West Hawk annual water report

This report is to provide public awareness about the operation, requirements and results of the water treatment system for West Hawk lake MB. Under The Environment Act's Water and Wastewater Facility Operators Regulation, the plant is rated a class 2 treatment facility as well as the operators maintaining the plant. Copies of this report will be made available at the Falcon District Office as well as on the Manitoba government website. Residents will be made aware of this report via e-mail and/or signage posted on bulletins around town. The Whiteshell cottagers association will also direct residents on how to access this report.

Plant operators:

Matthew MacInnis – MM3 Steve Kuharski – MM1 Jacob klassen - TRH

Where does the water come from?

• Our raw water source comes from two 8" drilled wells, each well equipped with its own submersible pump tapped into an underground aquafer. When our system calls for water these pumps pump the raw water into the water plant to be then treated.

What do you do to this raw water once it's at the water plant?

• Once the raw water is pumped into the water plant, chlorine (sodium hypochlorite) is injected into the raw water line. Once chlorine is added it then distributes between 3 green sand filters which remove particulates/debris/solids from the water. The now filtered water gets distributed between 4 UV lights before entering our 1600 gal storage tanks. We have 6 above ground storage tanks which hold 9600 gals to store our now treated potable water ready for distribution supplied to town from three variable speed distribution pumps that supply water to the town through the underground piping in our distribution system. We are required to have a minimum of 20 minutes of chlorine contact time. This means that we exceed the minimum required 20 minutes of contact time of chlorine with the raw water, before going to the distribution system.

What is the purpose for adding this chlorine to the water?

The main purpose of the chlorine is that it disinfects and kills any harmful bacteria that
may be present in the water. This makes chlorine your number one line of defense in
providing safe drinking water, but it also helps with filtration process by pulling out
particulates from the water so the filters can then remove them.

What is the purpose of the UV lights?

• The purpose of the UV lights is to kill or sterilize any bacteria that may be present in the water. This step is more of a backup precautionary measure, an extra bit of security to make sure the public is always safe and can help to guarantee consistently safe water at all times. UV monitoring is done daily with the units functioning properly at 95% of the time as required by the drinking water safety act. A dosage of 40mJ/cm2 is a standard minimum.

Should we worry about the safety of our water during a power outage?

• If and when a power outage does occur the water plant is equipped with a generator that provides ample amount of power and starts up automatically to keep everything running.

The generator will continue every step of the treatment process so that the water is always being properly treated.

How can we be assured our water is safe at all times?

There is an entire branch of the government designated to monitoring water plants
throughout the province called The Office of Drinking Water. These water officers work
very closely with plant operators to help ensure water quality is at its best while also
making sure operators are following Drinking Water Safety Acts and it supporting
regulations on a daily basis.

What kind of regulations need to be met?

The Office of Drinking Water has different requirements for ever system depending on the water source, population, treatment method, etc. West Hawk water treatment plant is required to test chlorine free and total in person every day of the year. We must also send water samples to an accredited laboratory every two weeks to be tested for E-coli and total coliforms. We do this test to the raw water, treatment water at the plant and from various sample points around town in the distribution system. The lab results are sent to the water officer every two weeks and our daily monitoring of chlorine levels are sent to the officer every month. We monitor turbidity on a daily basis in the raw and treated water. Further into this report you will find two charts for turbidity. One is our monthly average over the year and the other from our bi weekly samples that get sent in for lab analysis. We must also sample for THM (trihalomethane) and HAAs (haloacetic acids) quarterly or four times a year making sure to not exceed 0.10 mg/l for THMs and to not exceed 0.08 mg/l for HAAs. Last year average of THMs = 0.0503 mg/l and HAAs = 0.0203 mg/l. We are also required to sample annually for benzene, toluene, ethylbenzene, and xylenes in our water. UV disinfection must be monitored daily and be operational 95% of each month at a UV dose of 40mJ/cm2. The microbial standards that we are required to meet are inactivation or reduction at 99.9% of Cryptosporidium cysts and Giardia lamblia cysts, this standard is met through our UV disinfection process. We are also required to maintain in effective working order the filtration and disinfection equipment to provide reduction or inactivation of 99.99% all viruses. This standard is met through chlorination contact time.

