

Waterworks Quality Assurance & Controls	Authority: Approved by Council	Type: Employee
	Effective date: July 20, 2022	Revised date: July 20, 2022
	Policy No. 500-8 Waterworks Quality Assurance & Controls	

Town of Lampman  
 Policy No. 500-8  
 Waterworks Quality Assurance & Control Policy  
 July 13, 2022

## Waterworks Quality Assurance & Controls Policy

### 1. Policy Statement

The purpose of this Policy is to establish quality assurances and controls to supply good quality drinking water that is essential to the continued growth, prosperity, and well being of our citizens. We are committed to managing all aspect of our water system effectively to provide safe drinking water. It is our policy that the drinking we provide will be produced in accordance with and meet or exceed the quality standards required by *The Waterworks and Sewage Works Regulations, 2015*.

To achieve our goals, we will:

- Cooperate with the provincial government to protect our waterworks and water sources from contamination;
- Ensure the potential risks associated with water quality are identified and assessed;
- Ensure that our water supply, treatment, storage, and distribution infrastructure is properly designed, constantly maintained, and regularly evaluated and improved;
- Include the drink water quality and quantity priorities, needs, and expectations of our citizens, the provincial authorities, and our water system employees into our planning;
- Develop a mechanism to ensure adequate funds are available for the water utility to maintain and improve the infrastructure, implement best practices, and ensure our water treatment employees are educated about their responsibilities and adequately trained and certified;

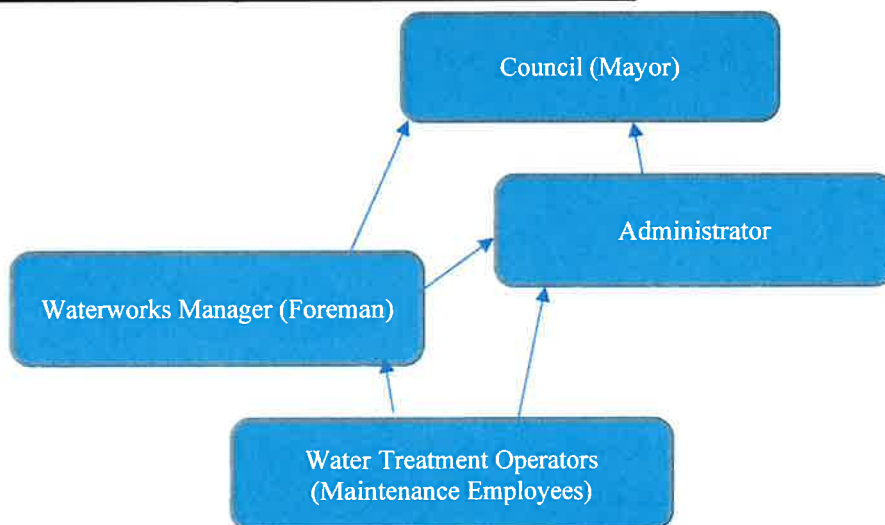
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- Establish regular verification of the quality of drinking water provided to our citizens and monitoring of the water treatment processes that produce the water;
- Provide community awareness about the water supply and its management by establishing and maintaining effective reporting of the water quality and timely information about the water system to our citizens;
- Develop contingency plans and incident response capabilities in cooperation with Provincial authorities;
- Where possible participate in activities to ensure continued understanding of drinking water quality issues and performance; and
- Regularly assess our performance and continually improve our practices to produce good quality water.

We will develop a drinking water quality management system including implementation plan to achieve these goals and adequately manage risks to our drinking water quality.

All our officials, managers, and employees involved with the supply of drinking water are responsible for understanding, implementing, maintaining, and continuously improving the drinking water quality management system.

## **2. Waterworks Organizational Structure**



The Waterworks Manager (foreman) is the major operator the water management and reports to the Town of Lampman administrator. Roles of these employees and council (mayor) the roles of these positions are detailed below.

