WATERWORKS
QUALITY ASSURANCE and
QUALITY CONTROL POLICY
FOR THE HAMLET OF
STONY BEACH

Including Amendments:

November 10, 2010, Resolution 277/10

February 12, 2020, Resolution 43/2020

Approved: Cathy Rippinger

Date: February 12, 2020

Waterworks Quality Assurance/Quality Control Policy
For the Hamlet of Stony Beach

1. Policy Statement

We, the "R.M. of Pense, owner/operator of the drinking water system servicing the hamlet of Stony Beach" understand that supplying good quality drinking water is essential to the continued growth, prosperity, and well being of our citizens. We are committed to managing all aspects of our water system effectively to provide safe and aesthetically appealing water that tastes good and is free from objectionable colour or odour. It is our policy that the drinking water we provide will be produced in accordance with and meet or exceed the quality standards required by ***The Water Regulations, 2002.***

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 drinking 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;
- 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 an implementation plan to achieve these goals and adequately manage the risks to our drinking water quality.

All of 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. Organizational Structure

Reeve
Tom Lemon, Box 23, Pense, Sask., S0G 3W0; Phone/Cell: 306-345-2230
Council member responsible for waterworks
Joanne Simpson, Box 178, Pense, Sask., S0G 3W0; Phone: 306-345-2551; Cell: 306-596-4985
Municipal Administrator
Cathy Ripplinger, Box 190, Pense, Sask., S0G 3W0; Office Phone: 306-345-2303; Fax: 306-345-2583; Home: 306-543-1451; Cell: 306-539-9783
Waterworks Manager and Water Treatment Operator
Ken Lovell, Box 190, Pense, Sask., S0G 3W0; Shop Phone: 306-345-2424; Cell: 306-539-9869
Water Distribution System Operators
Ken Lovell, Box 190, Pense, Sask., S0G 3W0; Shop Phone: 306-345-2424; Cell: 306-539-9869
Jada Guest/Kyle Molema, Box 30, Stony Beach, Sask., S0G 4S0; Phone: 306-891-8712
Others
Back-up waterworks employee. (None)

The following is a summary of the role and responsibility of various persons involved in production and management of drinking water for the hamlet of Stony Beach.

The role of Reeve Tom Lemon with respect to waterworks operation includes:

- overall responsibility for waterworks, quality of water provided to consumers, and regulatory compliance in capacity of person responsible for the municipality or waterworks;
- in conjunction with council, allocates financial resources through a budgeting process and establishes water rates and/or surcharges;
- chief official in the event of an emergency situation;

The role of Councillor Joanne Simpson includes:

- oversees and reports on operational, maintenance or infrastructure issues or needs to Council and Reeve to ensure issues are addressed;
- in conjunction with the Waterworks manager reviews operational records and logs on a monthly basis in accordance with the requirements of section 43(2) of *The Water Regulations*

The role of Cathy Ripplinger, Administrator includes:

- receives and prepares administrative, budget and waterworks record submissions for review of assigned Council member and to be tabled/considered 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 resolves or forwards all correspondence dealing with drinking water operations on behalf of Reeve 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;

The role of Ken Lovell, Waterworks Manager includes:

- overall responsibility for the day to day operation of the waterworks;
- develops operational and maintenance protocols and plans;
- develops safety plans and conducts safety inspections;
- budgets for operation and maintenance of waterworks;
- develops Waterworks Emergency Response Plan;
- provides guidance to operators on operation of works;

- staffing of waterworks operators and issues of supervision and scheduling;

The role of Ken Lovell, Water Treatment Operator includes:

- performs routine preventive maintenance, such as lubrication, operating adjustments, cleaning and painting equipment;
- maintain plant records including operating logs, daily diaries, and chemical inventories and automated data logs;
- collects representative water samples and performs laboratory tests on samples for chlorine residual and other tests as required by the operating permit or operational protocol;
- performs minor corrective maintenance;
- conducts tours of the waterworks and communicates with the public on issues associated with water quality;
- orders chemicals, repair parts and tools;
- follows safety rules.

