

# Drinking Water

Assiniboine Integrated Watershed  
Management Plan

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## Drinking Water Safety Act

- Proclaimed January 2004
- Result of Drinking Water Advisory Committee
- Officially established Office of Drinking Water
- Semi-public facilities for the first time
- Enable regulations – (Two March 1, 2007)

## Water system definitions

- A **public water system** is a water system that has 15 or more service connections.
- A **semi-public water system** is a water system with less than 15 service connection, but not a private water system.
- A **private water system** is a water system that supplies water to only one private residence.

## Drinking Water Safety Regulation

- GUDI systems
- Construction/Alteration Permits
- Operating Licences - stagger applications
- Disinfection requirements
- Expanded record keeping
- Sampling and analysis
- Laboratory notification
- Infrastructure assessment - staggered

## Infrastructure Assessment

- Prepared by third party professional engineer
- Characterization of raw water supply, and any source water protection measures
- Description of water system
- Characterization of the treated water
- Assess potential for microbiological, chemical and physical contamination
- Assess the physical works

## Drinking Water Quality Standard Regulation

- Water quality standards adopted ...

Parameter	Surface Water	GUDI	Groundwater
Bacteria	No TC or EC	No TC or EC	No TC or EC
Microbial	3-log C&G, 4-log V	3-log C&G, 4-log V*	
Physical	0.3/0.1/1.0 NTU	0.3/0.1/1.0 NTU*	
THMs	0.1 mg/L	0.1 mg/L	
Bromodichlormethane (BDCM)	0.016 mg/L	0.016 mg/L	
Lead	0.01 mg/L	0.01 mg/L	0.01 mg/L
Arsenic		0.01 mg/L	0.01 mg/L
Benzene		0.005 mg/L	0.005 mg/L
Fluoride		1.5 mg/L	1.5 mg/L
Nitrate-N		10 mg/L	10 mg/L
Tetrachloroethylene		0.03 mg/L	0.03 mg/L
Trichloroethylene		0.005 mg/L	0.005 mg/L
Uranium		0.02 mg/L	0.02 mg/L

## Data for Assiniboine Watersheds Study Area

- 32 public water systems
- 1 semi-public water system

<u>watershed</u>	<u>public</u>	<u>semi-public</u>
Lower Shell River	8	1
Upper Birdtail Creek	8	?
Lower Oak River	7	?
Central Little Saskatchewan	9	?

## Source Water

- Of the 32 public systems
  - 2 surface water (Town of Rivers, St. Lazare)
  - 30 ground water
- The semi-public is a GUDI source

<u>watershed</u>	<u>surface</u>	<u>ground water</u>
Lower Shell River	-	9
Upper Birdtail Creek	1	7
Lower Oak River	-	7
Central Little Saskatchewan	1	8

## Seasonals / Pipelines

- 10 are seasonal systems
- 4 have pipelines serving rural residents

<u>watershed</u>	<u>seasonals</u>	<u>pipelines</u>
Lower Shell River	6	
Upper Birdtail Creek	1	
Lower Oak River	0	3
Central Little Saskatchewan	3	1

## Chlorination



## Greensand Filter



## Ion-exchange Softener



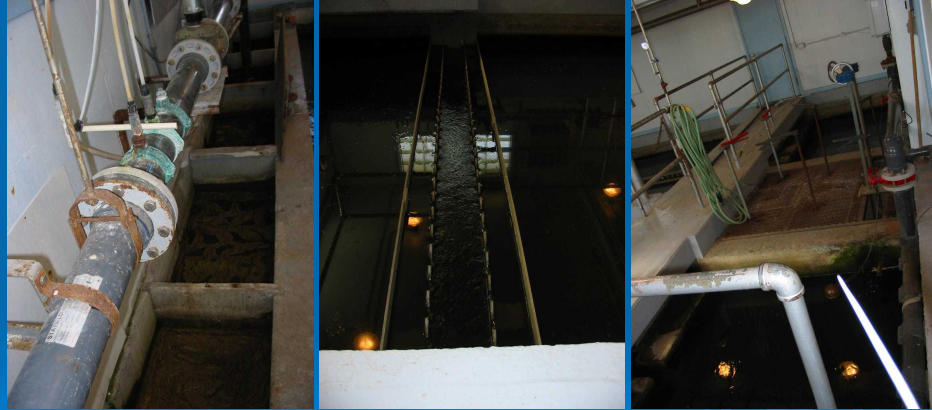
# Membrane Filtration



# Ultra-Violet Light (UV)



## Coagulation / Filtration



## Guidelines for Canadian Drinking Water Quality

- Microbiological
  - No E. coli, no total coliforms
  - Highest priority
  - Chemical treatment should not compromise disinfection effectiveness
- Maximum acceptable concentrations
  - Eg. lead, arsenic, nitrate
- Aesthetic objectives
  - Eg. iron, manganese

