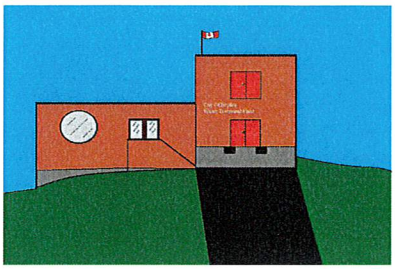
The Town of Rainy River

Drinking Water Quality Management System Operational Plan



Rainy River Drinking Water Supply System

317 River Avenue
Rainy River, ON
POW 1L0

This Operational Plan for the Town of Rainy River Water Supply System will become effective on the 1st day of June, 2010.

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1. Quality Management System

The Town of Rainy River Drinking Water Quality Management System (DWQMS) is documented in this Operational Plan as part of our efforts to ensure that clean, safe and reliable drinking water is supplied to all customers served by the Town of Rainy River Water System. The development and continual improvement of the plan will ensure that all applicable legislation and all current regulatory requirements are met and that consumers can be confident that their drinking water will be protected through the effective application of the QMS.

2. Quality Management System Policy

The Town of Rainy River is committed to managing the treatment and supply of clean, safe drinking water to all of its customers and commits to consistently meeting all applicable legislation and all current regulatory requirements and customer needs. To achieve these goals the Town of Rainy River commits to:

- Managing water quality from source to customer.
- Regular monitoring and testing of water to meet or exceed current guidelines as established in the Safe Drinking Water Act.
- Providing consistent and relevant training to operators to meet or exceed current training guidelines.
- Investing capital monies to provide upgrades and rehabilitations to treatment and distribution systems.
- Continuing to establish and upgrade current practices and policies.
- Providing Water Treatment Plant Annual Reports as per Ministry of the Environment, Conservation and Parks forms to be available to all customers in hard copy or on the town's web site. These reports provide the customer with an annual overview of the Town water supply system.

The Town of Rainy River will establish and maintain a Drinking Water Quality Management System that will be regularly reviewed, improved and upgraded by management and employees involved in the supply of drinking water. The highlights of this Operational Plan for this Quality Management system will be readily available in hard copy at the WTP/Town Office or it can be accessed on the Town of Rainy River website (www.rainyriver.ca).

The Drinking Water Quality Management System will be implemented by the Town to effectively minimize and manage any potential risks to drinking water quality and safety.

3. Commitments and Endorsement

This Operational Plan has been reviewed and approved by the Town of Rainy River Chief Administrative Officer. This is a blueprint for the planning, operation, and maintenance of the Municipal Water System. An annual review by the Chief Administrative Officer and Public Works Foreman/Overall Responsible Operator will keep the document up to date and promote continual improvement.

Endorsed by:

Deborah J. Ewald
Mayor

Chief Administrative Officer

4. Quality Management System Representative

The Town of Rainy River has designated two individual as QMS representatives.

Position: Chief Administrative Officer

Position: Public Works Foreman 1 Overall Responsible Operator (ORO)

5. Documents and Records Control

In accordance with the requirements of the DWQMS procedures are in place for Document and Record Control. These procedures describe how documents and records are controlled and are attached as Appendix A at the end of this document.

6. Drinking Water System

The Rainy River Water System is owned and operated by The Corporation of The Town of Rainy River and serves the residents of Rainy River and a small number of residents from the adjoining municipality. The Town of Rainy River is located in Northwestern Ontario, Highway 11, on the border of Minnesota and Ontario.

Source Water

The raw water source for the Town of Rainy River is obtained from the Rainy River which is part of the Winnipeg River (Arctic) watershed. Rainy River is a boundary-water bordered by Ontario and Minnesota.

The Rainy River which starts at Rainy Lake and ends at the Lake of the Woods is approximately 120 km's in length. The depth of the river ranges from 1.5 meters to 12 meters with an average depth of approximately 6 meters. Raw water quality can be characterized as having high levels of turbidity 1.3 to 187 NTU's. Bacteriological results range from 0 cfu to 200 cfu.

Raw Water Characteristics

	Temperature	pH	Turbidity	Colour	E. coli Total Coliforms
Average	10.77	7.26	7.98	56.89	
Range	1.8-25.9	6.10-8.90	1.46-229	4.4-129	

These results were taken over a 10-year period from 2005 to 2015.

Events

During spring break-up of the Rainy River along with the run-off, turbidity levels rise very high. This can be corrected with making the appropriate physical or chemical adjustments to the treatment process.

Threats

Up stream of the intake, is a lumber mill, paper mill, residential (Fort Frances and the Township of Emo), agricultural activities, gold mine (outflow into tributary) and wildlife.

Potential sources of raw water contaminates include spills from the highway or rail mishaps, spills from the mills, high rainfall causing run-off or agricultural land, and sewage spills from the US side of the river.

As there is only a single intake line, there is a risk of a collapsed or plugged intake line.

Operational Challenges

The Rainy River provides a good supply of source water. The most significant challenge related to source water is the quick change in turbidity due to rain, high winds and run-off.

Treatment System

Raw water is supplied to the treatment plant through a 250 mm diameter intake pipe. The pipe extends 112 m south of the plant and terminates in an up-turned elbow equipped with a steel screen and mounted in a rock crib. At normal water levels, the intake is situated approximately 20 feet below the surface.

The Rainy River Water Treatment Plant is a surface facility designed to meet minimum treatment requirements using full conventional treatment (i.e., chemically assisted filtration and disinfection). Raw water is directed to a wet well through a gravity-fed intake line from the Rainy River. Alum is added to the raw water well. Partially treated water is pumped to the flash mixer via two low lift pumps each with a rated capacity of 28.6L/s. Only one pump is operated at any given time. The raw water intake line is equipped with a flow control device to ensure that raw water flow does not exceed 28.6 L/s; the rated capacity of the plant. Partially treated water then enters a vacuum

chamber and is pulsed to a settling chamber. Water flows upward through a sludge bed and settling tubes where it is collected and discharged to the filters. The clarified water is distributed over two anthracite and sand filters. Filtered water flows to the equalization tank and then pumped to the Ion Exchange units prior to entering the reservoir. Filter effluent is pH adjusted with soda ash. Each of the two filters effluent lines are equipped with a meter to continuously monitor turbidity. The meters are equipped with alarms and set to an automatic dialer. Disinfection is achieved using chlorine gas injections; contact time is provided by a two-celled, baffled clear well. A chlorine analyzer provides continuous monitoring of free chlorine in treated water leaving the plant. An alarm is set to an automatic dialer if chlorine levels are higher or lower than set limits.

Process Waste Management

Filter backwash and sludge from the clarifier flows to a holding tank which is then pumped to the Town's sewer system, which ends up in the Town's sewage lagoon.

Distribution System

The distribution system for the Town of Rainy River serves a population of 925 and is pressurized by three 20 hp high lift vertical turbine pumps with a rated capacity of 19 L/s at 51.2 m TDH and a fire pump with a rated capacity of 75.7 L/s at 53.3 TDH. Under normal demand only one pump is required to provide adequate pressure to the system which is 40 to 62 psi. If pressure should drop below 40 psi the second pump will cut in and a third if demand is not met. If demand is still not met the fire pump will cut in to raise pressure back to 62 psi.

Water is stored at the plant in an 1136m^3 two cell reservoir which is about 48 hours of storage. There are no additional water storage facilities in the Town of Rainy River.

The distribution network consists of approximately 16 km's of piping fed from the Water Treatment Plant and consists of cast iron, ductile iron and PVC, the sizes range 50 mm to 300 mm. Within the system there are 75 valves and 62 fire hydrants.