The role of Ken Lovell and Jada Guest/Kyle Molema, Water Distribution System Operators includes:

- locates and repair water leaks and operates , maintains and repairs valves and hydrants;
- collects and transports routine water samples from the distribution system and ensures proper packaging and shipment to the laboratory;
- performs repair work while ensuring safety procedures for the works site, traffic, and the public are maintained;
- disinfects repaired or new sections of pipe and collects the necessary water samples;
- maintains distribution system plans and maps;
- operates and maintains any pumping equipment or facilities remote from the main water treatment plant as necessary;
- locates and eliminates cross-connections or potential cross-connections.

3. Operations and Maintenance Protocol

Operation of the community waterworks will be performed in accordance with design specifications and standard operating protocols of the waterworks industry. Further detail regarding standards, operating procedures, range of operation, chemical feed, maintenance practices and intervals are outlined below.

Waterworks Operation/Maintenance Protocol

System Design Capacity (m^3/day):	3" jointed pipe, 2" through manhole (unknown flow rate)
2003 Water Usage	1852 cubic meters = 407,405.37.14 gallons = 1116.18 gallons per day
Supply Pipeline	
Quantity supply agreement – No	dependant on Buffalo Pound agenda
Iron/Manganese Control – Method/Type:	
Pre-chlorination:	dosage rate/range – Buffalo Pound
Disinfection – Method/Type(s):	(for repairs only) swabbing/flushing repair sections
Disinfectant used	sodium hypochlorite (household bleach)

Water Distribution System

Piping type(s)	3" PVC jointed (2" through manhole)
Flushing schedule	N/A
Foam Swabbing schedule	N/A
Pumping capacity	regulated at 38 – 40 psi (L/s)
Emergency pumping capacity	none (L/s)
Backflow prevention	yes - manhole
Hydrant maintenance schedule	N/A
Valve maintenance schedule	yearly
Repair safety procedures	yes
Line/main break disinfection	yes – sodium hypochlorite
Line/main break sampling	yes – if an occurrence happens
Customer metering	yes
Truck fill station	no
Truck fill backflow prevention	N/A
Water hauler protocols	N/A

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 – Permit and Regulatory Requirements

The hamlet of Stony Beach 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, Aleena James, will be advised of any positive bacteriological sample result as well as any exceedence of other water quality standards as determined through sampling and analysis for other substances as required by permit or ministers order. As of March 31, 2004 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 Waterworks Log (attached) will be used to record the community's monitoring activities and results.

The hamlet of Stony Beach will conduct daily free chlorine residual monitoring of drinking water entering the distribution system and turbidity monitoring at each filter as required by regulation, permit or ministers order issued by SE. The EPO, Aleena James responsible for regulation of the waterworks 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 exceedence of turbidity levels as required by operational permit, ministers order or regulatory requirement. Additionally, the hamlet of Stony Beach will advise EPO, Aleena James responsible for regulation of the waterworks of any failure of the disinfection system or of any other upset to the water treatment process, operation or distribution system concern in accordance with good practice and/or the emergency response plan – technical action plans for the waterworks.