What is free and total? And how do you know how much chlorine to make the water safe?

• Free chlorine is the amount of unused chlorine in the water and total chlorine is the total amount of chlorine that was in the water, the deference between the two is how much

chlorine was needed to treat the water and make it safe. The drinking water safety acts requires that we maintain no less than 0.5 mg/l of free chlorine at the water plant at all times as well as 0.1 mg/l in the piping/distribution system. The chart below is our free and total readings at the water plant for everyday of the year. The second chart shows our bi weekly readings of the distribution system. Failing to meet requirements under the drinking water safety act can result in drinking water safety orders, charges, boil water advisories or water quality advisories.

	Jar	nuary	<u>Febr</u>	uary	Ma	rch	<u>A</u>	<u>pril</u>	<u>N</u>	lay	Ju	<u>ne</u>	Ju	ıly	Aug	<u>gust</u>	Septe	<u>ember</u>	<u>Oct</u>	<u>ober</u>	Nove	<u>mber</u>	Dece	<u>mber</u>
	Free	total	<u>Free</u>	total	Free	<u>total</u>	Free	total	Free	total	<u>Free</u>	total	Free	<u>total</u>	<u>Free</u>	total	<u>Free</u>	total	<u>Free</u>	total	<u>Free</u>	total	<u>Free</u>	<u>total</u>
1	<mark>.79</mark>	.92	<mark>.76</mark>	.86	<mark>.86</mark>	1.0 3	<mark>.66</mark>	.74	<mark>.72</mark>	.83	1.1 9	1.3 7	<mark>.97</mark>	1.1 5	<mark>.85</mark>	<mark>.94</mark>	<mark>.65</mark>	<mark>.72</mark>	1.1 0	1.2 4	<mark>.92</mark>	1.0 5	<mark>.64</mark>	<mark>.78</mark>
2	.97	1.1 2	.75	.87	1.0 5	1.1 7	<mark>.60</mark>	.71	.70	.86	1.2 0	1.4 0	1.0 9	1.18	<mark>.98</mark>	1.0 9	<mark>.55</mark>	.69	.99	1.1 6	.80	.89	1.2 3	1.3 7
3	<mark>.98</mark>	1.0 8	<mark>.92</mark>	1.0 8	<mark>.99</mark>	1.0 4	<mark>.60</mark>	.71	.74	.83	1.3 6	1.5 8	<mark>.98</mark>	1.0 6	<mark>.74</mark>	.85	<mark>.64</mark>	.75	<mark>.86</mark>	1.0 5	<mark>.50</mark>	.59	.82	1.0 7
4	.94	1.1 1	<mark>.95</mark>	1.0 5	1.0 2	1.1 4	<mark>.54</mark>	.62	<mark>.69</mark>	.84	1.3 6	1.5 0	.79	.87	.85	.98	.58	.71	.89	1.0 8	.80	.95	1.1 3	1.3 5
5	<mark>.78</mark>	.93	<mark>.75</mark>	.79	.98	1.0 8	<mark>.63</mark>	.78	.82	1.0 2	.84	1.0 3	<mark>.91</mark>	1.0 0	<mark>.75</mark>	.85	<mark>.62</mark>	.78	<mark>.81</mark>	.96	<mark>.81</mark>	.97	.83	.98
6	<mark>.64</mark>	.77	.85	1.0 2	.91	1.0 5	<mark>.54</mark>	.66	1.0 8	1.3 3	1.3 2	1.4 6	.90	.99	<mark>.76</mark>	.82	.54	.70	.96	1.0 5	.91	1.1 4	1.1 0	1.2 1
7	<mark>.87</mark>	1.0 5	.83	.99	.88	.91	.53	.61	1.0 9	1.2 8	1.2 3	1.3 6	<mark>.75</mark>	.86	<mark>.64</mark>	.76	<mark>.53</mark>	.69	1.1 2	1.3 0	<mark>.75</mark>	.86	.77	.88
8	.89	.94	1.1 7	1.3 7	.80	.97	.93	1.1 0	1.2 3	1.4 0	1.2 7	1.3 6	.76	.84	.81	.96	<mark>.63</mark>	.78	.82	1.0 0	.96	1.1 0	1.0 9	1.2 4
9	.74	.84	.80	.91	<mark>.54</mark>	.66	<mark>.92</mark>	1.0 7	1.2 4	1.3 6	1.2 9	1.4 5	<mark>.81</mark>	.91	<mark>.76</mark>	.90	<mark>.64</mark>	.77	.90	1.0 3	.76	.93	1.7 3	2.0 0
10	.78	.90	1.0 0	1.1 8	.69	.80	.86	1.0 2	1.1 0	1.2 7	1.2 5	1.3 7	.90	1.0 4	.67	.80	<mark>.66</mark>	.79	.82	.98	1.1 1	1.3 4	1.6 7	1.8 2
11	<mark>.91</mark>	1.0 9	1.1 0	1.2 2	.91	1.0 5	.92	1.1 1	1.3 2	1.5 2	1.3 8	1.5 1	<mark>.65</mark>	.81	<mark>.79</mark>	.88	<mark>.60</mark>	.75	.96	1.1 2	1.0 6	1.2 1	1.4 9	1.6 2
12	<mark>.65</mark>	.80	1.0 8	1.2 3	.61	.71	.82	1.0 2	1.3 2	1.5 3	.99	1.1 4	<mark>.78</mark>	.90	.84	.95	<mark>.61</mark>	.74	.74	.90	.82	.98	1.1 7	1.3 2