Barriers to Microbiological Pathogens

The following processes remove potentially pathogenic organisms:

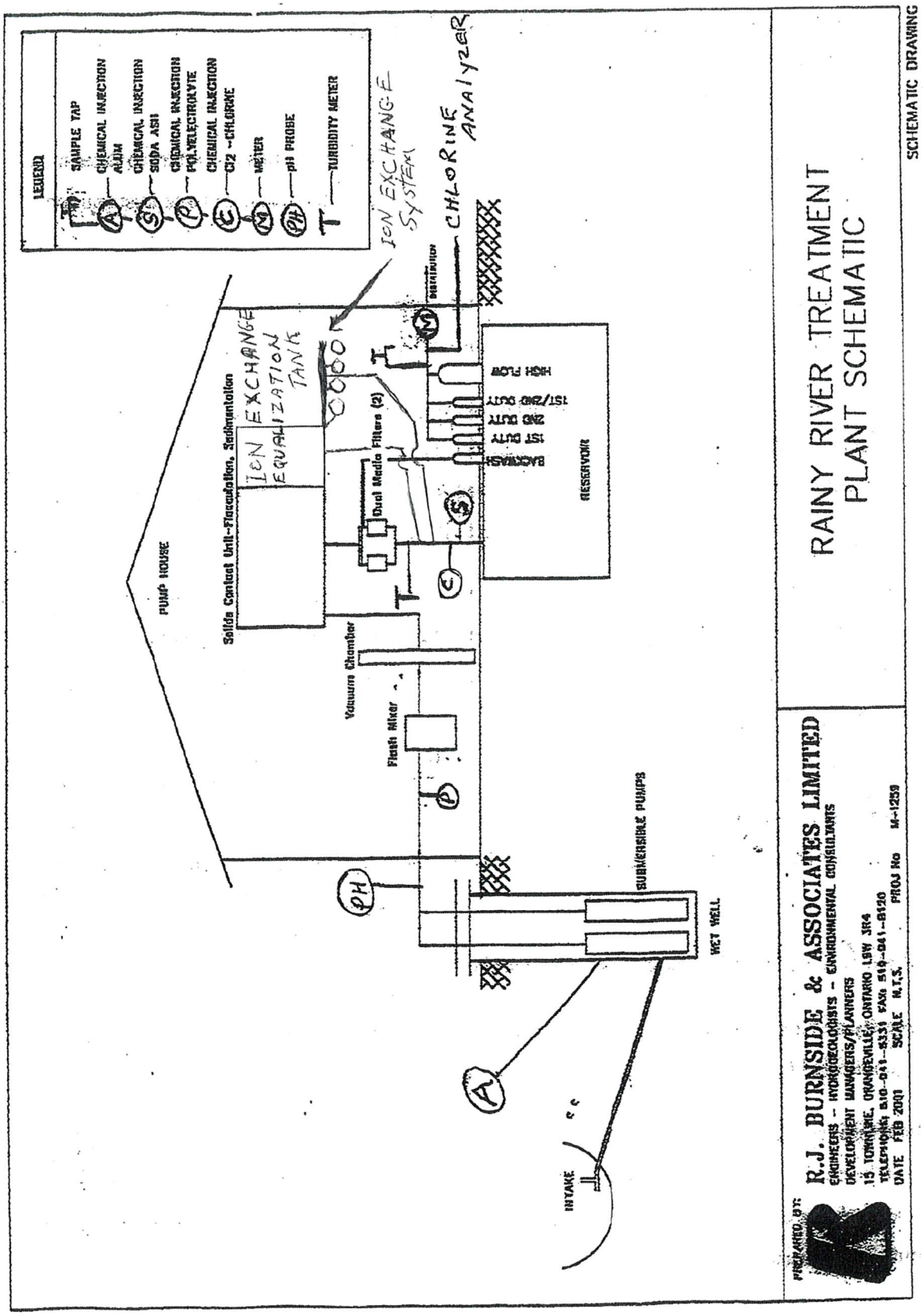
1. Coagulation / Flocculation / Sedimentation

2. Filtration

3. Chlorination (primary disinfection)
4. Distribution system chlorine residual (secondary disinfection)

Analyses

Ontario Regulation 170/03 and the current Municipal Drinking Water License and Works Permit issued by the Ministry of Environment, Conservation Parks (MECP) dictate the sampling and monitoring requirements for this system. Water quality is tested throughout the treatment process and from dedicated locations throughout the distribution system.


LEGEND
SAMPLE TAP
CHEMICAL INJECTION ALUM
CHEMICAL INJECTION SODA ASH
CHEMICAL INJECTION POLYELECTROLYTE
CHEMICAL INJECTION Cl2 -CHLORINE
METER
pH PROBE
TURBIDITY METER
ION EXCHANGE SYSTEM
CHLORINE Analyzer
PUMP HOUSE
Solids Contact Unit--Flocculation, Sedimentation
ION EXCHANGE EQUALIZATION TANK
Dual Media Filters (2)
Flash Mixer
Vacuum Chamber
BACKWASH
1ST DUTY
2ND DUTY
1ST/2ND DUTY
HIGH FLOW
RESERVOIR
DISTRIBUTION
SUBMERSIBLE PUMPS
WET WELL
INTAKE
RAINY RIVER TREATMENT PLANT SCHEMATIC
SCHEMATIC DRAWING
PREPARED BY:
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7. Assessment (covered under Section 8)

8. Risk Assessment Outcomes

The Town of Rainy River has established, implemented and maintains this procedure to determine what potential hazards and critical control points exist in the Water Treatment and Distribution System.

The Risk Assessment Team consists of the Chief Administrative Officer, the Public Works Foreman (ORO) and could also include operations staff as required.

The Risk Assessment procedure is conducted once every 36 months or more frequently if a significant process change or upgrade has occurred. The process for hazard analysis includes an assessment of each process step and/or activity and identification of hazards that are potentially present or possible at each process step and/or activity.

At least once every calendar year, the currency of the information and the validity of the assumptions used in the risk assessment will be reviewed. All notes, meeting minutes, action items and decisions shall be documented and kept as part of the file for the process.

Once hazards are identified, the next step is the determination of critical control points (CCPs). This process involved a risk assessment by prioritizing hazards and identifying points where control may be exerted to eliminate or minimize those hazards, (for example, by determining which are CCPs).

The risk assessment was performed by rating the likelihood, severity and detectability of each hazard at each relevant process step or activity on a scale of 1 to 5. The values for each of these factors were added together to give a risk priority number. The high risk CCP threshold equals 8.

Likelihood is probability/likelihood of a hazard or hazardous event occurring.

Severity or Consequence is the potential impact to health or impact on operations if the risk is not controlled (assumes control measures do not work).

Detectability is a measure of the ability to detect the presence of certain hazards. Hazards, which could be easily and quickly detected, were given a low value. Hazards that are hard to detect or undetectable are given a high value. The risk is greater as appropriate responses cannot be taken to control or mitigate the risk.

The rating system is defined on the following page:

Description	Likelihood of Hazard Occurring	Rating
Rare	May occur in exceptional circumstances, or has not occurred	1
Unlikely	Could occur at some time, historically has occurred annually or less than annually.	2
Possible	Has occurred once or more per year.	3
Likely	Has occurred on a monthly to quarterly basis.	4
Very Likely	One or more occurrences on a monthly or more frequent basis	5

Description	Severity of Hazard Occurring	Rating
Insignificant	Insignificant impact, little disruption to normal operation.	1
Minor	Minor impact for small population, some manageable operation disruption, some increase in operational requirements.	2
Moderate	Minor impact for small population, significant modification to normal operation but manageable. Increased monitoring and operational requirements.	3
Major	Major impact for small population, systems significantly compromised and abnormal operation if at all.	4
Catastrophic	Major impact for large population, complete failure of all systems.	5

Description	Detectability of Hazard	Rating
Very Detectable	Very easy to detect, instantaneous, computer monitored	1
Moderately Detectable	Moderately detectable, alarm present but not in computer, may require operator to walk by and notice alarm; problem is indicated promptly by lab test results.	2
Normally	No alarm present, visually detectable on rounds or regular maintenance.	3
Poorly Detectable	Poorly detectable, visually detectable but not inspected on a regular basis; would not be detected before a problem was evident; lab tests that are not done on a regular basis.	4
Undetectable	Undetectable, cannot detect.	5

Included in the following pages is a chart that identifies the process and activity hazards related to the Water Treatment & Distribution System along with the outcome of the risk assessment, and finally the identification of which of these are identified as critical control points.