Lower Shell River				
Public Water Treatment Plant	Source	Treatment	Guidelines for Canadian Drinking Water Health Exceedence	Guidelines for Canadian Drinking Water Aesthetic Exceedence
ALESSIPPI PROVINCIAL PARK	well	Chlorination.		
CHILD'S LAKE	well	Chlorination.		
EAST BLUE LAKE	well	Chlorination.		
INGLIS	well	Membrane filtration with greensand filter by-pass, chlorine disinfection.		Manganese
KILMAN RESORT	well	Chlorination.		
PYOTT'S CAMPGROUND	well	Chlorination.		
RICKER'S CAMPGROUND	well	Greensand filtration, chlorine disinfection.		Manganese
ROBLIN	well	Greensand filtration, chlorine disinfection.		TDS, Manganese, Hardness

Semi-Public Water Treatment Plant	Source	Treatment	Guidelines for Canadian Drinking Water Health Exceedence	Guidelines for Canadian Drinking Water Aesthetic Exceedence
LOST MEADOWS RESORT	well	Pressure filtration, UV disinfection, chlorine disinfection.		

Upper Birdtail Creek				
Public Water Treatment Plant	Source	Treatment	Guidelines for Canadian Drinking Water Health Exceedence	Guidelines for Canadian Drinking Water Aesthetic Exceedence
ANGUSVILLE	well	Membrane filtration, chlorine disinfection.		
BINSCARTH	well	Greensand filtration, chlorine disinfection.		TDS, Manganese, Hardness
BIRTLE	well	Pyrite filtration, chlorine disinfection.		TDS, Sulphate, Manganese, Sodium, Hardness
MCAULEY	well	Greensand filtration, chlorine disinfection.		
ROSSBURN	well	Ion exchange softening, greensand filtration, chloramination disinfection.		TDS, Sodium
ROSSMAN LAKE	well	Greensand filtration, chlorine disinfection.		
RUSSELL	well	Lime-soda ash softening, filtration, chlorine disinfection.		
ST. LAZARE	surface	Chlorination.	Boil Water Advisory	

Lower Oak River

Public Water Treatment Plant	Source	Treatment	Guidelines for Canadian Drinking Water	
			Health Exceedence	Aesthetic Exceedence
HAMIOTA	well	Membrane filtration with greensand filter by-pass, chlorine disinfection.		TDS
KENTON	well	Greensand filtration, chlorine disinfection.		TDS
OAK RIVER	well	Membrane filtration with greensand filter by-pass, chlorine disinfection.		
SHOAL LAKE	well	Chlorination.		TDS, Sulphate, Manganese, Sodium
STRATHCLAIR	well	Membrane filtration with greensand filter by-pass, chlorine disinfection.		
VIRDEN	well	Preoxidation, ozonation, greensand filtration, membrane filtration, chlorine disinfection.	Arsenic	TDS, Iron, Manganese, Sodium
WALLACE, R M of	well	Membrane filtration, chlorine disinfection.		

Central Little Saskatchewan

Public Water Treatment Plant	Source	Treatment	Guidelines for Canadian Drinking Water	
			Health Exceedence	Aesthetic Exceedence
ERICKSON	well	Ion exchange softening, greensand filtration, chloramination disinfection.		TDS, Manganese, Sodium
MINNEDOSA1	well	Greensand filtration, chlorine disinfection.		TDS
MINNEDOSA2		Iron removal, chlorine disinfection.		TDS, Manganese
ODANAH, R M of	well	Greensand filtration, chlorine disinfection.	BDCM	TDS, Hardness
OTTER LAKE	well	Chlorination.		
RAPID CITY	well	Greensand filtration, chlorine disinfection.	?THM?	TDS, Manganese, Hardness
RIVERS	surface	Coagulation, filtration, chlorine disinfection.	?THM?	
RIVERS PROVINCIAL PARK	well	Chlorination.		
SANDY LAKE	well	Membrane filtration with greensand filter by-pass, chlorine disinfection.		
SPORTSMAN PARK	well	Chlorination.		

# Questions

[www.manitoba.ca/drinkingwater](http://www.manitoba.ca/drinkingwater)