13	<mark>.91</mark>	1.1 0	.98	1.1 2	.52	.63	.80	.91	1.5 0	1.6 9	.91	1.2 0	.72	.85	<mark>.66</mark>	.73	<mark>.65</mark>	<mark>.78</mark>	.73	.88	<mark>.79</mark>	.92	1.4 4	1.6 1
14	<mark>.66</mark>	.80	1.1 1	1.2 5	.62	.74	<mark>.69</mark>	.81	1.4 4	1.5 9	.71	.84	<mark>.65</mark>	.79	.73	.86	.58	.68	.77	.94	.54	.67	.99	1.1 7
15	.80	.92	1.0 5	1.1 6	.52	.63	.88	.99	1.5 1	1.7 6	.90	1.0 0	<mark>.79</mark>	.93	<mark>.62</mark>	.78	<mark>.58</mark>	<mark>.68</mark>	.94	1.1 0	<mark>.90</mark>	1.1 2	.74	.82
16	1.0 0	1.1 9	1.1 4	1.3 1	.54	.74	.82	.96	1.5 0	1.6 8	.99	1.1 7	<mark>.54</mark>	.69	<mark>.63</mark>	<mark>.77</mark>	.52	<mark>.61</mark>	.55	.63	.78	.89	1.0 8	1.2 4
17	1.0 8	1.2 1	<mark>.94</mark>	1.1 3	<mark>.79</mark>	<mark>.91</mark>	<mark>.85</mark>	<mark>.97</mark>	1.5 3	1.6 8	1.1 3	1.2 6	<mark>.76</mark>	<mark>.86</mark>	<mark>.67</mark>	<mark>.82</mark>	<mark>.64</mark>	<mark>.69</mark>	<mark>.51</mark>	<mark>.57</mark>	<mark>.93</mark>	1.1 1	1.1 0	1.2 4
18	<mark>.77</mark>	<mark>.98</mark>	<mark>.85</mark>	1.1 5	<mark>.65</mark>	<mark>.77</mark>	<mark>.95</mark>	1.0 7	1.5 2	1.6 5	<mark>.94</mark>	1.1 0	<mark>.69</mark>	<mark>.74</mark>	<mark>.69</mark>	<mark>.83</mark>	<mark>.72</mark>	<mark>.89</mark>	<mark>.54</mark>	<mark>.66</mark>	<mark>.89</mark>	1.2 1	<mark>.78</mark>	<mark>.90</mark>
19	1.0 6	1.2 4	<mark>.92</mark>	1.1 0	<mark>.59</mark>	<mark>.74</mark>	<mark>.92</mark>	1.0 6	1.5 6	1.7 5	<mark>.96</mark>	1.1 1	<mark>.61</mark>	<mark>.71</mark>	<mark>.62</mark>	<mark>.74</mark>	<mark>.60</mark>	<mark>.72</mark>	<mark>.50</mark>	<mark>.57</mark>	<mark>.73</mark>	<mark>.86</mark>	<mark>.58</mark>	<mark>.70</mark>
20	.86	1.0 8	1.1 2	1.2 3	<mark>.60</mark>	.72	<mark>.81</mark>	.97	1.7 1	1.8 7	<mark>.73</mark>	.85	.76	.89	<mark>.58</mark>	.73	.53	<mark>.58</mark>	.51	<mark>.61</mark>	1.0 5	1.3 5	<mark>.61</mark>	.75
21	8	1.2 6	1.0 7	1.1 9	<mark>.79</mark>	.99	.70	.85	1.6 0	1.7 0	<mark>.61</mark>	.78	.61	.75	<mark>.74</mark>	.85	.58	<mark>.65</mark>	.61	.77	1.1 7	1.2 9	<mark>.65</mark>	.81
22	.89	.97	1.0 8	1.1 9	<mark>.75</mark>	.87	1.0 9	1.2 2	1.6 9	1.8 6	.64	.80	.73	.83	<mark>.70</mark>	.81	.53	<mark>.64</mark>	.62	.74	1.2 3	1.5 0	.57	.76
23	.84	<mark>.96</mark>	<mark>.79</mark>	.94	<mark>.60</mark>	.70	<mark>.87</mark>	1.0 3	1.7 3	1.9 0	<mark>.76</mark>	.90	.72	<mark>.86</mark>	<mark>.67</mark>	.73	.80	.99	<mark>.60</mark>	.73	.76	<mark>.96</mark>	<mark>.61</mark>	.80
24		.90	1.0 7	1.2 2	<mark>.78</mark>	.88	<mark>.76</mark>	.91	1.5 5	1.7 2	.60	.73	<mark>.69</mark>	.78	<mark>.70</mark>	.80	<mark>.66</mark>	<mark>.84</mark>	.60	.72	.85	1.0 2	1.2 1	1.3 8
25	<mark>.92</mark>	1.0 7	1.2 1	1.3 7	.83	.93	<mark>.75</mark>	.84	1.5 0	1.7 0	.51	<mark>.68</mark>	<mark>.63</mark>	.80	.74	.82	.80	<mark>.90</mark>	<mark>.61</mark>	.76	1.1 6	1.2 8	<mark>.61</mark>	.70
26	<mark>.92</mark>	1.0 8	.81	1.0 2	.78	<mark>.92</mark>	<mark>.69</mark>	.84	1.6 0	1.7 5	<mark>.70</mark>	.87	<mark>.84</mark>	1.1 2	.62	<mark>.74</mark>	.53	<mark>.68</mark>	.51	<mark>.60</mark>	1.1 4	1.2 7	<mark>.90</mark>	1.0 1
27	<mark>.92</mark>	1.0 9	<mark>.95</mark>	1.0 7	<mark>.80</mark>	<mark>.94</mark>	.80	<mark>.95</mark>	1.3 5	1.5 0	<mark>.60</mark>	.75	<mark>.76</mark>	<mark>.95</mark>	<mark>.51</mark>	<mark>.64</mark>	.80	<mark>.87</mark>	1.4 4	1.5 3	<mark>.93</mark>	<mark>.99</mark>	<mark>.91</mark>	1.0 6