Critical control points identified in the table that follows have controlled conditions that are established, implemented and maintained that include:

a) Critical limits
b) The availability of information to operations personnel that outlines the critical limits
c) The availability and awareness of Standard Operating procedures (SOPs), which include recovery procedures, as necessary, and
d) The reliability and redundancy of equipment, as appropriate to the identified risks and nature of the Water Treatment Plant.

All deviations from the critical control limits are reported as per instructions contained within the Operations Manual for Emergencies or the Standard Operating Procedures manual for the Town of Rainy River water system.

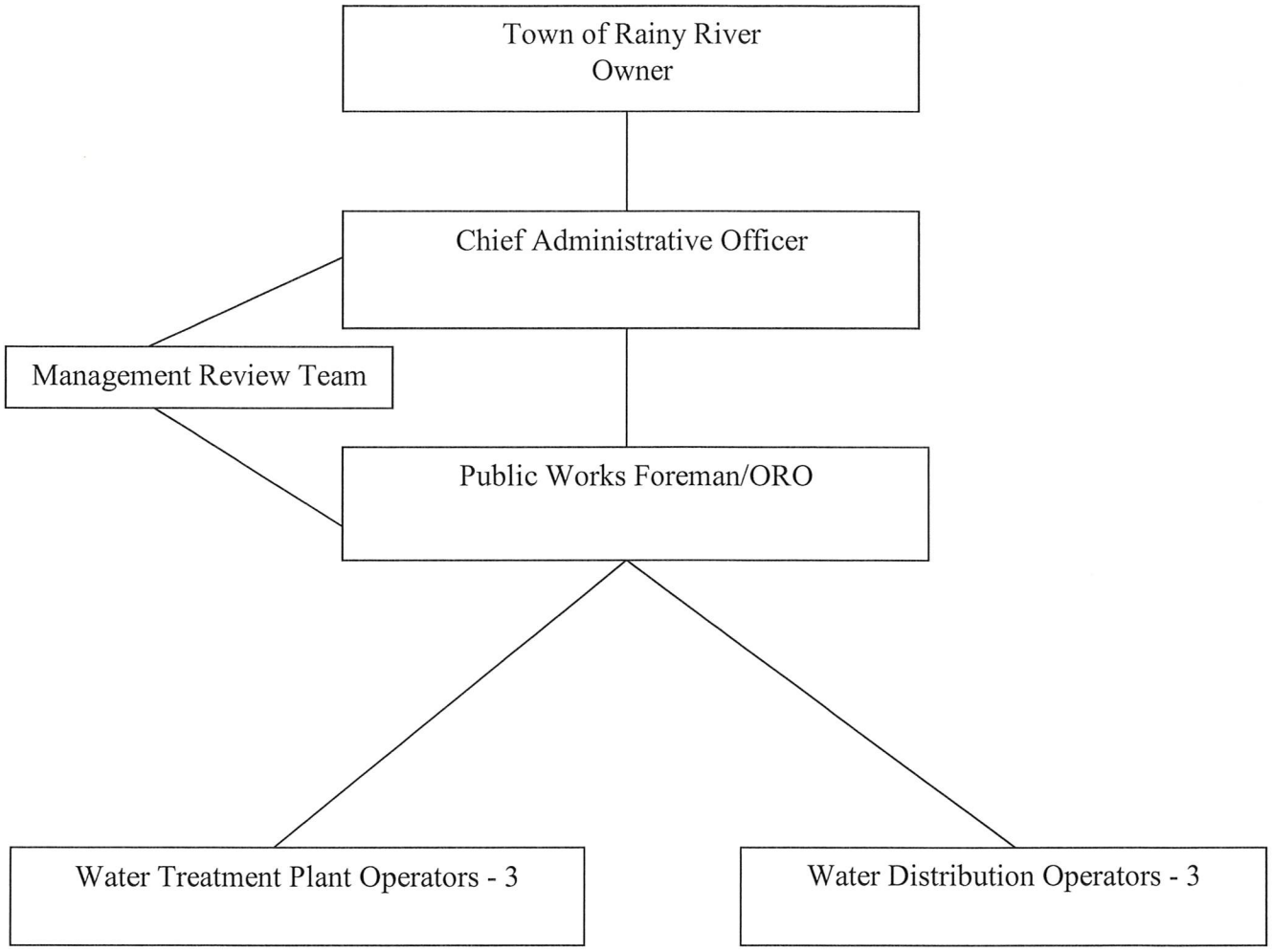
Element or Process Step	Description of Hazard	Potential Result of Hazard	Comments	Available Monitoring & Control Measures	Emergency Procedure or Contingency Plan	Likelihood	Severity	Detectability	Risk Priority Number CCP Threshold =8	CCP?	Control Procedure
Source Water	Rail Car Derailment or Highway Accident - spill of chemical or contaminant	Chemical contamination of source water		Notification to MECP Spill Action Centre of spill and potential for contamination of source water	Stop producing water until plume passes supply from, storage, implement water restrictions if necessary.	1	3	2	6	No	
	Discharge of inadequately treated septic system effluent as a result of flooding, high rainfall, etc.	Biological contamination of source water	An upstream process to be captured under Source Water Protection	Conventional Water Treatment Operations. Weekly Bacteriological Testing of Raw Water Source	Discuss with Ministry of Health re: source of e. coli	1	2	2	5	No	
	Pesticides in runoff water as a result of flooding, high rainfall, etc.	Chemical contamination of source water	An upstream process to be captured under Source Water Protection	Interim Measure: Annual correspondence letter re: risks associated with pesticide application and runoff.	Future action:	1	1	2	4	No	
	Collapse or breakage of single intake pipe	Quantity / Quality		Pump shut down on low level in pump well; Loss of raw water flow signal	WTP Operation Manual (OM) Emergency Procedure	1	4	1	6	No	OM Emergency Procedures, Raw Intake Line Failure
	Long term impacts of climate change	High run off Flooding		Conventional water treatment operations Weekly testing of raw water source	Discuss with Ministry of Health	2	2	1	5	No	
	Source water supply/short fall	Quantity Quality	An upstream process to capture water Source water protection	Low raw well Loss of water service	Discuss with Ministry of Health and Ministry of Environment, Conservation and Parks	1	5	1	7	No	
	Sudden changes to raw water character	Increased turbidity		On line analyzers	Increase or decrease dosages	5	3	1	9	Yes	
	Algal blooms	Can produce toxins harmful to human and animals. Taste and colour problems		Visible in water Conventional treatment operations to treat source water LWCB monitors algal bloom	Discuss with MOH Increase or decrease dosages	1	3	1	4	No	

Element or Process Step	Description of Hazard	Potential Result of Hazard	Comments	Available Monitoring & Control Measures	Emergency Procedure or Contingency Plan	Likelihood	Severity	Detectability	Risk Priority Number CCP Threshold =8	CCP?	Control Procedure
Treatment	Loss of coagulant - plugging of lines, pump failure, clogging of screens	Biological & Chemical contamination	Crypto/Giardia not removed without coagulant.	On-line flow monitor : Critical Control Limit; Filter Effluent Turbidity 0.3 NTU. Plant shut down.	Operations Manual (OM)	3	2	1	6	Yes	Operating Problems & Solutions, Alum Feed.
	Loss of polymer- plugging of lines, pump failure, clogging of screens	Shorter filter runs		High level alarm at filter; Visual inspections throughout the day	Repair polymer feed system.	3	1	2	6	No	
	Flash mixer failure	Shorter filter runs		High level alarm at filter; Visual inspections throughout the day	Repair flash mixer drive system. (Impeller drive). Change to backup.	2	1	2	**5**	No	Change to Backup mixer.
	Filter breakthrough, filter under drain failure	Biological contamination	Crypto/ Giardia not removed without coagulant.	On-line filter effluent turbidity meters; Critical Control Limit- .3 NTU. Plant shut down.	Shut down filter: take it out of service	1	4	1	6	Yes	OM Operating Problems and Solutions.
	Backwash pump failure (only 1 pump)	Quantity / Quality		Water high in filters.	Spare motor & spare parts for pump at WTP.	1	2	1	4	No	
	Filter to waste valve failure	Biological contamination		Shut down of filters on high turbidity, alarms	Shut down filter; take it out of service	2	2	2	6	No	
Primary Disinfection	Chlorinator failure	Biological contamination	Bacteria and viruses not inactivated without chlorine	Online chlorine analyzer alarm- Critical Control Limit;0.50 mg/l Alarm set at 1.0	Switchover to standby chlorinator & spare parts to make repairs.	1	**5**	2	8	Yes	OM: "Operating Problems and Solutions" "Low Chlorine Residual"
Treated Water Reservoir	Loss of structural integrity of reservoir - leakage into reservoir	Biological contamination Chemical		Online turbidity meter & CL2 analyzer, weekly bacteriological testing.	Shut down reservoir. Switch to single reservoir, increase dosage and issue water restriction notice to community.	I	3	2	6	No	OM: "Emergency Procedures" Taking Reservoir Out of Service.

