

Approval Requirements for Drinking Water System Projects Permits to Construct or Alter

Purpose

Approval is required **before** starting construction of a new public or semi-public water system, or making major alterations to an existing public or semi-public water system. Approval requirements are set out in The Drinking Water Safety Act and The Drinking Water Safety Regulation and can be viewed online. Approval is recommended before purchasing important equipment, particularly water treatment equipment.

This information bulletin provides guidance to water system owners and consultants on the approval process for constructing or altering drinking water systems in Manitoba.

Types of Water Systems

Similar to other provinces, water systems in Manitoba are classified into three categories:

- A private water system is a system that supplies water to a single home or cottage, or a system that has been designated as a private water system by the Office of Drinking Water.
- A public water system is a system with 15 or more service connections (i.e., building connections, RV connections, campground standpipes), or a system that has been designated as a public water system by the Office of Drinking Water.
- A semi-public water system is anything in between, and may include public facilities with their own water supplies such as rural hospitals, schools and restaurants, or small water systems with less than 15 service connections.

Approval requirements do not apply to private water systems.

Approval Exemptions

A proposed project may be exempt from approval requirements under The Drinking Water Safety Act if it involves routine water system maintenance. Water system owners and operators are expected to follow accepted industry procedures such as disinfecting new equipment and to notify their Drinking Water Officer if a concern over the safety of the water supply is identified (i.e., water supply must be interrupted to complete the work). Examples of projects that would not require approval under The Drinking Water Safety Act include:

- Maintenance activities including watermain repairs.
- Renewing or replacing watermains, with the expectation that water-sewer main separation be considered in piping alignment.
- Replacing basic equipment such as pumps, pipes, valves, filter media and pressure tanks (except where upsizing pumping capacity may affect compliance with chlorine contact time requirements).

- Installing, replacing, or altering instruments and controls.
- Changing an existing treatment chemical within the same type/ family of chemical such as changing coagulants or membrane cleaning chemicals, with the expectation that the water system has taken steps to ensure treated water quality will not be adversely impacted:
 - Consulted with your engineer or treatment equipment supplier to discuss any potential impacts to treatment equipment and treated water quality.
 - Conducted jar testing or other pilot testing work to support the chemical change and identify the optimal dosage and dosage range.
 - Confirmed NSF 60 certification of the chemical and NSF 61 certification of any feed equipment.
 - Confirmed that dosing and chemical use will be in accordance with supplier instructions and product certification/ registration limits (i.e., NSF maximum use level).
 - Considered any required changes to dosage control, chemical injection (i.e., mixing), instrumentation, and chemical storage and handling provisions.
- Installing or altering chemical storage or safety equipment, or installing a backup power system.
- 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).

Permits

A permit must be obtained from the Office of Drinking Water prior to constructing a new public or semi-public water system, or making major alterations (i.e., changes, upgrades or expansion) to an existing system. The Permit specifies terms and conditions under which the project can proceed; additional recommendations or advice may be provided in the accompanying approval letter. The types of water system projects requiring a permit typically include:

- Constructing a brand new water system.
- Upgrading a water treatment system including installing a disinfection system.
- Installing water storage reservoirs and chlorine contact tanks.
- Constructing booster pumping, pressure reducing, storage or rechlorination stations.
- 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.

Minor Alterations

A proposed project may require approval but is considered a minor alteration and a permit application is not required. For such projects, confirmation will typically be required that the work follows accepted industry standards including water-sewer main separation requirements and post-construction disinfection and testing procedures. Engineering design information may be required depending on the complexity of the project. Typical examples include:

- Short watermain extensions involving a small number of service connections (i.e., five or less).
- Short watermain extensions to allow a stand-alone water system to connect to a local or regional water system.
- Connecting a backup or replacement water supply well accessing the same aquifer (i.e., same water source).

- Installing or altering a raw water storage pond.
- Installing a feed system for a new type of treatment chemical (i.e., adding a pre-oxidant or corrosion control chemical to your treatment process).
- Rearranging treatment units or process flow (i.e., installing a membrane bypass line).

The Approvals Unit of the Office of Drinking Water can be contacted for advice on approval requirements during project planning so delays are not encountered in later phases.

How do I go about obtaining a Permit to Construct or Alter?

If your project requires a permit, a complete permit application must be submitted. The application form lists supporting material that must accompany the application to avoid delays. Permit forms can be obtained from the website or from Office of Drinking Water staff.

What supporting material must generally accompany a permit application?

The overall objective for water system design and operation should be producing and distributing drinking water that consistently meets provincial water quality standards and maximum acceptable concentration limits specified in Health Canada's *Guidelines for Canadian Drinking Water Quality (GCDWQ)*, and that is aesthetically acceptable to water users.

Where engineering design documents are required, these documents must be sealed by a professional engineer registered to practice in the province of Manitoba. The drawings must include the location and details for all proposed water supply, treatment, storage, pumping and distribution works. The drawings must also show the location of any nearby wastewater infrastructure or other potential sources of contamination. The design brief must include a project description, summary of key design data, project schedule, location map if not included in the drawings, and commissioning procedures. Additional information is required where water supply or water treatment works are proposed. For water system expansions, the proponent or their consultant must confirm that the water system has the capacity to meet water demands without developing water pressure, disinfection contact time or water quality issues.