28	<mark>.83</mark>	1.0 0	1.0 1	1.1 7	<mark>.72</mark>	.83	<mark>.60</mark>	<mark>.76</mark>	1.5 2	1.6 2	<mark>.65</mark>	<mark>.75</mark>	<mark>.71</mark>	<mark>.84</mark>	<mark>.50</mark>	<mark>.64</mark>	<mark>.87</mark>	<mark>.99</mark>	<mark>.82</mark>	1.0 4	<mark>.90</mark>	<mark>.98</mark>	<mark>.55</mark>	.71
29	<mark>.82</mark>	<mark>.97</mark>			<mark>.60</mark>	<mark>.72</mark>	1.0 1	1.1 6	1.5 1	1.6 0	1.5 0	2.2 0	<mark>.72</mark>	<mark>.82</mark>	<mark>.52</mark>	<mark>.64</mark>	<mark>.88</mark>	1.0 3	<mark>.78</mark>	1.0 0	<mark>.82</mark>	1.0 2	1.0 8	1.2 1
30	<mark>.96</mark>	1.0 5			<mark>.60</mark>	.72	<mark>.69</mark>	<mark>.82</mark>	1.3 7	1.4 6	1.1 6	1.6 4	<mark>.74</mark>	<mark>.84</mark>	<mark>.52</mark>	<mark>.62</mark>	<mark>.86</mark>	1.0 1	<mark>.80</mark>	<mark>.85</mark>	<mark>.84</mark>	<mark>.98</mark>	1.5 6	1.6 9
31	<mark>.87</mark>	1.0 2			<mark>.81</mark>	<mark>.92</mark>			1.3 0	1.4 8			<mark>.84</mark>	<mark>.96</mark>	<mark>.59</mark>	<mark>.71</mark>			<mark>.74</mark>	<mark>.81</mark>			<mark>.94</mark>	1.1 7