Element or Process Step	Description of Hazard	Potential Result of Hazard	Comments	Available Monitoring & Control Measures	Emergency Procedure or Contingency Plan	Likelihood	Severity	Detectability	Risk Priority Number CCP Threshold =8	CCP?	Control Procedure
Distribution	Breakage of single pipe from plant to distribution system	Quantity / Quality	No distribution system storage; need to pump continuously from the plant.	Community complaints; Low pressure alarm or high flow indicators at the plant.	Repair	1	5	1	7	No	See: Emergency Procedure for Water main breaks at WTP.
	Loss of chlorine residual (secondary disinfection)	Biological contamination	Legislated under O. Reg. 170/03.	Daily residual testing at far end of system, weekly monitoring at locations in town.	Flush the system; increase chlorine dosage and re-sample.	2	3	2	7	No	See O. Reg. 170/03 Requirements for corrective actions.
	Loss of pressure - water main break	Biological and chemical contamination		Customer complaints, low/high pressure alarms at plant.	Follow; Procedure for Water main break repair.	4	2	3	9	Yes	See: "Emergency Procedure for Water main Breaks" at WTP.
	Cross connection Policy	Biological and chemical contamination	Backflow preventers.	Visual	Isolate area; Flush the system and resample; pressurize system.	1	3	4	8	Yes	By-law in place. Report Adverse MOH, MECP, SAC
	High lift pump failure	Quantity /Quality		Low pressure	Back-up pumps	3	1	1	5	No	
	Extreme weather events (tornado, ice storm)	Power outage		Generator running	Make sure to check fuel in tank often	1	2	1	4	No	
	Sustained extreme temperatures (heat wave, deep freeze)	Low water reservoir		Low level alarm	WTP operations manual Increase Flow	1	2	1	4	No	
Security	Vandalism	Contamination of drinking water Damage of Equipment		Locks Signage	Report to SAC Report to OPP Report to MOH	1	4	1	6	No	

9. Organizational Structure, Roles, Responsibilities, and Authorities

- Organization Chart -



Town of Rainy River, Mayor and Municipal Council. (Owner)

The Town of Rainy River, which is represented by an elected Mayor and municipal Council, is responsible for ensuring the delivery of a safe and reliable supply of drinking water to the residents of the Town of Rainy River.

The owner has the authority to delegate the management of the drinking water system to qualified staff.

Chief Administrative Officer (top management)

The Chief Administrative Officer is responsible for arranging reporting to the Mayor and Council on the oversight of the municipal water system. The manager will receive (information) reports from the Foreman regarding issues that are relevant to the overall operation of the water system. The Chief Administrative Officer is authorized by council to ensure that management staff is in place to ensure the municipal water system is supplying safe and reliable drinking water. The Chief Administrative Officer duties include the responsibilities of the QMS Representative to maintain the currency of operational documentation and that documentation is being reviewed and updated annually or upon receipt of updated information.

Public Works Foreman (Designated DWQMS Representative/Chief Plant Operator/ORO/Water Distribution System Lead Hand)

The Public Works Foreman/ORO is responsible to ensure that operations within the municipal water supply system are being performed to ensure that municipal drinking water is safe and systems are in compliance with current regulations. The Public Works Foreman/ORO must provide long term planning and budgeting, informs the Chief Administrative Officer and Council of deficiencies and required resources and provide the Chief Administrative Officer and Council with current technical and administrative information and advice.

The Public Works Foreman/ORO has the authority to ensure staff is in place to manage the water supply system, evaluate and prioritize long term utility needs. The Public Works Foreman/ORO is responsible for the management of the daily operations of the water treatment plant and distribution system. The Public Works Foreman/ORO will provide guidance and receive feedback from operators on regular operations and future needs. Responsibilities also include preparing reports for capital expenditures, budgeting, maintenance activities, and infrastructure condition assessments for the Chief Administrative Officer, Council, regulatory authorities and public.

The Overall Responsible Operator is the QMS Representative and is therefore responsible for ensuring that the current version of the documents, as required by the QMS, are being used and to ensure that processes and procedures for the QMS are maintained.

The Public Works Foreman/ORO is authorized to direct operators, develop policies, and communicate with regulatory and technical authorities including the Chief Administrative Officer, Council and the general public.

The Public Works Foreman is the designated Overall Responsible Operator (ORO), and is responsible for the supervision of daily operations and staff at the Water Treatment Plant. The Public Works Foreman/ORO ensures that all operations are in compliance with current regulations. Responsibilities include oversight of process operation and controls, scheduling maintenance, scheduling staff, ensure that employee's certifications and minimum training requirements are up to date, confirming all required tests are completed, reporting normal and abnormal conditions to Chief Administrative Officer. The Public Works Foreman/ORO also ensures that standard operational procedures are followed as documented in the current Operations Manual. The Public Works Foreman/ORO must maintain a minimum Class 2 Water Treatment Certification to fulfill the required responsibilities.

The Public Works Foreman/ORO is authorized to make any process adjustments to ensure the supply of safe and adequate drinking water. Authorization includes purchasing of process chemicals, lab supplies, testing services, and equipment parts. The Public Works Foreman/ORO is also authorized to direct the duties of the plant operators and supervise any on site contractors.

The Public Works Foreman is the designated Overall Responsible Operator (ORO), and is responsible for the daily operation and maintenance of the water distribution system. This includes ensuring a safe and adequate supply of water for all customers. The Public Works Foreman/ORO directs operators and contractors in the repair and maintenance of all aspects of the distribution system, which includes hydrants, main valves, services and shut offs. Recording of daily activities, following current regulations and reporting of normal and abnormal conditions to the Manager are included in the duties. The Public Works Foreman must maintain a Level 1 Water Distribution Certificate.

The Public Works Foreman/ORO has authorization to take control of emergency situations (ex. water main break) and use whatever equipment is necessary to complete repairs in a safe and efficient manner.

Operator in Charge (OIC)

Must have a minimum Class I Water Treatment Certificate. Identified on daily log sheet as OIC. Makes data entries in logbooks and on log sheets. Performs all on site water tests and makes and records all process adjustments.

Operator

All operators are responsible for maintaining required Ministry of the Environment, Conservation and Parks Certification for Water Treatment and Water Distribution Systems. Operators are required to carry out the daily duties for the treatment and distribution processes to ensure operations are completed in compliance and if a non-compliance incident occurs it must be acted upon and reported. Operators are authorized to collect samples, perform testing, adjust treatment processes with direction from the Chief Operator and perform maintenance on the treatment and distribution system in accordance with standard operating procedures to ensure a safe and adequate water supply.

10. Competencies

The following identifies the competencies required of Town of Rainy River staff whose performance may have a direct impact on drinking water quality.

Chief Administrative Officer (DWQMS Representative)

Shall possess advanced theoretical and working knowledge of administrative skills expected of a senior level manager. In addition an intermediate theoretical and working knowledge of the Safe Drinking Water Act applicable regulation, and the Town of Rainy River drinking water supply system.

Public Works Foreman/ORO

Shall possess advanced theoretical and working knowledge of administrative skills expected of a senior level manager. In addition an intermediate theoretical and working knowledge of the Safe Drinking Water Act, applicable regulations, and the Town of Rainy River Drinking Water Supply System.

Shall possess a minimum Class II Water Treatment Certificate and a minimum Class I Distribution certificate.

Facility Classification

As of November 30, 2005 the Ministry of the Environment, Conservation and Parks reclassified the Town of Rainy River Water Supply System to a Class II Treatment and Class I Distribution system.

