



**Huber
Environmental
Consulting Inc.**
157 St. George Street
St. Thomas, Ontario, Canada
N5P 2M3

Phone (519) 633-5889 Cell (519) 871-4347 Email: douglas.huber@rogers.com

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My name is Douglas Huber and I don't live within the potential impact area of the proposed Hallman Pit on Witmer Road. However I do have family and friends that live in the potential impact area if this proposed pit gets approved. I am not being compensated for my time to review these reports or even having my travelling expenses covered to attend this meeting. I feel strongly enough as a Professional Geoscientist that individual domestic wells will potentially be impacted as a result of this proposal based on the existing studies that I feel I must provide some comments.

I worked for the Ministry of the Environment as a surface water quality specialist for over 29 years. During that time I represented the Ministry on International Committees, reviewed thousands of reports having potential impacts on water quality, was a Remedial Action Plan Coordinator for an Area of Concern identified by the International Joint Commission, at the request of the Minister's office accepted responsibly to attempt to prevent any surface water runoff during the Hagersville Tire Fire even though it wasn't in my Region and reviewed numerous consultants reports relating to Walkerton and helped write sections of the Governments response to the Walkerton Inquiry. Since retiring from the Ministry, I have run a small Environmental Consulting Company for the last 19 years dealing with a wide range of potential surface water issues.

Existing Ontario Government Policies state;

Policy 2 Surface Water Quality Management – Areas with Water Quality Not Meeting the Provincial Water Quality Objectives shall not be degraded further and all practical measures shall be taken to upgrade the water quality to the Objectives.

Groundwater Quality Management. Unregulated Sources of Contamination 4.1.2
There are a number of activities that do not require specific approval under the *Ontario Water Resources Act* or the *Environmental protection Act* but have the potential to contribute to ground water contamination. They include non-point source activities (i.e. crop fertilization, manure application, road deicing), salt storage areas, unlicensed and closed landfills, leaks, spills and decommissioning clean-up.

The treatment or elimination of pollution from unregulated sources will be required where it is demonstrated that such measures are practicable and necessary to correct use

impairment and will prevent further degradation or improve water quality. Where such measures are not practical, the Ministry may require replacement of the affected supplies.

The present owner of the land is responsible for all past contamination that has occurred on the property. Their report demonstrates and states that some of the groundwater below the proposed site is already contaminated. Possibly instead of putting the groundwater at additional risk, the owner should be forced to supply piped water that meets the Ontario Drinking Water Objectives to all down gradient landowners at the property owners expense as suggested in government water policies. Having the owner state they will reduce nutrient applications after they have removed the aggregate provides no assurance of long term ground water quality. The existing owner should be held responsible for the existing groundwater contamination and not allowed to increase the risk for any additional contamination.

In the case of my brothers well, the nitrate levels have jumped to 10.7 mg/l this past December. In fact the nitrate levels in his neighbors well immediately beside the proposed pit jumped to 12.7 mg/l. The land to the north of them has been continuously farmed for generations and there is no reason to expect such a massive jump in nitrates to beyond the drinking water standards from standard farming practice. What has recently occurred is the decommissioning of the old manure storage facilities from the old feedlot operation on the proposed Hallman Pit property. It is my understanding that this large volume of manure was spread on the proposed Hallman Pit property. In my opinion it is possible that this type of practice could have resulted in the contamination of the groundwater and thus these wells. According to the consultant's report, groundwater from the proposed pit doesn't flow towards these wells.

Hydrogeology is not an exact science. The hydrogeologist is guessing on what is happening between the various boreholes. A lot of speculation on exact groundwater flow direction is based on the 5 test drilling wells. More confidence in what they are suggesting would have been provided by more test holes. Four or five holes over 160 acres can't provide much confidence to the properties being potentially impacted. The hydrogeologist guesses at what happens between test holes can be wrong a number of times just like in the Stantec Draft 2019 report that they reference which states there is an aquatard below the site in question which the test drilling doesn't substantiate or a number of the existing water wells don't substantiate.

None of the consultants test drilling shows an aquatard. In fact their drilling only shows sand the full depth of their drilling to the water table. Dilution is not a solution to pollution especially when it comes to drinking water. Even their Figure 4.2 shows the wells along the west half of Witmer Road to be in sand and gravel with no mention of an aquatard above the water table. Some of these wells are south of the proposed pit. In fact again they show well 6504197 on Figure 4.2 (Huber well) to be south of the proposed pit.

