

# HECLA ISLAND PROVINCIAL PARK WATER SYSTEM

## Annual Report, Water System Code: 91.00

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The Hecla water supply system utilizes two wells with submersible pumps. The first well is located close to the water treatment plant in Bay 1 and is 25 meters in depth. The second well is located along the south cart path in Bay 3, and is 24 meters in depth. The pumps are set to alternate operation every 48 hours of runtime, and will both operate if the demand is greater than 2 liters per second. Due to a recent upgrade of our water treatment plant two new wells were drilled, and two new pumps were installed, these components are just over two years old.

Once in the plant the well water is pretreated with 12% sodium hypochlorite via chemical feeders then sent through a train of five greensand filters. The pre-chlorinating is meant to chemically assist with the sedimentation of iron within the greensand filters. Post filtration the water is then chlorinated again and transferred into a train of contact tanks to achieve the required twenty minutes of contact time before entering the distribution system. Total and free chlorine residuals are monitored daily to ensure the water quality standards of <0.5 mg/l free chlorine is achieved before water leaves the plant. Daily N.T.U readings are also performed by the operators to ensure the filtration system is functioning normally. Samples are submitted bi-weekly and tested by A.L.S to ensure the plant is meeting all standards and regulations in congruence with the Drinking Water Act.

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The table below lists the water quality standards that apply to the public water system. An analytical report was compiled in August 2021.

PARAMETER	QUALITY STANDARD	RAW	TREATED	DISTRIBUTION
Total Coliform	>1 per 100 ml	0	0	0
E.Coli	>1 per100 ml	0	0	0
Chlorine Residuals	Disinfection Standard		>0.5 mg/l free chlorine entering the distribution system	>0.1 mg/l free chlorine at any point within the distribution system
Arsenic	Less than or equal to 0.01 mg/l	<0.00010 mg/l	<0.0000 mg/l	<0.00010 mg/l
Benzene	Less than or equal to 0.005 mg/l	<0.00050 mg/l		
Ethylbenzene	Less than or equal to 0.14 mg/l	<0.00050 mg/l		
Flouride	Less than or equal to 1.5 mg/l	0.171 mg/l	0.152mg/l	
Lead	Less than or equal to0.005 mg/l	<0.000050 mg/l	<0.000050 mg/l	0.000204 mg/l
Nitrate	Less than or equal to 45 mg/l measured as nitrate (10 mg/l) Nitrogen	<0.0050 mg/l	<0.010 mg/l	
Nitrite	Less than or equal to 3 mg/l measured as nitrite (1 mg/l) Nitrogen	<0.0010 mg/l	<0.0020 mg/l	
Trichloroethene	Less than or equal to 0.00050 mg/l	<0.00050mg/l		
Tetrachloroethane	Less than or equal to 0.01 mg/l	<0.00050 mg/l		
Toluene	Less than or equal to 0.06 mg/l	<0.00050 mg/l		
Total Xylenes	Less than or equal to 0.09 mg/l	<0.00064 mg/l		
Uranium	Less than or equal o 0.02 mg/l	0.00078 mg/l	0.000059 mg/l	0.000059 mg/l

The complete chemical analysis will be attached to this document for further review.

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## HECLA ISLAND BACTERIOLOGICAL SUMMARY 2021

T.C	E.Coli	COLLECTION DATE	SAMPLE INDENTIFICATION
0	0	14-May-21	Hecla Island Provincial Park - 1 RAW Bay 1
0	0	14-May-21	Hecla Island Provincial Park - 2 TREATED
0	0	14-May-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	17-May-21	Hecla Island Provincial Park - 1 RAW Bay 3
0	0	17-May-21	Hecla Island Provincial Park - 2 TREATED
0	0	17-May-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	01-Jun-21	Hecla Island Provincial Park - 1 RAW
0	0	01-Jun-21	Hecla Island Provincial Park - 2 TREATED
0	0	01-Jun-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	15-Jun-21	Hecla Island Provincial Park - 1 RAW
0	0	15-Jun-21	Hecla Island Provincial Park - 2 TREATED
0	0	15-Jun-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	29-Jun-21	Hecla Island Provincial Park - 1 RAW
0	0	29-Jun-21	Hecla Island Provincial Park - 2 TREATED
0	0	29-Jun-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	13-Jul-21	Hecla Island Provincial Park -1 RAW Bay 1
0	0	13-Jul-21	Hecla Island Provincial Park - 2 TREATED
0	0	13-Jul-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	27-Jul-21	Hecla Island Provincial Park - 1 RAW
0	0	27-Jul-21	Hecla Island Provincial Park - 2 TREATED
0	0	27-Jul-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	10-Aug-21	Hecla Island Provincial Park - 1 RAW
0	0	10-Aug-21	Hecla Island Provincial Park - 2 TREATED
0	0	10-Aug-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	31-Aug-21	Hecla Island Provincial Park -1 RAW Bay 1
0	0	31-Aug-21	Hecla Island Provincial Park -2 TREATED
0	0	31-Aug-21	Hecla Island Provincial Park - 3 DISTRIBUTION
0	0	14-Sep-21	Hecla Island Provincial Park - 1 RAW
0	0	14-Sep-21	Hecla Island Provincial Park - 2 TREATED
0	0	14-Sep-21	Hecla Island Provincial Park - 3 DISTRIBUTION