Operator Competencies

Ontario Regulation 128/04 requires that all Water Treatment and Distribution Operators possess operating licenses appropriate to the class of facility where they are employed.

The Overall Responsible Operator (ORO) shall have a minimum Class II Water Treatment Certificate or Class I Water Distribution Certification as applicable.

Operators acting in relief of the ORO shall have a minimum Class I Water Treatment Certificate and Class I Water Distribution Certification. Class I may be Acting ORO for 150 days.

All operators shall be licensed to minimum OIT while ultimately working toward obtaining a Class II Treatment or Class I Distribution Certification.

Operators are required to have skills and knowledge in the following areas:

Treatment Plant Operator

- Understand the concepts and reasons for water treatment, disinfection, water borne diseases, pathogens and other bacteria related to water
- Basic knowledge of math, science and chemistry used in the treatment process
- Knowledge of water regulations and adverse water conditions
- Importance of following policies and procedures, and potential consequences for not following them
- Perform lab analyses and interpret results
- Ability to handle emergency situations
- Adjust and check chemical feed rates
- Safely handle chlorine and chlorinator maintenance and repair
- Filter maintenance and backwashing
- Pump maintenance and repair

- Knowledge of the chemicals used in the process and safe handling practices

Distribution System Operator

- Familiar with Town distribution system
- Repair leaks safely and follow regulations on disinfection of repaired water mains
- Valve maintenance and repair
- Hydrant maintenance and repair

Satisfying Competencies

The following satisfies Competency requirements for Town of Rainy River staff.

- Top management is briefed on operating conditions and provided regulatory updates during annual review meeting.
- Management regularly attends relevant Drinking water training courses, conferences, and seminars.

Operator Training & Certification

- New Operators (OIT's)

After successful completion of the OIT Water Treatment and Water Distribution Prep Course (60 hrs) and OIT exam, a new operator will train with an experienced operator until a satisfactory level of competence has been reached. The Public Works Foreman/ORO will determine this through observation and peer review. The entry level course, 40 hour home course and entry level exam must be complete before moving on to Class I course.

- Class I Water Treatment & Distribution Operators

After the level of competence has been reached, (usually about one year), the operator must successfully complete the Class I Water Treatment and Water Distribution Prep Course and Class I exam for either treatment or distribution to become a Class I water treatment or distribution operator.

- Class II Water Treatment & Distribution Operators

After working approximately one year at the Class I level, the operator can advance to a Class II treatment or distribution operator by successfully completing the Class II Water Treatment & Distribution Prep Course and Class II exam for either water treatment or distribution.

- Class III & IV Treatment and Distribution Operators

Although the treatment plant and distribution system are a Class II & I, all operators are encouraged to advance to the highest level they wish to achieve. The employer recognizes that the extra training and skills are invaluable to the operation and this is recognized in compensation. As part of the licensing requirement, all operators experience extensive on-the-job training. Specific requirements are listed in O.Reg. 128/04. According to the reg. a Class II system operator requires 23 hrs. of on the job practical training and 12 hrs. of formal CEU training per year. A Class I operator requires 23 hrs. practical & 7 hrs. CEU training per year.

Other than the prep courses noted above, some of the other training courses attended by operators are:

- Gas Chlorination Workshop
- Treatability Studies and Jar Testing
- Internal Auditing
- Valve Operation and Maintenance Course
- Pump Maintenance & Repair
- Hydrant Maintenance & Repair
- Confined Space Workshop
- WHMIS

All courses and training attended by operators are. Training files are maintained for all Town of Rainy River operators.

Recruitment Planning

The Town of Rainy River Waterworks Department also operates the wastewater treatment and collection system. Operators work at both treatment plants on a scheduled rotation. Operators require experience, training and certification in both fields. This has to be taken into consideration when

planning personnel recruitment. Starting as an OIT it may take approximately 4 years to fully certify a Class II operator for both plants.

Presently we have three treatment operators on staff; this includes the ORO. This currently meets staffing requirements at the plants. The distribution system is similar in that operators require experience, training and certification in distribution and collection. Presently there are three full time operators.

11. Personnel Coverage

The WTP operators work daily from 07:00 till 15:00. There is one operator on duty or on call at all times.

The #1 Operator (OIC) looks after the daily process operations like raw and treated water testing, flow totals, pump logs, filter backwashing, chemical totals and makes all entries on daily log sheets and in plant diary and assists in equipment maintenance and repair.

The Chief Operator (ORO) oversees the day-to-day operation of the plant and designates OIC. The plant is equipped with alarms on turbidity meters, CL^2 analyzer, reservoir levels, building temp and CL^2 leak power outage. Alarms are set to an automatic dialer, which transfers via telephone lines to the operator on call. Alarms to the operator on call are not specific, they are all Water Plant alarms, and so the operator must respond immediately to the plant. Although an exact response time is not specified, a time of 5 - 15 minutes is the norm.

In the event of an emergency, all available operators report to the water plant immediately and wait for instructions.

Operators are on call daily from 15:00 - 07:00, five days a week from Monday to Friday. All operators are on a scheduled rotation. The operator on call also works the weekend and is the OIC. Weekend operators are on call 24 hours a day.

The distribution operators work Monday to Friday, 07:00 - 15:00 and are the same operators as the Water Treatment Plant. After hour emergency calls are taken by the operator on call, who assesses the problem and calls out the appropriate personnel and equipment.

As the Town of Rainy River operates within a unionized environment, an independent firm, Anishinaabeg Kakenwaydemiwatch Nepi (AKN), has been contracted to provide backup operators in

the event of a labour dispute.

SEE Appendix D

12. Communications

Target Audience	Method of QMS Communication
Owner – Town of Rainy River Mayor and Council	Internal and external audit results, Management Review results and Operational Plan revisions/updates are provided in writing from the Designated QMS representative to the Town of Rainy River CAO. Hard copies of all correspondence are retained in the Town of Rainy River file registry in accordance with the records control procedures. The QMS Representative is present at the annual management review meeting to supplement the hard copies with brief verbal presentations any answer questions. Meeting minutes are archived in the Town of Rainy River filing system.
Town of Rainy River Staff	New permanent or temporary operators are provided an overview of the Operation Plan during orientation. If substantial revision/additions are required following an audit a general meeting of operators will be held to inform them of the changes or audit results. Details of QMS meetings will be documented by attendance records.
Critical Suppliers	The Rainy River Water Treatment Plant achieves oversight control over the activities of all suppliers of supplies and services annually through informal agreements.
Public	Copies of the DWQMS Operational Plan will be available for viewing at Town Office. The Chief Administrative Officer at an open public council meeting will communicate updates and revisions. Questions can be directed to the ORO. Annual Water Treatment Plant reports as per Ministry of the Environment, Conservation and Parks guidelines are available to consumers in hard copy at the town office and can also be viewed on the Town of Rainy River website. Consumer water complaints can be handled through the Town Office or through the Water Treatment personnel. Refer to WTP Operations Manual for Procedure for handling water related complaints.

