WATERWORKS QUALITY ASSURANCE/QUALITY CONTROL POLICY
FOR THE COMMUNITY OF RADISSON

Approved: Date: June 24/25

1. Policy Statement

We the Town of Radisson owner/operator of the drinking water servicing the Town of Radisson 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 our water system effectively to provide safe water that tastes good and is free of objectionable colour or odor. It is our policy that the drinking water we provide will be produced in accordance with and meet the quality standards required by The Water Regulations, 2002.

To achieve these goals we will:

- Cooperate with the senior levels of government to protect our waterworks and water sources from contamination.
- Ensure potential risks associated with water quality are identified and assessed.
- Ensure that the municipal water supply, treatment, storage and distribution infrastructure is properly designed, maintained at acceptable standards and regularly evaluated and improved when required or desirable.
- Include the drinking water quality and quantity priorities and expectations of our citizens.
- Ensure adequate funds are available for the water & sewer utility to be properly maintained and improved where necessary.
- Implement best practices and ensure that water treatment employees or contractors are educated to their role in the water and sewer system and ensure that they are properly trained and certified.
- Establish regular verification of the quality of drinking water to our citizens.
- Provide the end users of the water system with information about the water supply and its management by establishing and maintaining an effective reporting of the water quality and timely information about the water system.
- Develop contingency plans and incident response plans in cooperation with senior levels of government.
- Regularly assess our performance and monitor our practices to ensure good quality water.

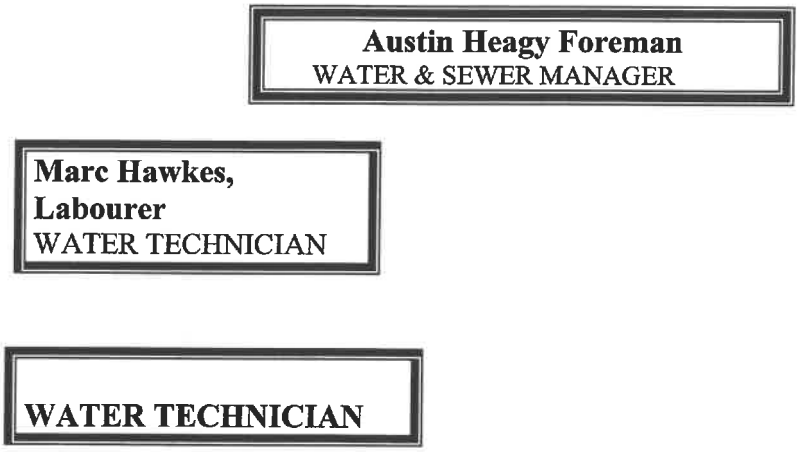
Develop a drinking water management system including implementation plan to achieve these goals and adequately manage the risks to our drinking water.

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

In this section an organizational chart for the waterworks and associated administration is shown.

ORGANIZATIONAL CHART



WATERWORKS OPERATIONS, MANAGEMENT & ADMINISTRATION

Name & Position	Address		Contact Info
Mayor, Duane Flath	602 Albert Street Radisson, Sask. S0K 3L0	cell:	306-961-7571
Councillor, Pete Reddekopp Water Committee	307 Edward Street Radisson, Sask. S0K 3L0	cell:	639-471-3778
Deputy Mayor, Scott Currie Water Committee	525 Albert Street Radisson, Sask. S0K 3L0	cell:	306-262-6715
Councillor, Shawn Mitchler Water Committee	304 Edward Street Radisson, Sask. S0K 3L0	cell:	306-827-7879
Councillor, Diane	505 Main Street	cell:	306-230-0281

Rimmer	Radisson, Sask. S0K 3L0	
Administrator, Norma Stumborg	501 Goodrich Street Radisson, Sask. S0K 3L0	cell: 780-512-4523
Assistant, Bernice Baker	RR#1 Borden, Sask. S0K 0N0	cell: 306-280-6974
Foreman, Austin Heagy	409 Albert Street Radisson, Sask. S0K 3L0	cell: 306-230-6538
Labourer, Marc Hawkes	411 Alexander Street Radisson, Sask. S0K 3L0	cell: 306-227-5547

The following is a summary of the roles and responsibilities of the various personnel in production and management of the drinking water for the Town of Radisson.

The role of the **Mayor** with respect to operations include the following:

- Overall responsibility for waterworks, quality of water provided to consumers, and regulatory compliance in capacity of person responsible for the municipality/ waterworks.
- In conjunction with council allocates financial resources through budgeting and establishes water and sewer rates and or surcharges.
- Chief official in the event of an emergency.