Date	Location	Free	Total	turbidity	Date	Location	Free	Total	turbidity
Jan 12	DO	.30	.58	.16					
FEB 23	Bunk House	.15	.21	.17					
March 9	Bunk House	.35	.41	.16					
April 6	Bunk House	.16	.26	.16					
May 4	Fire Hall	.19	.35	.19					
June 16	Fire Hall	.45	.55	.10					
July 1	Meteor Mikes	.67	.94	.29					
Aug 22	Fire Hall	.49	.52	.23					
Sept 21	Bunk House	.20	.36	.13					
Oct 20	Bunk House	.36	.48	.22					
Nov 2	Bunk House	.12	.28	.14					
Dec 2	Fire Hall	.57	.69	.11					

What is turbidity? And why do we care about it?

Turbidity is the measure of clarity of water; it is measured by light passing
through water and is calculated by the amount of light that is scattered on the
other side of the water. The more light that is scattered the higher the turbidity
meaning there are more particulates in the water scattering the beam of light
and a smaller turbidity reading where more light travels undisturbed or less

scattered means the clearer the water. We care about this very much because bacteria can use these particulates to hide behind and evade the UV light disinfection process so we want the water to be as clear as possible.

Treated monthly average turbidity

January	February	March	April	May	June
.16	.46	.14	.11	.11	.10

July	August	September	October	November	December
.11	.11	.11	.10	.11	.11

What happens if you fail to meet any of these regulations?

 If any lab samples come back with positive results then the laboratory immediately notifies us as well as the water officer. With a positive result for bacteria, The Office of Drinking Water and/ or Medical Officer of Health will provide instructions on how to proceed.

Will we be notified if a problem occurs?

 Yes, if for any reason a boil water advisory is put in place then you will be notified via call/e-mail list and signage will be posted around town. The Whiteshell Cottagers Association will also immediately be notified and can reach residents through social platforms.

Is there anything else in the water that should be monitored or regulations you should meet?