13. Essential Supplies and Services

Chlorine	Brenntag Canada Inc.
	681 Plinquet Street, Winnipeg, MB. R2J 2X2
	204 - 233 – 3416
Soda Ash	Cleartech
Filter Media	340 Saulteaux Crescent, Winnipeg, MB, R3J 3T2
	800 - 387 – 7503
Aluminum Sulphate	Border Chemical
(Alum)	595 Gunn Road, Transcona, MB R2C 5G2
	1-800-493-8038

Clear Floc CP1065	Clear Tech
(Polymer)	340 Saulteaux Cresent, Winnipeg, MB R3J 3T2
	1-800-387-7503 24-hour emergency 1-306-664-2522
Equipment	Clear Water Controls Inc.
	256 Lampard Cres, Red Deer, AB T4R 2W5
	1-403-598-1163
Accredited Laboratory Services	ALS Laboratory Group
	1081 Barton Street, Thunder Bay, ON. P7B 5N3
	(807) 623 - 6463 Fax 807 - 623 - 7598
Chlorinator, Soda Ash parts	Alberta Mequipco Ltd.
	2265 Pembina Hwy, Winnipeg, MB. R3T 5J3
	(204) 982 -1040
Alum Pump parts	Romatec
	1173 Michener Road, Sarnia, ON N7S 5G5
	1-519-337-7416
Pump parts & repairs	Mid Continental Pumps
(high & low lift)	1641 Dublin Ave., Winnipeg, MB. R3H OV5
	(204) 783-8619
Hach & Instrumentation	Hach Sales & Service Canada Ltd.
	134-1313 Rue Border, Wpg., MB R3H 0X5
	(204) 632-5598
Bulk Fuel	Bluewave Energy
	Box 2240
	Kenora, ON P9N 3X8
	807-468-6150
Bill Romyn Vacuum Truck	483-5339 cell 275-7080
Process Flow	Lakeside Industrial Services
(Calibrate Flow Meters)	1165 Russell Street
	Thunder Bay, ON P7B 5M6
	Direct: 905-361-7090 Cell: 807-707-1905
	Main: 807-627-2792 Fax: 807-623-7907
	chris.foulds@lakesideindustrial.ca
Salt for Ion Exchange Unit	Hardware Hank
	804 Main Street, Baudette,MN 218-634-3366

System Components	Emco Western Supplies Distribution Phone: 807-345-6453 Fax: 807-345-0090
Ion Exchange	Evoqua Water Technologies Ltd
	Box 15738, Station A, Toronto, On M5W 1C1
	(905)890-2803 Ext. 226
Ion Exchange pumps	Nothart Engineering Services Ltd
	101-171 Samborski Drive, Winnipeg, MB R4G 0B3
	204-452-6411
Electrician	B & B Electric
	Box 604 , Emo, ON, P0W 1E0
	(807)275-6383

All essential supplies are procured through a purchase order system maintained at the Town Office. All essential supplies must be NSF approved. The off loading of all supplies must be completed under the supervision of an operator. Laboratories must be licensed (accredited) and be close enough to receive samples within 24 hours.

14. Review and Provision of Infrastructure

The Town of Rainy River conducts a review of the status of the water distribution system infrastructure, including its current and future service abilities and needs and demands, on an annual basis during the Management Review. The review of the current outcomes of the Risk Assessment documented to review the adequacy of the infrastructure necessary to operate and maintain the system. The review will determine the need of replacement of parts within the infrastructure and add them to the capital replacement plan. The Management Review team will communicate to the Town Council of the Town of Rainy River (the owner) once every calendar year the results of the review to ensure that the adequate infrastructure needs are added to the capital plan to maintain the system.

15. Infrastructure Maintenance, Rehabilitation and Renewal

The Town of Rainy River has implemented a preventative maintenance program for the water supply system. Preventative maintenance schedules and procedures for the Water Treatment Plant are described in the Operations Manual. Preventative maintenance on the distribution system is performed

on a regular schedule that is reviewed and updated by the ORO according to needs and priorities. Equipment and pumps at the WTP are regularly serviced and documented records are kept at the WTP in the equipment maintenance binder. Details of these procedures can be found in the WTP operations manual. Distribution system maintenance consists of flushing fire hydrants annually. When hydrants are flushed isolation valves are occasionally checked along with hydrant markers and visible identification numbers. The chlorine residual is also checked at this time. This information is documented on hydrant inspection forms, which are located in a binder at the public works building in the water distribution shop. When hydrant flushing is complete and if manpower is available, a valve-exercising program is started. This consists of physically operating main line valves and documenting the date's locations and problems found on valve inspection sheets located in a binder in the water distribution shop. This program is in the initial stages and is not yet fully implemented.

Rehabilitation and Renewal of the water supply system is performed on a needs schedule. Capital and operational money is allocated each year for improvements to the system. The Chief Administrative Officer and the Foreman determine the areas that the money will be spent.

A summary of all infrastructure maintenance, rehabilitation and renewal has been recorded in the Town of Rainy River Maintenance Manuals. The adequacy of infrastructure is completed during an annual review of the system. Additionally, information for this review is derived from utilizing the Town of Rainy River's asset data collected as part of the new PSAB 3150 requirements.

This information is reviewed by the Foreman and the Chief Administrative Officer. The summaries are recorded in the annual summary report for Council to review.

16. Sampling, Testing and Monitoring

The Rainy River Water Treatment Plant has a sampling program based on the requirements set out in Ontario Regulation 170/03 and our current Drinking Water Works Permit.

The sampling instructions are found within the Water Treatment Plant Operations Manual within the Town of Rainy River Sampling Instruction and Schedule.

The sampling, testing and monitoring results are recorded on the daily log sheet and summed up in the yearly summary report for Council.

17. Measurement and Recording Equipment Calibration and

Maintenance

On-Line Measurement

At present our on-line measurement devices consist of, filter effluent turbidity meters, treated water "free" chlorine residual analyzer, raw pH and conductivity probes and filter to waste turbidity meters.

Turbidity and chlorine analyzers are calibrated according to recommendations in the manufacturer's operation manuals and documented in the daily logbook. Detailed procedures for calibrating each device are in equipment manuals cabinet.

Distribution System Measurement

The maintenance and calibration of the portable chlorine analyzer, turbidity meter, ph analyzers and lab spectrophotometer utilized within and out of the water system are completed according to the recommendations in the manufacturer's operations manuals. The records of calibration and maintenance are recorded in the Town of Rainy River preventative maintenance binder located at the water treatment plant.

Laboratory Sampling

A competent certified operator performs all in-house sampling. Results are recorded on a daily log sheet and monitored by plant operators. Detailed procedures for all tests performed on-site are provided in the operations manual. There is also a section in the manual devoted to adverse sample conditions.

An accredited laboratory performs all off site lab work. Bacteriological and chemical results from the accredited lab are faxed to the ORO at the Water Treatment Plant and filed.

Distribution chlorine levels are checked daily and weekly bacteriological sample sites. Results from the daily tests are recorded on the WTP log sheet. Results from the weekly tests are recorded on the lab chain of custody forms.

Copies of all bacteriological and chemical analytical results are provided to members of the public upon request. Furthermore, all results are summarized in tables at the end of the year and are discussed in the water plant annual compliance report. This report is also available to the public via the city website at

www.rainyriver.ca, or in hardcopy form.

18. Emergency Management

Detailed documented procedures for emergency situations, which could result in adverse water quality in the Drinking water supply system, are located in the **Water Treatment Plant Operations Manual** along with adverse water quality reporting procedures. The manuals are located at the Town of Rainy River Water Treatment Plant. All procedures to maintain a state of emergency preparedness are found in the Town of Rainy River's Water Treatment Plant Operations Manual.

Potential Emergencies

- Adverse Water Quality Results
- Chlorine Leak
- Water Main Break
- Source Water Contamination
- Bomb Threat

Emergency Response Training and Testing

Emergency Response training and testing will take place in the form of orientation and education session for all operators and functional drills for operators.

Preparedness

All operators in the Town of Rainy River have training and are aware of the locations of written procedures to deal with emergencies in the water treatment and distribution system. Twenty-four hour on call operators and Water Treatment Plant alarms ensure that a qualified staff member will attend and assess any emergency situation within a very short period of time. The emergency plan shall contain an up-to-date list of emergency contacts. If present methods should change or if new employees are brought into the system, semi- annual training would occur on dealing with emergency situations. Senior employees or direct supervisors would provide this training. All training would be documented

and placed into employee personnel files.

Water Emergencies

During working hours 9:00 am to 4:30 pm call the **Town Office - 852-3244** or the **Town Foreman – 275-8761** from 7:00 am to 3:00 pm.

After hours and weekends call 852-3244. The phone will be forwarded to the operator on call.

Water Service Problems

If a customer calls with "no water, low water pressure" the operator shall be dispatched to confirm the water mains are functioning properly and there are no water main breaks. If the problem is not in the mains then the customer will be told to call a plumber. If a customer calls with a water quality problem such as odors or bad taste a Water Treatment Plant operator will be dispatched to assess the problem.

Water Treatment Plant Emergency Contact List

Leroy Hancharyk	Public Works Foreman/ORO	Ph: 275-8761
Mike Scott	Operator	Ph: 852-1280/275-5557
Bennett Drennan	Operator	Ph: 852-3678/276-1307

After hours problems at the plants will be indicated by alarms, which will be attended to by the on-call operator.

