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Votre référence: *Your file:*  
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December 2, 2020

HC8-117-1

Joyce Bonspiel-Nelson, Director  
Kanesatake Health Centre  
12 Joseph Swan Road  
Kanesatake, Quebec, J0N 1E0

**Subject: Drinking Water Assessment Final Report**

Director Bonspiel-Nelson,

Enclosed please find the final report for the ground water assessment project carried out in the community between September and October 2020.

18 sites were chosen for specialized sampling, in addition to the routine chemical analysis, to screen for the presence of Selenium, Ammonia Nitrogen and a type of Phenol in the ground water. The Quebec Ministry of the Environment had identified these chemicals in excess quantity in the surface waters (i.e. creeks, streams) along the western edge of the Mohawk First Nations Community of Kanesatake.

We are pleased to inform you that none of these screening chemicals were present in the well water analyzed. Furthermore, each of the participants in the project were notified in writing of the results associated with their drinking water well.

If there are any questions or further discussion is required please contact me.

Yours truly,

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Encs. Ground Water Report (9 pages)

c.c. Chief John Canatonquin, Mohawk Council of Kanesatake  
Mrs. Shirrillean Nelson, Kanesatake Health Center  
Stephanie Nelson, Kanesatake Water Technician  
Melanie Talbot, Environment Advisor, Regional Operation ISC  
Drinking Water Safety, Centre intégré de santé et de services sociaux des Laurentides

**Canada**

# Groundwater Screening

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ALONG THE SOUTHWESTERN PERIMETER OF THE  
MOHAWK FIRST NATIONS COMMUNITY OF KANESATAKE  
December 2020

Edward Findikoglu, CPHI (C)

Agent en santé publique et environnementale/Environmental Public Health Officer  
Region du Québec - Services aux Autochtones - Gouvernement du Canada |



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### Abstract

In the Spring of 2020 the Quebec Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) carried out surface water testing along the Gratton Creek towards Lac Deux-Montagnes which also runs along the western border of the Mohawk First Nations community of Kanasatake. The MELCC analysis measured for various chemical elements that may have an environmental impact on the surface waters. Using the results obtain by the MELCC, a series of in-excess chemicals were selected to be used as screening parameters to determine if the Gratton Creek surface water is having an impact on surrounding ground waters.

There were no drilled well sites within 100 meters of the Gratton creek. Therefore a target area to the south and east of the creek was selected where drilled wells were present and could be sampled. A total of 17 sites were sampled in September and October 2020 for the screening parameters of Ammonia Nitrogen, Phenols, and Selenium. In addition each site was also sampled for the routine ground water chemical analysis.

The results of all of the sampled sites showed that sampled parameters were below the screening threshold and in most cases below the laboratory equipment’s lowest detection limit.



## Introduction

In the Spring of 2020 the Quebec Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC) carried out surface water testing along the Gratton Creek towards Lac Deux-Montagnes. The results revealed a series of chemical parameters that may have a negative impact on the surrounding surface water environment, but did not provide much detail on any possible impacts on the ground water. Due to the path of the Gratton Creek, there were no accessible sample locations within close proximity (less than 100 meters) of the target surface water. In order to determine any possible impacts on the surrounding ground water, a plan was developed with the Kanesatake Health Centre, to select a series of properties within proximity of Gratton Creek to sample from.

The attached map ([Appendix A](#)) shows the potential zone of influence of Gratton Creek (green circle) and the target sampling area (blue box). Members of the Kanesatake community located along Etienne Rd., Bonspille Rd., the northern end of Mountain Rd. and the western end of Rg. Ste-Philomene were asked for permission to have their water wells sampled.

## Sampling

Due to the SARS-CoV-2 pandemic restrictions, sampling was delayed until the Fall of 2020. While waiting for the pandemic restrictions to provided opportunity to begin, the sampling locations were determined and arrangements were made with Health Canada's laboratory in Longueil, Quebec to carryout the specialized water testing along with the routine chemical analysis. The specialized sampling consisted of screening for Ammonia Nitrogen, Selenium, a variety of Phenol compounds and Lead. A list of all the chemical parameters analysed, along with the maximum allowable and the lowest detection limit concentrations are listed in [Appendix B](#).

A total of 18 locations were scheduled to be sampled between the end of September and end of October 2020. At the time of sampling in October, one participating location was unavailable therefore a final count of 17 sites participated in the assessment.

## Results

The laboratory results were issued approximately four weeks after the sampling date. After which, each of the participating home owners were provided with the results from their water wells along with an explanation of the results.

17 out of the 17 sites were below the laboratory equipment's lowest detection limit for Selenium, Lead and the variety of Phenol compounds.



7 out of the 17 sites were below the laboratory equipment's lowest detection limit for Ammonium Nitrogen.

10 of the 17 sites had the presence of Ammonium Nitrogen, with a range of 0.27 mg/L to 0.03 mg/L.

## Discussion

Under the Canadian Drinking Water Guidelines 2020, there are maximum allowable concentrations (MAC) for Selenium, Lead and the variety of Phenol compounds, however there is no establish limit for Ammonium Nitrogen in Canada. These MAC are established for the protection of health.

The results indicate that all (17 of 17) sites analysed had concentrations for Selenium, Lead and the variety of Phenol compounds, below the lowest detection limit, therefore there is no need for further discussion.