Our main focus is the disinfection and bacteria in the water because that has
the most concerning effect to the publics' direct health, but yes there is much
more that we monitor. Things that don't directly affect your health like how the
water looks, tastes, smells, etc. is monitored through a full lab analysis to insure
their limits are within the regulated guidelines. Below is a full analytical report
on our water from the laboratory, this includes raw water, treated water and
distribution water giving any limits set and the results of our water.



Physical Tests (WATER)

			ALSID	L2384861-1	L2384861-2	
		Sampled [Date	18-NOV-19	18-NOV-19	
		Sampled 1	Γime	12:00	12:00	
		Samr>le 1	0	WEST HAWK	WEST HAWK	
		Guide	Guide	LAKE i∙RAW	LAKE 2-	
Analyte	Unit	limit #1	limit #2		TREATED	
Colour, True	CU	15	-	<5.0	<5.0	٦
Conductivity	umhos/em	-	-	488	499	
Hardness (as CaC03)	mg/L	-	-	209 HTC	213 HTC	;
Langelier Index (4 C)	No Unit	-	-	-0.41	-0.12	
Langelier Index (60 C)	No Unit	-	-	0.36	0.65	
рН	pH units	7.00-10.5	-	7.16	7.44	
Total Dissolved Solids	mg/L	500	-	314	317	
Transmittance, UV (254 nm)	%oT/em	-	-	83.2	86.7	
Turbidity	NTU	-	-	0.35	<0.10	

Anions and Nutrients (WATER)

			ALSID	L2384861-1	L2384861-2
		Sampled Da Sampled Tir Sample ID		18-NOV-19 12:00 WEST HAWK	18-NOV-19 12:00 WEST HAWK
		Guide	Guide	LAKE1-RAW	LAKE 2·
Analyte	Unit	Limit #1 Lim	it #2		TREATED
Alkalinity, Total (as CaC03)	mg/L	-	-	170	172
Ammonia, Total (as N)	mg/L	-	-	<0.010	<0.010
Bicarbonate (HC03)	mg/L	-	-	207	210
Bromide (Br)	mg/L	-	-	0.063	0.017
Carbonate (C03)	mg/L	-	-	<0.60	<0.60
Chloride (CI)	mg/L	250	-	48.8	50.4
Fluoride (F)	mg/L	-	1.5	0.042	0.050
Hydroxide (OH)	mg/L	-	-	<0.34	<0.34
lodide (I)	mg/L	-	-	ND	ND
Nitrate (as N)	mg/L	-	10	0.141	0.139
Nitrite (as N)	mg/L	-	1	<0.0010	<0.0010
Total Kjeldahl Nitrogen	mg/L	-	-	<0.20	<0.20
Total Nitrogen	mg/L	-	-	<0.20	<0.20
Sulfate (S04)	mg/L	500	-	12.7	12.6
Anion Sum	me/L	-	-	5.05	5.14
Cation Sum	me/l	-	-	5.09	5.28
Cation - Anion Balance		-	-	0.4	1.4

Total Metals (WATER)