Distribution System Emergency Contact List

Leroy Hancharyk	Public Works Foreman/ORO	Ph: 275-8761
Mike Scott	Operator	Ph: 852-1280/275-5557
Bennett Drennan	Operator	Ph: 852-3678/276-1307

A full list of emergency situations and how to deal with them is found in the Standard Operating Procedures Manual at the Water Treatment Plant.

19. Internal Audits

In accordance with the requirements of the DWQMS the Town of Rainy River has documented a procedure for internal audits

The procedure is titled QMS Internal Audit Procedure and is included as "Appendix B" in this

Operational Plan.

20. Management Review

In accordance with the requirements of the DWQMS the Town of Rainy River has documented a procedure for Management Review. The procedure is titled QMS Management Review Procedure and is included as "Appendix C" in this Operational Plan.

21. Continual Improvement

The Operating Authority will work to continually improve the effectiveness of its Quality Management System (QMS) through the use of corrective actions. The overview of the Operations Plan by a third party will be the first step in improving the effectiveness of the QMS. Annual management reviews, consultation during budget and other internal meetings for short and long terms capital, and operating expenses and resulting corrective actions will be the basis for further improvement.

Procedure Description

Sources of continual improvement to be used to create preventative and corrective actions can include:

- Internal audits;
- External audits;
- Adverse Water Quality Incidents (AWQIs); and
- MECP annual inspection reports and orders
- Best Management Practices
    - Monitor BMP's published by the MECP, at least once every 36 months, available on ontario.ca/drinkingwater
    - Drinking Water Update emails from the MECP which are sent to the Division Lead and the WTP.
- Other sources of continual improvement are:
- Opportunities for improvement;

- Staff suggestions
- Risk assessment outcomes;
- Management Reviews;
- Report on frozen water lines including bleeder and thawing list;
- Consumer complaints;
- Number of boil water advisories (BWA) issued and their locations;
- Number of watermain breaks and repair activities; and
- Staff training

Responsibility

The Designated QMS and WTP representatives are responsible for ensuring identified corrective actions are implemented and track down their effectiveness on a regular basis and document them.

Procedure

An annual review will be done during the Management Review to ensure they are implemented in a successful way and are effective in correcting and preventing the re-occurrence of the nonconformity. Additionally, the effectiveness of these items shall be measured at the time of the Management Review by reviewing the number of associated AWQIs, MECP inspection's non-compliance and BMPs, internal and external audit results, consumer complaints on quantity and quality issues, and other records on frozen services, watermain and water service breaks, BWAs etc. Continual improvement of the DWQMS will be scheduled within the calendar year to the extent possible. Programs needing more time and resources are always reflected in long term capital and operating projections. Summary report on water system to the municipal council submitted under the Schedule 22 of O. Reg. 170/03 also includes recommendations on continual improvement.

Associated Documents

- Annual summary report on Rainy River water system
- Staff Training Records

- Water break reports summary
- MECP Forms 1, 2 and 3 for major replacement/upgrade works on the distribution system and the Plant
- Report on annual Valve Exercising Program
- Document showing future plans for watermain flushing and upgrades at the Plant

The procedure will involve use of the "Continual Improvement Report" to document any corrective actions, modifications, updates, process and procedure adjustments to improve operations and customer satisfaction. All modification and improvements will be in compliance with MECP regulations.

Appendix A - Document and Record Control Procedure

1.0 Procedure Description

This procedure defines the processes in place to ensure control of all documentation and records affecting the Town of Rainy River DWQMS. This is necessary to ensure that creating; revising, approving and releasing documents are completed in a consistent manner to make certain they are retrievable, current and accurate.

2.0 Reason for Procedure:

To ensure control of documentation and records which affect the Town of Rainy River DWQMS

3.0 Responsibility:

The designated QMS Representative, (or the alternate), shall be responsible for the control of all QMS documents. All documents must meet the approval of the QMS Representative before initial or revision issuance.

4.0 Procedure:

The following list indicates the location and list of key documents that are relevant to the QMS

List of Key Documents	
Document	Location
Municipal Drinking Water License	WTP and Office
Permit to Take Water	WTP and Office
Water Treatment Plant Drinking Water Works Permit	Water Treatment Plant & Office
WTP System Classification	WTP 1 Town Office File
Water Distribution System Classification	Water Treatment Plant
DWQMS Operational Plan	WTP / Town Office
Maintenance Manuals	WTP
WTP Building and Site plans	WTP
Operator Certifications and Training	Town Office / WTP
Supplier List & Documentation	WTP
Treatment Operators Log Book	WTP
Distribution Operators Log Book	WTP
Calibration Manuals and Records	WTP

Equipment Maintenance Records	WTP
Lab Results	WTP and Town Office

All original documents and records of the Water Treatment Plant and Water Distribution System are kept at the Town Office located at 201 Atwood Avenue. Duplicate operational documents and records are located at the Water Treatment Plant.

The QMS Representative will keep all records necessary for the operation of the water treatment plant current and make any changes which are required. All documents shall have a Table of Revisions with a date of revision, and description of the revision. The QMS representatives shall sign the Operational Plan once each revision has been completed. The current documentation for the operations of the Water Treatment Plant is stored in clearly marked binders. All non-current log books or archival documentation shall be stored in clearly marked boxes in the file room at the Water Treatment Plant. The archival boxes shall be clearly identified by the documents contained within and include the year for which the documents were effective. All archived documents shall be retained as per O. Reg. 128/04 and O. Reg. 170/03.

The QMS Representative will review the Operational Plan on an annual basis prior to the audit to ensure the document contains current information.

The filing system at the Town Office is organized into numbered and titled documents filed into annual or project files. Files stored at the Town Office are retained according to the Town of Rainy River's retention by-law (minimum seven years) and upon expiration are shredded.

All documentation related to water supply issues including operator training and certifications are added to existing files that are readily identifiable and retrievable in a designated storage cabinet in the Town file room. Some older records that are not relevant in day-to-day operations may be filed into a separate room upstairs at the Town building but can still be considered easily accessible.

Daily log books and sampling records are filed at the WTP. Daily logs for the Water Distribution system are stored at the WTP.

Appendix B - QMS Internal Audit Procedure

1.0 Procedure Description

This procedure defines the process used by The Town of Rainy River to conduct internal audits of the Drinking Water Quality Management System (DWQMS).

2.0 Reason for Procedure

Internal audits are conducted to confirm that the DWQMS is effectively implemented and meets or exceeds the requirements of the DWQMS Standard.

3.0 Responsibility

Internal audits shall only be conducted by persons approved by the DWQMS Representative and having the following qualifications:

- employees who have completed internal audit training.
- employees of other operating authorities who have completed internal audit training and who have completed a minimum of two internal audits of quality management systems within their own organizations.

4.0 Procedure

4.1 This procedure is applicable to Town of Rainy River management, plant operations, and distribution activities that fall under the scope of the DWQMS.

4.2 Internal audits are conducted at least annually.

4.3 Internal auditors will be selected by the DWQMS Representative.

4.4 Internal auditors shall review DWQMS Standard and previous internal and third party audit reports in preparation for the audit.

4.5 The audit checklist created and maintained by the DWQMS Representative shall be used by the internal auditor as a guideline for conducting the interviews and document review during the audit.

4.6 The audit report shall be in the form of a completed audit checklist.

4.7 Corrective actions shall be identified and initiated using the corrective action form.

4.8 The audit is not closed until all non-conformances identified in the closing meeting have been corrected and the corrective action has been verified as being effective at eliminating the root cause of the non-conformance.

4.9 The internal audit shall be considered closed upon submission of the audit report to the Management Review Committee.

5.0 Associated Documents

- *Internal Audit Checklist*

Appendix C - Management Review Procedure

1.0 Procedure Description

This procedure defines the process for the review of the effectiveness of the Drinking Water Quality Management System (DWQMS) by the Management Review Committee.

2.0 Reason for Procedure

Management reviews are conducted to assess and ensure the continuing suitability, adequacy, and effectiveness of the DWQMS.