Table 1

Hamlet of Stony Beach

Waterworks Water Quality Monitoring Plan

Parameter	Overall Sampling Frequency for All Locations	Sampling Location		SE Guidelines Presence or mg/L	Guide-line type
Bacteriological					
Coliform Bacteria	Monthly	Jada Guest/Kyle Molema Residence		0 coliforms	MAC
		(Distribution system)		0 coliforms	MAC
General Chemical	Once/two years	Water Treatment Plant			
Alkalinity		N/A		500 mg/L	AO
Bicarbonate		N/A		None set	
Calcium		N/A		None set	
Carbonate		N/A		None set	
Chloride		N/A		250 mg/L	AO
Conductivity		N/A		None set	
Fluoride		N/A		1.5	MAC
Hardness		N/A		800 as $CaCO_3$	AO
Magnesium		N/A		200	AO
Nitrate		N/A		45.0 as NO_3	MAC
Sodium		N/A		300	AO
Sulphate		N/A		500	AO
Total dissolved solids		N/A		1500	AO
pH		N/A		6.5 – 9.0	MAC
Health and Toxicity	Once/two years	Water Treatment Plant			
Aluminum		N/A		None set	
Arsenic		N/A		0.025	MAC
Barium		N/A		1.0	IMAC
Boron		N/A		5.0	IMAC
Cadmium		N/A		0.005	MAC
Chromium		N/A		0.05	MAC
Copper		N/A		1.0	AO
Iron		N/A		0.3	AO
Lead		N/A		0.01	MAC
Manganese		N/A		0.05	AO
Selenium		N/A		0.01	MAC
Uranium		N/A		0.1	MAC
Zinc		N/A		5.0	AO
Turbidity	Daily	Water treatment plant			
	Same as bacteriological	Same as bacteriological N/A			
Residual Disinfectant					
Free chlorine	Daily	Jada Guest/Kyle Molema Residence		> 0.1	
	Same as bacteriological	Same as bacteriological		>/= 0.1 if total chlorine < 0.5	
Total chlorine	Recommended daily	Jada Guest/Kyle Molema Residence		>0.5 if free chlorine < 0.1	
	Same as bacteriological	Same as bacteriological		>0.5 if free chlorine < 0.1	

Water Treatment Plant (WTP) Operational Monitoring Plan

Observational and measurement-related operational monitoring of water quality and associated reporting requirements are established for the Hamlet of Stony Beach waterworks. Additional monitoring is undertaken as needed for process quality control. Water works operators will monitor operational process in accordance with **Table 2** below.

Table 2

Hamlet of Stony Beach

WTP Operational Monitoring Parameters

Operational Parameter	Treatment Process				
					Distribution system
Chemical Dosage					
Chlorine Residual					X
Filter Head Loss					
Iron					
Manganese					
Pressure					
Total Coliform					X
Turbidity					
Water meter					
Trihalomethanes					X

Record Keeping

Waterworks records and logs will be kept in accordance with the requirements of *The Water Regulations, 2002*. The following persons are delegated responsibility for operational record and log keeping:

1) Ken Lovell
2) Jada Guest/Kyle Molema

Operational records and logs will include:

- locations from which samples for any tests conducted by the permittee of the waterworks were taken in accordance with the permittee's permit and the name of the person who conducted the sampling or testing and the results of those tests;
- any departures from normal operating procedures that may have occurred and the time and date that they occurred;
- any instructions that were given during operation of the waterworks to depart from normal operating practices and the name of the person who gave the instructions;

- any upset condition or bypass condition, with time and date and measures taken to notify others and resolve the upset or bypass condition;
- any condition of low disinfectant levels, the time, date and location of occurrence and measures taken to restore disinfectant to required values;
- the dates and results of calibrating any metering equipment and testing instruments; and
- the dates and types of maintenance performed on equipment and any actions taken to ensure the normal operations of the waterworks.

The operational records or logs mentioned above will be recorded and maintained in the following manner:

- must be made in chronological order, with the dates, times and testing locations clearly indicated;
- entries in an operational record or log will only be made by the permittee or person specifically appointed by the permittee;
- persons making an entry in an operational record or log shall do so in a manner that allows the person to be unambiguously identified as the maker of the entry;
- operational records or logs must be maintained for at least five years;
- any anomalies or instances of missing entries in an operational log must be accompanied by explanatory notes;
- operational logs must only contain data that is actually observed or produced;
- operational logs must not contain default values generated manually or by automated means; and
- operational records or logs maintained in accordance with the above requirements must be made available promptly on request of the Minister of Environment or a representative of the Minister.

Record Review and Reporting

The Reeve or an assigned Council member and the waterworks manager will review all monitoring results, records and operational logs on a monthly basis. If the review of the records or logs indicates that the quality of water from the waterworks has been adversely affected, the findings will be reported to SE as soon as reasonably practical after the report has been completed.

5. Emergency Response Planning

The *Hamlet of Stony Beach* has developed a Waterworks Emergency Plan. See attached.