		Sampled D	ALSID	L2384861-1 18-NOV-19	L2384861-2 18-NOV-19	L2384861-3 18-NOV-19
		Sampled D		12:00	12:00	12:00
		Sample ID	0	WEST HAWK	WEST HAWK	WEST HAWK
		Guide	Guide	LAKE 1 • RAW	LAKE 2-	LAKE 3-
I Analyte	Unit	Limit #1 Lin	nit #2		TREATED	DISTRIBUTION
Aluminum (AI)-Total	mg/L	0.1	-	<0.0030	<0.0030	<0.0030
Antimony (Sb)-Total	mg/L	-	0.006	<0.00010	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	-	0.01	0.00320	0.00226	0.00114
Barium (Ba)-Total	mg/L	-	1	0.00868	0.00756	0.00678
Beryllium (Be)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Total	mg/L	-	-	<0.000050	<0.000050	<0.000050
Boron (B)-Total	mg/L	-	5	<0.010	<0.010	<0.010
Cadmium (Cd)-Total	mg/L	-	0.005	0.0000202	<0.0000050	0.0000257
Calcium (Ca)-Total	mg/L	-	-	73.8	75.2	81.9
Cesium (Cs)-Total	mg/L	-	-	0.00241	0.00240	0.00229
Chromium (Cr)-Total	mg/L	-	0.05	0.00011	0.00015	0.00021
Cobalt (Co)-Total	mg/L	-	-	0.00018	<0.00010	<0.00010
Copper (Cu)-Total	mg/L	1	2	0.00650	0.00964	0.391
Iron (Fe)- Total	mg/L	0.3	-	0.031	0.011	<0.010
Lead (Pb)-Total	mg/L	-	0.005	0.000091	0.000213	0.00463
Lithium (Li)-Total	mg/L	-	-	0.0025	0.0025	0.0026
Magnesium (Mg)-Total	mg/L	-	-	5.95	6.04	6.72
Manganese (Mn)-Total	mg/L	0.02	0.12	0.0981	0.00089	0.00059
Molybdenum (Mo)-Total	mg/L	-	-	0.000155	0.000104	0.000113
Nickel (Ni)-Total	mg/L	-	-	0.00287	0.00078	0.00247
Phosphorus (P)-Total	mg/L	-	-	<0.050	<0.050	<0.030
Potassium (K)-Total	mg/L	-	-	1.32	1.30	1.21
Rubidium (Rb)-Total	mg/L	-	-	0.00354	0.00352	0.00354
Selenium (Se)- Total	mg/L	-	0.05	0.000136	0.000197	0.000183
Silicon (Si)-Total	mg/L	-	-	8.73	8.79	8.65
Silver (Ag)-Total	mg/L	-	-	<0.000010	<0.000010	0.000021
Sodium (Na)-Total	mg/L	200	-	20.3	22.9	23.4
Strontium (Sr)-Total	mg/L	-	7	0.103	0.104	0.105
Sulfur (S)-Total	mg/L	-	-			4.73
Tellurium (Tel-Total	mg/L	-	-	<0.00020	<0.00020	<0.00020
Thallium (TI)-Total	mg/L	-	-	0.000014	<0.000010	<0.000010
Thorium (Th)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010
Tin (Sn)-Total	mg/L	-	-	<0.00010	0.00011	<0.00010

Total Metals (WATER)

,		ALSID	L2384861-1	L2384861-2	L2384861-3
		Sampled Date	18-NOV-19	18-NOV-19	18-NOV-19
		Sampled Time Sample 10	12:00 WEST HAWK	12:00 WEST HAWK	12:00 WEST HAWK
		Guide Guide	LAKE 1-RAW	LAKE 2-	LAKE 3-
Analyte I	Unit	Limit #1 Limit #2		TREATED	DISTRIBUTION
Titanium (Ti)-Total	mg/L		<0.00030	<0.00030	<0.00030

Tungsten (W)-Total	mg/L	-	-	<0.00010	<0.00010	<0.00010	
Uranium (U)-Total	mg/L	-	0.02	0.00127	0.00127	0.00132	
Vanadium (Vj-Total	mg/L	-	-	<0.00050	<0.00050	<0.00050	
Zinc (Zn)-Total	mg/L	5	-	0.0100	0.0067	0.114	
Zirconium (Zr)-Total	mg/L	-	-	<0.00020	<0.00020	<0.00020	

Volatile Organic Compounds (WATER)

			ALSIO	L2384861-1
		Sampled I Sampled ⁻ Sample 10	Гime	18-NOV-19 12:00 WEST HAWK
		Guide	Guide	LAKE 1-RAW
Analyte	Unit	Limit #1 Li	imit #2	
Benzene	mg/L	-	0.005	<0.00050
1,1-dichloroethene	mg/L	-	0.014	<0.00050
Oichloromethane	mg/L	-	0.05	<0.0050
Ethyl benzene	mg/L	0.0016	0.14	<0.00050
MTBE	mg/L	0.015	-	<0.00050
1,1,1,2- Tetrachloroethane	mg/L	-	-	<0.00050
1,1,2,2- Tetrachloroethane	mg/L	-	-	<0.00050
Tetrachloroethene	mg/L	-	0.01	<0.00050
Toluene	mg/L	0.024	0.06	<0.00050
1,1,1-Trichloroethane	mg/L	-	-	<0.00050
1 ,1 ,2- Trichloroethane	mg/L	-	-	<0.00050
T richloroethene	mg/L	-	0.005	<0.00050
o-Xylene	mg/L	-	-	<0.00050
M+P-Xylenes	mg/L	-	-	<0.00040
Xylenes (Total)	mg/L	0.02	0.09	<0.00064

