact time.

Category – Chlorine Residuals and Pumps

- Do I need a chlorine residual in my distribution system?
    - Yes. The Drinking Water Safety Act (Section 20) requires water systems to have a disinfection residual (secondary disinfection). Secondary disinfection can be free chlorine residuals or mono-chloramination; both methods are accepted by the Office of Drinking Water. Water systems that serve a single building are typically not required to have a disinfection residual (secondary disinfection).

- Do I need a permit to install a chlorine pump for a chlorine residual?
    - No. A permit is not required to install a chlorine injection pump; this includes both new and replacement work. This type of work is considered routine Operations-and-Maintenance (O&M) by the Office of Drinking Water.

Category – GUDI

- What does GUDI mean?
    - GUDI is an acronym for Groundwater Under the Direct Influence of Surface Water, which means the well is vulnerable to surface water infiltration.

- How do I know if my water supply is GUDI?
    - The Office of Drinking Water follows a process to determine if a groundwater source is GUDI, which includes a review of several parameters that are indicative of surface water infiltration. Some of these parameters include the location and construction of the well, historical bacteriological data, and water quality data.
    - A water source may also be characterized as GUDI with a hydrogeological study. Hydrogeological studies provide data regarding the groundwater source and quality, which assist the Office of Drinking Water in the classification of the water source. Hydrogeological studies must be conducted by certified hydrogeological companies.
    - The Drinking Water Officer will be in communication with the water system owner regarding any potential change to the classification of the water source.

- Does the GUDI (Groundwater Under the Direct Influence of Surface Water) status of my water system affect the treatment and disinfection requirements?
    - Yes. GUDI (Groundwater Under the Direct Influence of Surface Water) status affects the treatment, disinfection, and monitoring requirements for public and semi-public water systems. GUDI systems require additional treatment, disinfection, and monitoring requirements, compared with Secure Groundwater systems. GUDI systems are legislated at a higher risk level because of the potential risk of contamination due to the vulnerability of the well.
    - Refer to the "Office of Drinking Water – Disinfection Requirements" documents.

Category – Treatment

- Do I need to install one (1) absolute micron filtration?
    - Depends on the type of raw water source and type of filtration installed. Yes, if you have a smaller water system using a high-risk GUDI (Groundwater Under the Direct Influence of Surface Water) or Surface Water source, you must install one (1) absolute micron filtration. This requirement does not apply if the treatment system utilizes membrane filtration, conventional or direct filtration (coagulation etc…), or slow sand filtration.
    - Refer to the "Office of Drinking Water – Disinfection Requirements" documents.

- What is the order (sequence) of treatment equipment in the treatment process?
    - The treatment process should be designed to effectively utilize treatment equipment to meet the disinfection and water quality objectives. The goal is to reduce the amount of particles in the water prior to disinfecting the water with UV and/or chlorination. Larger filters (larger micron sizes) should be placed first, with smaller filters (smaller micron sizes) placed subsequently, using the stepped down approach. If UV and chlorination will be used in the same treatment process, UV must be placed before chlorination. Chlorine injection is before the treated water storage and/or the distribution system.

Category – Chemicals

- Do chemicals have to be NSF certified?
    - Yes. All chemicals potentially in contact with potable water including sodium hypochlorite (liquid chlorine solution) must be certified to ANSI/NSF Standard 60 (health effects of drinking water treatment chemicals). ANSI/NSF Standard 61 (health effects of drinking water system components) can also be stated.

Category – Distribution Systems

- What are the requirements for pipeline projects, such as expanding my distribution system?
    - Approval is required before the distribution system can be expanded. A permit is required for multiple additional service connections and longer pipeline lengths. The “Minor Alteration” process can be requested for smaller projects and shorter pipeline lengths.
    - For distribution systems the following is required: the site map, with the number of service connections, pipeline details including location, direction, depth of bury, length, diameter, pipe type (HDPE, PVC, poly), pipe pressure rating, horizontal and vertical distances between potable water infrastructure and wastewater infrastructure, type and number of pipeline crossings (e.g. sewer, roadway, gas, etc...), along with any associated infrastructure such as standpipes and valves.

- What are the potable water and wastewater (sewer) separation distances acceptable by the Office of Drinking Water?
    - New water works (*if physical space allows*) must meet the horizontal separation distance of 3 meters between potable water and wastewater (sewer) pipelines. Vertical separation distance must be a minimum of 0.45 meters, including at crossings between water and wastewater. Watermains must be vertically above wastewater (sewer) pipelines. Crossings with oil and gas lines have additional requirements. The Office of Drinking Water recognizes that existing buried infrastructure may not meet these newer standards (e.g., the Ten States Standards). For new works, where separation distances cannot be met, separation from a potential contamination source must be maximized to the extent possible given site conditions. Contact the Office of Drinking Water’s Approval Unit to request variances.