

**Ministry of the Environment  
Guelph District Office  
West Central Region**

**Date:** April 15, 2020

**To:** Barb Slattery,  
EA/Planning Coordinator

**From:** Abdi A. Hussein  
Hydrogeologist

**Subject:** Waterloo Region Proposed Airport Extension Project

I have reviewed the, relevant parts, of the following report for the purpose of assessing if the actual/potential to groundwater quantity/quality impacts associated with the proposed airport extension was adequately addressed. And if any mitigation measures were proposed to the negative, if any, groundwater quality impacts that may result from the airport operations including the proposed extensions:

- MTE, March 9/2021. "Waterloo Airport Runway Project, Runway 14-32 Extension, Initial Project Description."

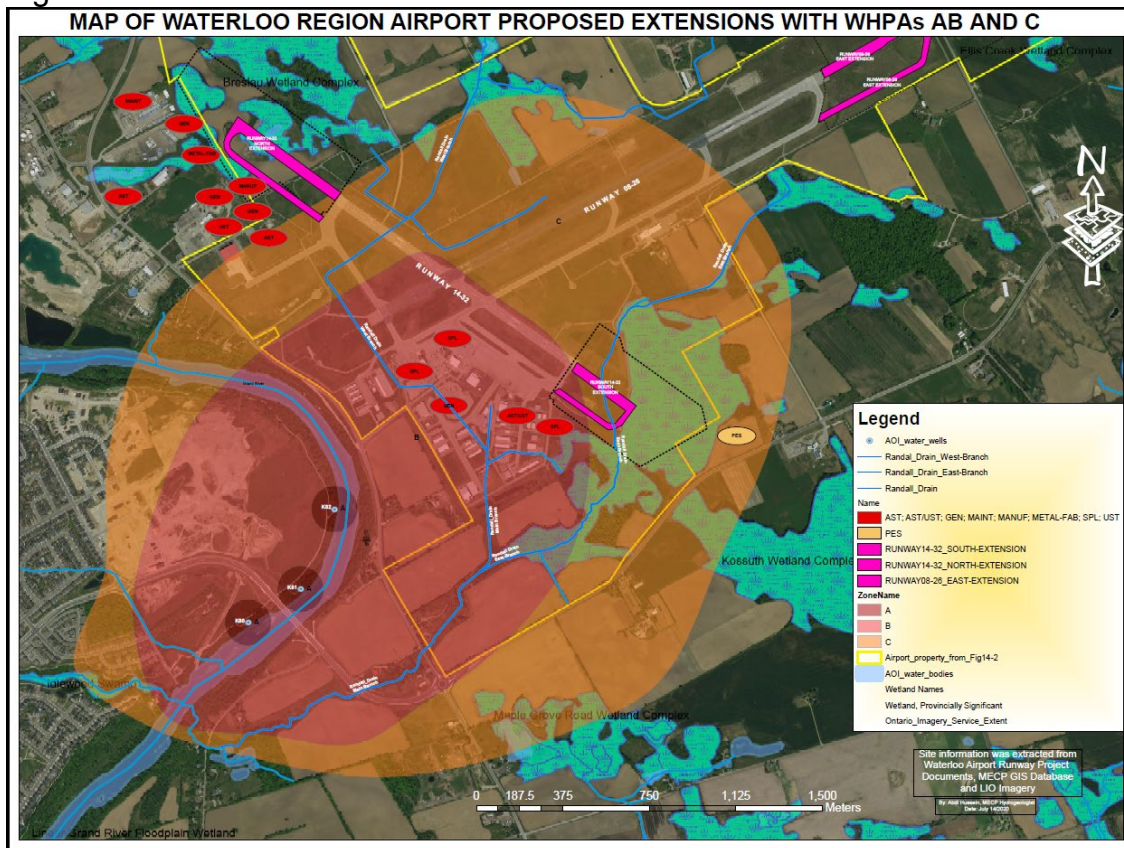
**Comments:**

As I present in my July 15/2020 technical memorandum, the potential/actual groundwater quantity/quality issues associated with the proposed project and in general the airport operation was not adequately addressed. The depth to the bedrock and the nature i.e., silt, clay and till, of the overlying overburden material can be assumed as a mitigating factor in the protection of the underlying aquifer. However, the mitigation the underlying complex glacial deposit provides will require to be demonstrated with groundwater quality data. There is no evidence, groundwater quality data, to demonstrate whether the historical airport operations impacted or not the water quality of the underlying aquifer. Additionally, with expansion of the airport its maintenance and operations will also increase; hence the potential groundwater impact is reasonably assumed to increase.

As shown in the map below, Fig. 1, the area where the environmental concern, related to historical spills and chemical storage that was identified lies within the sensitive wellhead protection areas (WHPAs) B and C of nearby municipal

water supply wells. WHPA, B and C have travel time of 2 years and 5 years, respectively.

Fig: 1



In addition to spilled chemicals reported in the screening level Phase I ESA report, some of the contaminants of concern for groundwater contamination such as benzene, chlorinate solvents (TCE and CCl<sub>4</sub>), and perfluorochemicals (PFCs) are commonly used at the airports.

With respect to the PFAS groundwater sampling analysis, the report stated that PFAS was not screened because they are not currently part of the provincial testing protocol. It is a fact that PFAS can cause groundwater contamination and is known that can cause negative health impact. Due to the potential negative health impacts associated with PFAS compounds, Health Canada has established a Maximum Acceptable Concentration (MAC) for Canadian Drinking Water guideline for some members of PFAS i.e., PFOA (0.2 µg/L) and PFOS (0.6 µg/L), while some other members of PFAS Health Canada has established Drinking Water screening concentrations. Therefore, the report's reason for not screening the groundwater quality for PFAS concentration is unreasonable.

## **Recommendations:**

Based upon the available information, the following are my recommendations:

- 1- Since the areas of the airport where hangers, chemical transport, storage and distribution are located within the sensitive wellhead protection area B and C, it important to assess the potential/actual impact on the groundwater resources under and downgradient the airport.
- 2- PFAS screening should be included in the groundwater quality assessment.
- 3- Establishment of groundwater quality monitoring system (network) would be required for the following two reasons:
  - A- Protection of the nearby water supply wells; and
  - B- Establishing baseline groundwater quality data for the future expanding airport operations.

## **Limitations**

The purpose of the preceding review is to provide advice to the Ministry of the Environment regarding subsurface conditions based on a review of the information provided in the above referenced documents. The conclusions, opinions and recommendations of the reviewer are based on information provided by others. The Ministry cannot guarantee that the information that has been provided by others is accurate or complete. A lack of specific comment by the reviewer is not to be construed as endorsing the content or views expressed in the reviewed material.

I trust the above comments will be of benefit. If you have questions or need further clarification, I can be reached at (519) 826-4277.

<Original signed by>

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