The role of the **Water & Sewer Committee** includes:

- Oversees and reports on operational, maintenance and infrastructure issues to council and the Mayor to ensure water issues are addressed.
- In conjunction with waterworks manager review of operational records and logs on a monthly basis in accordance with the requirements of Section 43(2) of the Water Regulations.

The role of **Municipal Administrator**:

- receive and prepare administrative, budget and waterworks record submissions for review of assigned water and sewer committee and be considered at a council meeting.
- Arrange for and provide annual notification to consumers served by the waterworks on the quality of drinking water provided and on compliance submission.
- Receive and resolve or forward all correspondence dealing with drinking water operations from and on behalf of mayor/council.
- Prepare financial report regarding waterworks operational and maintenance/capital issues.
- Preparing strategy for ensuring waterworks sustainability
- Invoice and receipt waterworks related expenses and consumer charges.

The role of the **Waterworks Manager:**

- Overall responsibility for the day to day operation of waterworks
- Develop operational and maintenance protocols and plans.
- Develop safety plans and ensure safe operations
- Help with budgeting for operation of maintenance works
- Develop waterworks emergency plan
- Provide guidance to operators on operation of works
- Staffing of waterworks operators and issues of supervision and scheduling

The role of **Water Technicians**:

- Start up, shut down and periodic checks of plant equipment
- Calculate chemical feed rates, flow quantities, detention and contact times and hydraulic loadings as required by plant operations
- Perform routine preventative maintenance.
- Maintain plant records, including operating logs, daily dairies, chemical inventory & automated data logs
- Collect water samples and perform tests on samples for turbidity, chlorine residual and other tests as required by operating permits.
- Perform necessary corrective maintenance on plant mechanical equipment.
- Communicate with the public on issues associated with water quality where practicable
- Order chemicals, parts and tools
- Load, unload and store chemicals safely
- Follow rules for plant operations
- Periodic flushing of the distribution system
- Locate and repair water leaks, operate, maintain and repair valves and hydrants
- Collect and transport routine water samples from the distribution system
- Perform repair work while maintaining a safe work environment for employees and the public
- Disinfect repaired or new sections of pipe and collect necessary water sample Maintain distribution system plans and map
- Clean, disinfect and maintain reservoir system

- Operate and maintain pumping equipment from the main water treatment plant as necessary
- Eliminate any cross-connections

3. Operations & Maintenance Protocol

- Operation of the Radisson 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 and chemical feed, maintenance practices and intervals are outlined below:

Waterworks Operation/Maintenance Protocol

System Design Capacity 980 M3/day

Well(s)

Number of Wells – Two
- Pump Maintenance/change-out – Maintenance – Every two years
- Change out – As required
- Wellhead protection Inspection – Weekly

Pretreatment - Method
- Potassium Permanganate – Dosage Rate/Range – 1.5 solution

Filtration – Method/Type

- Media Type – Green Sand
- Backwash type - Manual
- Backwash Frequency – Every 700 – 800 m3
- No Air Assisted Backwash System
- Filter to Waste System – Yes
- Frequency –
- Filter Inspection – Annual

Iron/Manganese Control – Method/Type

- Filtration Rate -
- Potassium Permanganate – Dosage Range 1.5 solution

Disinfection – Method/Type

- Disinfectant Used – Liquid Sodium Hypochlorite
- Dosage Rate/Range – 12% volume
- Residual Monitoring – every week

Water Storage

- Type – concrete
- Volume of Treated Water – 250 M3
- Type – Fiberglass Resevoir Tanks
- Volume of Water – 475 M3
- Fire Water Emergency Capacity – 60M3
- Output Metering – No
- Inspection & Cleaning – Every Five years

Water Distribution System

- Flushing Schedule – Annual
- Pumping Capacity – 17 L/s
- Emergency Pumping Capacity 75 L/s
- Backflow Prevention – No
- Hydrant Maintenance Schedule – Bi – Annual
- Repair Safety Procedure – Yes
- Line Main Break Disinfection – Yes
- Line Main Break Sampling – Yes
- Custom Metering – Yes
- Truck Fill Station – Yes
- Truck Back Fill – No

4. Water Quality Monitoring, Data Collection, Record

Water Quality Monitoring – Permit and Regulatory Requirements

- The Town of Radisson will conduct all monitoring required by permit or ministers order issued by Water Security Agency. The Environment Project Officer, Bruce Dahl responsible for regulation of the waterworks will be advised of any positive bacteriological sample 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 chorine residual, turbidity or pH will be sent to an accredited laboratory.