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## HECLA ISLAND BACTERIOLOGICAL SUMMARY 2021

COLLECTION DATE	SAMPLE IDENTIFICATION	SAMPLE #	FREE	TOTAL
17-May-21	Hecla Island Provincial Park - 2 TREATED	L2588080	1.4	1.6
17-May-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2588080	1	1.5
19-May-21	Hecla Island Provincial Park - 2 TREATED	L2589388	0.79	1.02
19-May-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2589388	0.57	0.66
02-Jun-21	Hecla Island Provincial Park - 2 TREATED	L2595093	0.69	0.92
02-Jun-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2595093	0.49	0.68
16-Jun-21	Hecla Island Provincial Park - 2 TREATED	L2601421	1.18	1.61
16-Jun-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2601421	0.96	1.08
30-Jun-21	Hecla Island Provincial Park - 2 TREATED	L2607759	0.61	0.82
30-Jun-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2607759	0.48	0.63
14-Jul-21	Hecla Island Provincial Park - 2 TREATED	L2613207	1.19	1.35
14-Jul-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2613207	0.99	1.36
28-Jul-21	Hecla Island Provincial Park - 2 TREATED	L2619120	1.23	1.44
28-Jul-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2619120	0.87	1.03
11-Aug-21	Hecla Island Provincial Park - 2 TREATED	L2624697	1	1.14
11-Aug-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2624297	0.64	0.82
01-Sep-21	Hecla Island Provincial Park - 2 TREATED	L2633959	0.54	0.69
01-Sep-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2633959	0.42	0.63
15-Sep-21	Hecla Island Provincial Park - 2 TREATED	L2639257	0.51	0.68
15-Sep-21	Hecla Island Provincial Park - 3 DISTRIBUTION	L2639257	0.42	0.61

As the tests above indicate the operators were able to maintain the standard disinfection chlorine residual requirements of >0.5 mg/l entering the distribution system and >0.1 mg/l at the end of the distribution system for 99% of the season. There were a couple of days in August where the free chlorine residuals fell flat at the end of the distribution system. Operators remedied this by flushing the system at the end of the line for an hour a day. The operators noticed early in the season that when the greensand filters regenerate every 48 hours there is a fluctuation in the chlorine residuals. The operators were able to maintain the required residuals by testing the water twice a day and making adjustments to the chemical feeders as required. No charges were laid this season regarding any violations of our license in congruence with the drinking water act. The operators took the advice from the drinking water officers to increase the flushing of our systems to maintain the end of line distribution residuals required. There were no additional costs incurred during this season's period of operation. However operators have determined that the components within the heads of the greensand filters will need annual inspection to determine if internal parts must be replaced. This year one

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greensand filter is having the head components replaced during the off season. Price is yet to be determined but will not exceed \$500. Other mechanical issues include the potential addition of a bladder style expansion tank to reduce wear and pump curve fluctuations within the water plant. The operators will work closely with the head engineer Ken Anderson to determine what improvements can be made at the beginning of this season. Permits will be acquired through the Drinking Water Officers Approval unit to commence work, if the engineer deems it required.

**Paper copies of this report will be available at the Environment, Climate and Parks Riverton office for public viewing. The address is 124 Main Street in Riverton MB.**

**This report may also be accessed online on the parks webpage at:**

<https://www.gov.mb.ca/sd/parks/park-maps-and-locations/central/hecla.html>