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*Waterwork Manager (Foreman):*

The role of the waterworks manager includes:

- Overall responsibility for the day-to-day operations of the waterworks;
- Together with administrator develops operational and maintenance protocols and plans;
- Develops safety plans and conducts safety inspections;
- Together with administrator budgets for operation and maintenance of waterworks;
- Together with administrator develops waterworks emergency response plan;
- Provides guidance to operators on operation of works;
- Staffing of waterworks operators and issues of supervision and scheduling;
- Together with administrator arranges for periodic flushing or swabbing of the distribution system as well as the sewer system; and
- Solicits bids and oversees contractors performing work on waterworks.

*Water Treatment/Distribution Operators (Foreman/Maintenance Employees):*

The role of the water treatment operators includes:

- Starts up, shuts down and performs periodic operating checks of plant equipment such as pumping systems, chemical feeders, auxiliary equipment (compressors), measuring and control systems;
- Determines chemical feed rates, flow quantities, detention time and hydraulic loadings as required by plant operations;
- Monitors status of plant operating guidelines, such as flow pressures, chemical feeders, levels and water quality indicators;
- Performs routine preventive maintenance, such as lubrication, operating adjustment, cleaning and painting equipment;
- Maintains records including operating logs, daily dairies, and chemical inventories;
- Performs minor corrective maintenance on plant equipment;
- Conducts tours of the waterworks and communicates with the public on issues associated with water quality;
- Orders chemicals, repair parts and tools;
- Loads, unloads and stores treatment chemicals;
- Assists with periodic flushing or swabbing of the systems;
- Locates and repairs water leaks and operates, assists in maintaining and repairing valves and hydrants;

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- Performs repair work while ensuring safety procedures for the work site, traffic, and the public are maintained;
- Disinfects repaired and new sections for pipe and collects the necessary water samples;
- Maintains distribution system plans and maps;
- Cleans, disinfects and maintains pipeline;
- Operates and maintains any pumping equipment and facilities remote from the main water treatment plant as necessary;
- Locates and eliminates cross-connections or potential cross-connections; and
- Follows safety rules

#### Administrator

The roles of the municipal administrator includes:

- Receives and prepared administrative, budget and waterworks record submissions for review of mayor and to be tabled at a Council meeting.
- Arranges for and provides annual notification to consumers served by the waterworks on the quality of drinking water provided and on sample submission compliance. Prepares a report to Council on the state of the drinking water on an annual basis;
- Receives and resolve or forwards all correspondence dealing with drinking water operations on behalf of the mayor and Council;
- Prepares financial reports regarding waterworks operational and maintenance issues;
- Prepares strategies for ensuring waterworks sustainability;
- Invoicing and receipt of waterworks related expenses as well as consumer charges for water use; and
- Together with waterworks manager arranges for period flushing or swabbing of the distribution system as well as the sewer system.

#### Mayor/Council:

The role of mayor and council with respect to the waterworks operation includes:

- Overall responsibility for waterworks, quality of water and regulatory compliance;
- In conjunction with council, allocates financial resources through a budgeting process and establishes water and sewer rates;

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- The mayor is the chief official in the event of an emergency situation;
- Reports on operational, maintenance or infrastructure issues or needs to council and ensures issues are addressed; and
- In conjunction with the waterworks manager reviews operational records and logs on a monthly basis in accordance with the requirements of Section 40 of *The Waterworks and Sewage Works Regulations, 2015*.

### **3. Operations and Maintenance Protocol**

Operation of the community waterworks will be performed in accordance with design specifications and operating protocols developed for the Town of Lampman water treatment plant. Details regarding the standards, operating procedures, range of operations, chemical feed, maintenance practices and intervals are outline below:

#### *Town of Lampman Waterworks Operation and Maintenance*

System Design Capacity (m3/day): \_\_\_\_\_

Well(s): \_\_\_\_\_

Number of wells: \_\_\_\_\_

Pump maintenance/change-out: \_\_\_\_\_

Well/pump service disinfection: \_\_\_\_\_

Wellhead protection inspection: \_\_\_\_\_

Supply Pipeline:

Flow meter readings: \_\_\_\_\_

Pressure readings: \_\_\_\_\_

Check heater in pumphouse: \_\_\_\_\_

Inspect air release valves: \_\_\_\_\_

Exercise valves: \_\_\_\_\_

Aeration:

Inspect blower: \_\_\_\_\_

Inspect tower: \_\_\_\_\_

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**Raw Water Storage and Retention**

Capacity: \_\_\_\_\_  
Retention time management: \_\_\_\_\_  
Frequency of inspection: \_\_\_\_\_  
Frequency of draining: \_\_\_\_\_  
Frequency of cleaning: \_\_\_\_\_

**Iron/Manganese Control**

KMmO4 dosage rate: \_\_\_\_\_  
Pre-filter ferric iron target: \_\_\_\_\_  
Test frequency: \_\_\_\_\_

**Filtration**

Capacity: \_\_\_\_\_  
Filtration rate: \_\_\_\_\_  
Media type: \_\_\_\_\_  
Maximum allowable head loss: \_\_\_\_\_  
Backwash type: \_\_\_\_\_  
Backwash rate with air: \_\_\_\_\_  
Media evaluation frequency: \_\_\_\_\_  
Filter vessel inspection: \_\_\_\_\_

**Disinfection**

Disinfectant used: \_\_\_\_\_  
Dosage rate: \_\_\_\_\_  
Monitoring location: \_\_\_\_\_

**Clearwell Storage**

Volume of clear well: \_\_\_\_\_  
Fire water capacity: \_\_\_\_\_  
Output Meter recording: \_\_\_\_\_  
Cleaning and Inspection: \_\_\_\_\_

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**Water Distribution System**

- Piping system: \_\_\_\_\_
- Flushing schedule: \_\_\_\_\_
- Swabbing frequency: \_\_\_\_\_
- Backflow prevention: \_\_\_\_\_
- Hydrant maintenance schedule: \_\_\_\_\_
- Valve exercise frequency: \_\_\_\_\_
- Repair safety procedures: \_\_\_\_\_
- Line/main break disinfection: \_\_\_\_\_
- Break sampling: \_\_\_\_\_
- Truck fill station inspection: \_\_\_\_\_
- Truck fill backflow prevention: \_\_\_\_\_

**4. Water Quality Monitoring, Data Collection, Record Keeping, Record Review and Reporting Procedures**

The following monitoring and record keeping protocols apply to the operation of the waterworks and distribution system;

**Water Quality Monitoring:**

The Town of Lampman will conduct all monitoring required by permit or ministers order issued by Saskatchewan Environment (SE). The Environmental Project Officer (EPO) responsible for regulation of the waterworks, will be advised of any positive bacteriological sample results as well as any exceedance of other water quality standards as determined through sampling and analysis for other substances as required by the *Permit to Operate Waterworks*. All required drinking water quality monitoring samples, other than samples for chlorine residual, turbidity, and pH will be sent to and analyzed by an accredited laboratory.

The Town of Lampman will conduct daily free chlorine residual monitoring of drinking water entering the distribution system and turbidity monitoring at each filter. The EPO will be advised of any failure to meet a free-chlorine residual of at least 0.1 mg/L for water entering the distribution system, as well, any exceedance of turbidity levels as required by operational permit, ministers order or regulatory requirement. Additionally, the Town of Lampman will advise EPO of any failure of the disinfection equipment or of

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any upset of concern to the water treatment process, operation, or to the distribution system, in accordance with good practice and/or the emergency response plan for the waterworks. See **Table 1** for the Town of Lampman treated water quality monitoring plan. Results of each test are to be completed to the objectives listed.

**Table 1**

Parameter	Sampling Frequency	Sampling Location	SE Guidelines Presence or mg/L	Guideline type



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Document Revision History:

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Policy No. 500-7 Water and Sewer Collection Procedures	June 12, 2019	Council
Policy No. 500-7 Water and Sewer Collection Procedures	June 15, 2022	Council