3.0 Responsibility

Management reviews shall be conducted during a meeting of the following participants:

- Chief Administrative Officer
- Public Works Foreman (ORO)

Other participants may be added at the discretion of the Management Review Committee.

4.0 Procedure

4.8 This procedure is applicable to The Town of Rainy River management, plant operations, and distribution and collection activities that fall under the scope of the QMS.

4.9 A management review shall be conducted at least once per year following completion and documentation of an internal audit and prior to the next scheduled third-party audit.

4.10 Prior to the Management Review Meeting, the QMS Representative or Alternate shall provide a meeting agenda and summaries of the following information to the Management Review Committee:

- Listing of incidents of regulatory non-compliance
- Incidents of adverse drinking water tests
- Deviations from critical control point limits and response actions
- The efficacy of the risk assessment
- Results of any relevant internal and third-party audits
- Results of emergency response training
- The status of management action items between reviews
- The results of infrastructure review
- Operational Plan currency, content and updates

- Staff suggestions
- Results of regulatory compliance inspections
- Summary of customer complaints
- Summary / trending of operational performance noting any deficiencies
- Status of action-items from last Management Review
- Raw water supply and drinking water quality trends.
- Summary of Commission Meeting minutes pertaining to the QMS scope
- Changes in process or management that may affect drinking water quality
- Recommendations for improvement of the QMS
- The resources needed to maintain the Quality Management System.

4.11 The Management Review Committee shall review and discuss all information presented. The Committee shall make recommendations and initiate action, as appropriate, to improve the content and implementation of the Operational Plan and related procedures, and to ensure the provision of adequate resources.

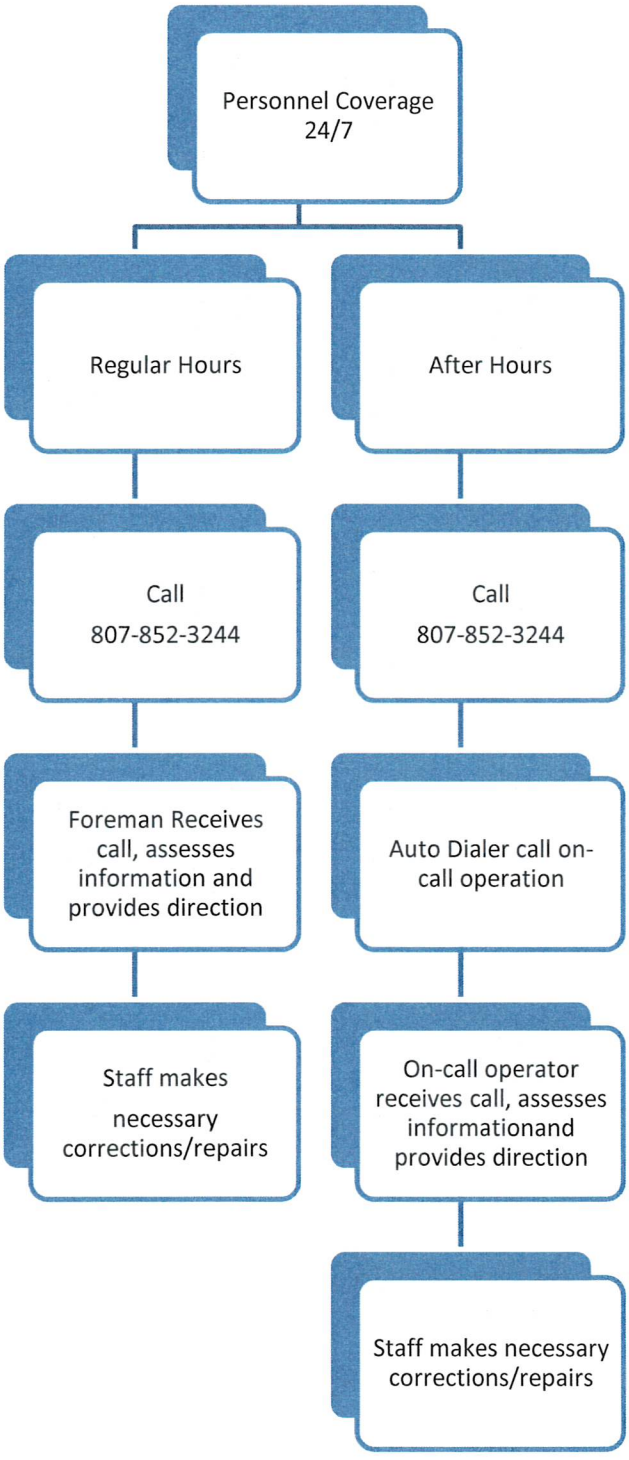
4.12 Minutes of management review meetings shall be maintained by the QMS Representative or Alternate. The minutes shall document all new and outstanding action items as well as any decisions made by the Committee.

4.13 The QMS Representative and Alternate shall be responsible for communication and implementation of the management review action items as per item DWQMS Communication procedure.

5.0 Associated Documents

- *Internal Audit Checklist*

Appendix D


Personnel Coverage 24/7
Regular Hours
After Hours
Call 807-852-3244
Call 807-852-3244
Foreman Receives call, assesses information and provides direction
Auto Dialer call on-call operation
Staff makes necessary corrections/repairs
On-call operator receives call, assesses informationand provides direction
Staff makes necessary corrections/repairs

Appendix E – Summary of Plan Updates

Date	Description of Revision
December 2010	Implemented recommendation from MOE
March 2011	Minor typographical changes/# of fire hydrants changed
July 2011	Compliance Audit – Corrective Actions Addressed
September 2011	Compliance Audit – August – Corrective Actions Addressed
January 23, 2013	SAI Compliance Audit – Corrective Actions Addressed
February 25, 2013	SAI Compliance Audit – Additional Corrective Actions Addressed
November 26, 2013	Operator Information, Appendix K Addition
January 15, 2015	Internal Audit
April 2, 2015	Internal Audit Finalize
December 2015	External Audit & Staff Review
November 2016	Internal Audit Finalized – Corrective Actions Addressed
October 2017	Internal Audit Finalized – Corrective Actions Addressed
August 2018	Internal Audit – Corrective Actions Addressed
November 2018	External Audit – On Site
October 2019	Internal Audit – Corrective actions addressed
December 2019	External Audit – Corrective actions addressed
January 2020	External Audit – Elements 8 and 2, Update to reference Ministry of Environment, Conservation and Parks, Move update list to Appendix E
March 2020 (3.4)	Expanded the Element 14 section
October 2020 (3.5)	Revise element 12 Communications with regard to supplier agreements. Corrected page numbers
July 2021 (3.6)	Add Algae Plan
November 29, 2021 (3.7)	Update to reflect staffing changes
November 25, 2022 (3.8)	Update supplier list

Appendix F – Algae Plan

Procedure Description

1. Visually inspect the source daily from June to October and record results.
2. Obtain lab tests from ALS if visual inspections indicate algae are present in the source.
3. If a bloom is detected, monitor for microcystins after treatment and before distribution for treatment performance data.
4. Staff training on monitoring, reporting, and sampling procedures.
5. Measures taken to issue public notices – should have plan for notifying public to use alternative sources (i.e. "Do Not Consume" order).
6. Keep in contact with environmental agencies/Ministries for source water assessments to keep up-to-date on changes to source water.

Appendix K – Internal Audit Schedule

Date of Revision: November 25, 2022

Date	Process	DWQMS Element	Auditor(s)
March 1, 2013	Operational Plan	All DWQMS Elements	DG
January 15, 2015	Operational Plan	All DWQMS Elements	JT
April 20, 2015	Operational Plan	All DWQMS Elements	JT
March 3, 2016	Operational Plan	All DWQMS Elements	JT
August 16, 2017	Operational Plan	All DWQMS Elements	JT
August 21, 2018	Operational Plan	All DWQMS Elements	JT
October 15, 2019	Operational Plan	All DWQMS Elements	JT
October 2, 2020	Operational Plan	All DWQMS Elements	JT
August 19, 2021	Operational Plan	All DWQMS Elements	JT
November 3, 2022	Operational Plan	All DWQMS Elements	JT