Organic / Inorganic Carbon (WATER)

Organic / inorganic Carbon (W.	/ (I L I ()				
			ALSID	L2384861-1	L2384861-2
		Sampled	Date	18-NOV-19	18-NOV-19
		Sampled	Time	12:00	12:00
		Sample II)	WEST HAWK	WEST HAWK
1		Guide	Guide	LAKE 1-RAW	LAKE 2-
I Analyte	Unit	Limit #1 L	imit #2		TREATED
Dissolved Organic Carbon	mg/L	-	-	3.88	4.35
I Total Inorganic Carbon	mg/L	-	-	36.9	36.9
Total Organic Carbon	mg/L	-	-	3.68	3.87

Federal Guidelines for Canadian Drinking Water Quality (MAR, 2019) #1: GCDWQ • Aesthetic Objective/Other Value #2: GCDWQ • Maximum Acceptable Concentrations (MACs)

• Were there any issues or failures with meeting any requirements over the year?

- In February our bi-weekly samples were mailed in but were not received within the required amount of time voiding set samples. Samples were taken the following week but we were now past our 2 week limit to have sample results. These samples have since been delivered to the lab by our staff.
- Bi-weekly samples were submitted in the beginning of august. Due to operator error the chain
 of custody was filled out incorrectly and the bottles were also dated incorrectly resulting a total
 coliform and e.coli absence analysis. Samples were taken, chain of custody and bottle labels
 filled out correctly then sent to the lab for the following bi-weekly schedule, results came back
 good.
- Are you required to disclose any non compliances to public?
 - Yes, if any non-compliances due occur in the year it will be on our audit. We will also give you a description on the incident such as what it means, what happened, why it happened, and what corrective actions were taken to solve this issue and prevent the issue from recurring.

Where there any incidents of non-compliance or boil water advisories?

- June 29th a boil water advisory was implemented due to a water line break causing a depressurization in the line so these measures were taken on the side of caution. Two sets of samples were taken after the repair was made within 24hrs of each other. One sample came back with a positive hit for total coliform so samples were again retaken and came back negative. So the positive result was due to a sampler error and the advisory order was lifted
- A water main break on the main beach in August caused a boil water advisory for everything east of and including the main beach washroom until repair could be made. After repairs were made we submitted our two sets of samples within 24hrs of each other and all came back negative so the advisory was lifted.
- In November the automated valve that controls the flow of raw for the production of potable water had failed. Though the valve was reprogramed we deemed it unreliable and as a precautionary measure on anticipating a failure again we were placed with a boil water advisory until it could be replaced. The valve was replaced in January 2023 and all samples were negative so the advisory was lifted.
- Were there any unforeseen major issues or expenses over the year?

- The only major unforeseen issues this year would be the water main break on the main beach, as well as the raw water control valve replacement in the water treatment plant.
- Do you expect any major projects or expenses next year that we should be aware of, or that may affect my water service?
 - We plan to install a 24/7 monitoring system at the water treatment plant to help alert us to issues much quicker so we can hopefully address them and make the necessary repairs before a boils water advisory is implemented.
 - We are also look towards having some controls and our chemical system upgraded/ replaced.

Here at West Hawk Lake Water Treatment Plant we would like to say thank you for your support and we plan to work diligently in the new year to improve our water system and provide a constant supply of clean potable water to our community.

Sincerely your operators

Matt, Steve, Jake