- The Town of Radisson 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 Water Security Agency Ministers Order. The Environmental Project Officer, Bruce Dahl, responsible for regulation of the waterworks will be advised of any failure to meet a free-chlorine residual of at least 0.2 mg/L for water entering distribution system as well as any exceedence of turbidity levels as required by operational permit, ministers order or regulatory requirement. Also the Town of Radisson will advise the Environmental Project Officer, Bruce Dahl, responsible for regulation of the waterworks of any failure of the disinfection system or any other upset to the water treatment process, operation or distribution

system concern in accordance with good practice or emergency response plan-technical action plan for the waterworks.

Operational Monitoring Plan

Observational and measurement related operational monitoring of water quality and associated reporting requirements are established for the community of Town of Radisson waterworks. Waterworks operators will monitor operational process in accordance with Table 1.

Table 1. Operational Parameters

Operational Parameters	Treatment step/Process					
	Raw Water	Coagulation	Sedimentation	Filtration	Disinfection	Distribution System
PH	X			X		
Turbidity	X			X	X	X
Temperature	X					
Total Coliforms					X	X
Background Bacteria					X	X
Alkalinity	X					X
Chemical Dosage	X	X			X	X
Disinfectant Residual					X	X
Disinfection By Products						X
Pressure	X					X

Record Keeping

The following persons are delegated responsibility for operational record and log keeping: Duncan Stead, Waterworks Manager, William Berg, Water Technician, Colin Armstrong, Water Technician, Kevin Hepburn, Water Technician

Operational Records and Logs will include:

- total water pumped into distribution system on a daily basis and the total raw water used.
- The types, dosages and amounts of chemicals applied for water treatment.
- 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 testing and the result of those test's
- Any departure from normal operating procedure and date and time of same.
- Any instructions that were given during operation of waterworks that depart from standard operating procedures and name of person who gave instructions
- Any upset condition or bypass condition, the time and date of the upset condition or bypass condition 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 levels 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 legs mentioned above will be recorded and maintained in the following manner;
- Operational records or logs must be made in chronological order, with the dates, times and testing locations clearly indicated
- Entries in an operational record or log will be made by the permittee or person specifically appointed by the permitee
- Persons making an entry in an operational record or log shall do so in a manner that allows the person to be identified.
- Operational records or logs shall be kept for a minimum of five years
- Any anomalies or instances of missing entries in the operational log must be accompanied by an explanatory note
- Operational records or logs must only contain data or information that is actually observed or produced.
- Operational records or logs must not contain default values generated manually or by automated means
- Operational records or logs maintained in accordance with the above requirements must be made available on the request of the Minister Water Security Agency or a representative of the Minister

Record Review & Reporting

The 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 Water Security Agency as soon as reasonably practical after the report has been completed.

APPENDIX – A

TREATED WATER QUALITY MONITORING PLAN

Parameters	Sampling Locations	Sampling method	Results	SE Standards/ guidelines	Complance with standards /guidelines
Bacteriological					
1.	307 Edward Street (Jan 17)		taken from	total coliform	
	Street	House tap	Nil	0/organisms	100%
				background	
			nil	bacteria	
				less than 200/100 ml	
2	Bulk Water (Jan 17)				
	135 Main Street		Commercial Washroom		
		Tap	Nil		100%
			nil		
3	Red Bull (Feb 17)				
	Rider Pride Road		Commercial Washroom		
			nil		100%
			nil		
4	Town Hall – 318 Main Stret (April 17)		Commercial Washroom		
					100%
		1	nil		
			nil		
5	Sunridge (march 17)		Commercial Washroom		
			nil		100%
	Tap		nil		
Chemical					
	307 Edward St	taken from	Free Chlorine	minimum limit	
	Street	House	.63	.1 mg/l free	100%
		tap	Total chlorine	total residual	
			.85	.5 mg/l	100%
	135 Main	Commercial			
	Street	washroom	Free .78		
	Bulk Water		Total 1.03		100%
	Red Bull				
		Commercial	Free .57		
		Washroom	total .78		100%
	Town Hall	Commercial	Free .43		
	318 Main Street	Tap	total .65		

	Sunridge	Commercial Washroom	Free .55 Total .73			
Turbidity	307 Edward St Street	taken from Residential tap	.22		less than 1.0 NTU	100%
	Bulk Water 135 Main Street	Commercial washroom	.30			100%
	Red Bull	Commercial Washroom tap	.22			100%
	Town Hall 318 Main Street	Commercial Washroom tap	.23			100%
	Sunridge RV Rider Pride Road	Commercial Washroom	.78			100%