The Office of Drinking Water applies the *Recommended Standards for Water Works* (commonly known as *The Ten State Standards*), AWWA standards, and provincial standards and guidelines. *The Ten State Standards* are widely used in North American jurisdictions as the basis for water system design guidelines and approvals. Design engineers must make a statement on general conformance with these standards with justification for any significant deviations that may affect the protection of public health, and additional design or construction measures proposed to counteract these concerns.

Are there other regulatory requirements that must be met?

Some projects may require contact with other regulatory agencies. For example, installation of a new water supply well or intake may trigger a requirement for a water rights licence or federal fish screen requirements, and alterations to wastewater (sewer) collection systems require involvement of the Environmental Approvals Branch of the Manitoba Government. Contact may be required with other agencies or organizations, for example, where permission is required for a utility crossing or stream crossing, or to ensure compliance with workplace safety and health requirements, or local bylaws. Service connection requirements including backflow prevention fall under the Manitoba Plumbing Code and municipal or water system by-laws.

What steps are involved in obtaining a permit?

In general, public water system project proponents and engineers should follow the steps as outlined. Semi-public water system project proponents should discuss their project with the Office of Drinking Water to ensure regulatory requirements are met; however, this information may be helpful.

- 1) Contact the Office of Drinking Water to discuss your plans early on in project planning. Office of Drinking Water staff can provide information and advice. Contact may also be required with other municipal, provincial or federal agencies.
- 2) Review applicable drinking water regulations and requirements. For existing systems, water system assessments, and Office of Drinking Water audits and inspections contain critical information on deficiencies and regulatory requirements. It is important that project proponents are familiar with regulatory requirements affecting drinking water systems.
- 3) Consider project alternatives. For new developments, consider connecting to an existing water system in the area. Being responsible for water treatment involves ongoing diligence and investment to ensure the delivery of safe drinking water. Carefully consider equipment selection including the complexity and cost of operation and maintenance. For water supply projects, carefully consider the location of an intake or well to minimize the risk of contamination, and contact the local Drinking Water Officer for information on required water quality testing and accredited laboratories.
- 4) Engage the services of a qualified professional engineer to design and oversee the project. Engineering design documents may not be required, though a permit is still required, if the project involves alterations to a very small water system (i.e., community water system serving less than 100 people or seasonal system serving less than 500 people) and installation of certified, pre-engineered equipment. The proponent should ensure the equipment designer or contractor is knowledgeable and experienced, and will provide technical support before, during, and after construction.
- 5) Where a project may involve a non-traditional technology, an alternative disinfection strategy or a significant deviation from accepted industry standards, the Office of Drinking Water should be contacted as early as possible. The Office of Drinking Water may request additional documentation to support the discussion such as an engineering pre-design report or technical note, proof of equipment certification or validation, and history of approval or acceptance by other recognized regulatory agencies. Consider the need for pilot testing particularly if water quality conditions are unusual or if there has been very limited use of the technology in Manitoba. If pilot testing, consider the length and timing of the test period based on the objectives and source water quality (i.e., try to capture worst-case conditions to assess O&M requirements or fouling potential). Ensure adequate monitoring is conducted during any pilot testing to assess performance and operating conditions.
- 6) Submit a complete permit application including supporting material as far in advance of tendering and construction as possible. The proponent or their authorized representative (i.e., engineer) can make the submission. If water treatment equipment will be pre-purchased or pre-selected, start the permit application process and submit final design documents for the water treatment facility once available. Depending on the complexity of the project and completeness of the submission, the review process may take a few weeks to a few months.

Although approval reviews are typically conducted on a first-come, first-serve basis, the Office of Drinking Water will try to accommodate project schedules.

- 7) Comply with any requests from the Office of Drinking Water. Office of Drinking Water staff may request more information to confirm the project will conform to applicable standards, generally accepted design practices, and provincial drinking water regulations and guidelines. The review is focused on drinking water safety. Other aspects of the work including structural, electrical, workplace safety or building code are not the subjects of this review. Review staff will typically communicate concerns directly with the design engineer. Once any issues are addressed, the Office of Drinking Water will issue a Permit to Construct or Alter and an accompanying approval letter to the engineer and project proponent.
- 8) Once a permit has been issued, comply with all permit conditions during construction. If significant changes from approved plans are required or significant delays are expected, contact the Office of Drinking Water. A permit amendment may be required. Contact with the Drinking Water Officer may be required to discuss operating licence requirements including monitoring and reporting, or if construction may result in a drinking water safety concern for an existing water system (i.e., require a shutdown or equipment bypass).
- 9) Upon project completion, notify the Office of Drinking Water as directed in the Permit. For major projects such as a new water treatment system or concrete reservoir, approval may be required to place the new works into service. In such cases, the design engineer or proponent will be required to confirm successful construction, disinfection and commissioning. Submit the required commissioning report as directed in the Permit.

Further Information

For general questions, contact the Drinking Water Officer.
For specific questions, contact the Approvals Unit.

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