The results indicate that some (10 of 17) sites had the presence of Ammonium Nitrogen. According to the World Health Organization, naturally occurring Ammonium Nitrogen in groundwater ranges from 0.2 mg/L up to 3 mg/L in deep ground water. In addition, Ammonium Nitrogen on its own has no direct imminent adverse health effect but may produce a noticeable odor at 1.5 mg/L (WHO - Guidelines for drinking-water quality, 2017). Where there may be a concern is when Ammonium Nitrogen along with Nitrate and/or Nitrite is present from the bacterial breakdown of human and animal waste. However, the results indicate that all (17 of 17) sites analysed had concentrations for Nitrate and Nitrite, below the lowest detection limit.

## Conclusion

Based on the results, it is determined that at the time of analysis, there is no direct influence from the Graton Creek on the ground water of the sites analyzed.

## Acknowledgements

A special acknowledgement and appreciation to the efforts put forward by the Kanesatake Water Technician for organizing and sampling all of the sites in a timely, efficient and methodical manner during the course of a pandemic.



## References

*Health Canada - Guidelines for Canadian Drinking Water Quality, 2020*. Retrieved on-line November 25, 2020.

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/water-quality/guidelines-canadian-drinking-water-quality-summary-table.html>

*World Health Organization - Guidelines for drinking-water quality, 4th edition, 2017*. Retrieved on-line November 25, 2020.

<https://www.who.int/publications/i/item/9789241549950>



[Appendix A – Map of Target and Sampling Area](#)

[return](#)





Appendix B - Chemical Analyses Parameters List

[return](#)



PRÉLEVÉ À / LOCATION :

PRÉLEVÉ PAR / TAKEN BY :

DATE DU PRÉLÈVEMENT / SAMPLING DATE :

ÉCHANTILLON / SAMPLE :

PARAMÈTRES / PARAMETERS	LIMITE ACCEPTABLE LIMIT		RÉSULTATS RESULTS MG/L	REMARQUES REMARKS
	POUR SANTÉ FOR HEALTH MG/L	ESTHÉTIQUE AESTHETIC MG/L		
CYANURE / CYANIDE	0.2			
Nitrites/Nitrates (N) - Simultanément / Nitrite/Nitrate (N) - Simultaneously	10			
1,4 Dioxane / 1,4 Dioxane	50			
INDEX LANGELIER (10°C) / LANGELIER INDEX (10°C)	**	**		
INDICE D'AGRESSIVITÉ / CORROSION INDEX	**	**		
PH SATURATION (10°C) / SATURATION PH (10°C)	**	**		
BICARBONATES / BICARBONATE	**	**		
SULFURES (sous forme de H <sub>2</sub> S) / SULPHIDE (as H <sub>2</sub> S)		0.05		
AZOTE AMMONIACAL (N) / AMMONIA NITROGEN	**	**		
ALCALINITE (CaCO <sub>3</sub> ) / ALKALINITY (CaCO <sub>3</sub> )	**	**		
CONDUCTIVITE (µMHOS) / CONDUCTIVITY (µMHOS)	**	**		
CHLORURES / CHLORIDE		250		
FLUORURES / FLUORIDE	1.5			
SULFATES / SULPHATES		500		
ANTIMOINE / ANTIMONY	0.006			
CALCIUM / CALCIUM	**	**		



PARAMÈTRES / PARAMETERS	LIMITE ACCEPTABLE LIMIT		RÉSULTATS RESULTS MG/L	REMARQUES REMARKS
	POUR SANTÉ FOR HEALTH MG/L	ESTHÉTIQUE AESTHETIC MG/L		
MAGNESIUM / MAGNESIUM	**	**		
MERCURE / MERCURY	0.001			
BENZO (A) PYRENE / BENZO (A) PYRENE	0.00004			
DICHLOROPHENOL, 2,4- / DICHLOROPHENOL, 2,4-	0.9	0.0003		
PENTACHLOROPHENOL / PENTACHLOROPHENOL	0.06	0.03		
TETRACHLOROPHENOL, 2,3,4,6- / TETRACHLOROPHENOL, 2,3,4,6-	0.1	0.001		
TRICHLOROPHENOL, 2,4,6 / TRICHLOROPHENOL, 2,4,6	0.005	0.002		
ALUMINIUM / ALUMINUM	**	**		
ARSENIC / ARSENIC	0.01			
BARYUM / BARIUM	2			
BORE / BORON	5			
CADMIUM / CADMIUM	0.005			
CHROME / CHROMIUM	0.05			
COULEUR (UCV) / COLOUR (TCU)		15		
CUIVRE / COPPER	2	1		
DURETE (CaCO3) / HARDNESS (CaCO3)	**	**		
FER / IRON		0.3		
MANGANESE / MANGANESE	0.12	0.02		
MATIÈRES DISSOUTES TOTALES / TOTAL DISSOLVED SOLIDS		500		
PLOMB / LEAD	0.005			



PARAMÈTRES / PARAMETERS	LIMITE ACCEPTABLE LIMIT		RÉSULTATS RESULTS MG/L	REMARQUES REMARKS
	POUR SANTÉ FOR HEALTH MG/L	ESTHÉTIQUE AESTHETIC MG/L		
SELENIUM / SELENIUM	0.05			
SODIUM / SODIUM		200		
TURBIDITE (UNT) / TURBIDITY (NTU)	**	**		
URANIUM / URANIUM	0.02			
ZINC / ZINC		5		
pH / pH		7-10.5		

\* VOIR INTERPRÉTATION DES RÉSULTATS  
\* SEE RESULTS INTERPRETATION  
\*\* AUCUNE LIMITE D'ÉTABLIE  
\*\* NO LIMIT HAS BEEN ESTABLISHED