The groundwater chloride concentrations in the monitoring wells at the north end of the site and the south end are higher than the monitoring well in the middle of the site including the pond. If the chlorides in the northern monitoring wells are as a result of

farming and winter deicing along Bleams Road which then these concentrations get diluted as they flow under the proposed pit but increase again along the southern edge of the property. If this increase in chlorides is a result of de-icing operations along Witmer Road it suggests that the groundwater is flowing upgradient north at this location bringing comments about potential impacts on the existing water wells highly questionable. Hardness shows the same trend suggesting that the same water is not being sampled across the proposed pit area.

Page 18 of the Hydrogeological report already states that some of the monitoring wells on site show the groundwater is already contaminated. The municipality could not use this water as a source of supply to feed the municipal system without additional expensive treatment. The existing residences in this area are potentially already drinking water that doesn't meet the Ontario Drinking Water Objectives without them being aware of the fact. The report suggests that most residences that have their well tested only test for bacteria and not nitrates.

The consultant concludes that "Therefore, removal of the unsaturated zone will not significantly increase nitrate transport to the water table." Why would anyone allow a already contaminate water source to potentially become more contaminated not just because of nitrate but also from petroleum product spills if they are not "small" has assumed by the author of the report. A rupture of a storage or fuel tank or even a hydraulic line would be serious even if a small amount got into the water table. The removal of the existing ground thickness to the water table will just make the situation worse and allow the spilled material to hit the water table faster.

Just because the author of the report has never worked on a major spill in a gravel/sand pit doesn't mean it doesn't happen. Based on my experience most spills that I have worked on go unreported. The vast majority of spills would go unreported just like manure spills, perchloroethylene spills from dry cleaners, petroleum spills around farms and industries. These occurrences don't typically get reported unless by a member of the public who has been potentially impacted by the spill and/or there is visual evidence observed in a creek or staining of the soil. A spill in a gravel pit with the perimeter berming is out of site and out of mind until it shows up in somebody's well potentially years later.

The consultants groundwater table measurements are based on 1 seasons measurements. Groundwater levels can fluctuate not only season to season but also year to year. How representative are the 2019 high water table measurements compared to long-term measurements. What are the conceptual water levels shown in Figure 4.1 & 4.2 based on, recently measured or based on Static Water Level from their survey which are from the time of excavation which covers an approximately 50 year period? Based on the Provincial Groundwater Monitoring Network (Monitoring Well W000022-1 Wilmot Con2 Lot12) water levels have shown to fluctuate over 1.5 meters from the information collected by GRCA. How does their suggested pit elevation relate to long term groundwater levels?

Page 19 states

It is worth noting that at MW1, where the unsaturated overburden thickness is less than two meters, there is no nitrate detected. Are they suggesting that you get improved water quality when you decreased over burden thickness? MW1 being right up against the wetland it is possible that there is no nitrates because of denitification by the anaerobic sediments in and around the wetland.

The text of the report talks only about nitrate and how it moves unchanged thru the soil into the groundwater. How about when the land is returned to farmland with only 1.5 meters of soil above the water table in respect to pesticides, herbicides, hydrocarbon spills of any type and manure applications impacting offsite groundwater? Returning the land to farmland is part of the proposal and thus must also be considered in the long term.

On page 10 of the report it states

Figure 4.6 shows that the vulnerability score of the portion of the site within the WHPA (Municipal Well Head Protection Zone) is either 4 or 6. The reduction in overburden thickness will increase the vulnerability score,

How can they state that a reduction in overburden thickness will increase vulnerability of a WHPA but conclude it will not impact down gradient private well water quality? Appears they are not concerned about private wells only municipal supplies. The legislation is supposed to protect all well water not just municipal water systems.

What teeth are in a Section 59 notice stating they will apply less nutrients to the land after the aggregate as been remove and the area supposedly turned back into farm land. Will all future owners of this land be forced to adhere to the Section 59? What are the penalties related to not following through with a Section 59 Notice of intent and who is responsible to ensure it is being followed especially in a non WHPA area? It is my understanding that Section 59's are intended for well head protection areas which this area has not been defined as such. Page 22 states that they are prepared to sign a Section 59 for the lands within the identified water protection area but this only covers a small percentage of the area being proposed for the pit which would only have minimal impact if any on potential groundwater quality off-site from the proposed pit. My understanding is that Section 59's are non-enforceable, non-inspected voluntary actions identified to assist in obtaining an approval to undertake some action that could impact on others.

When an in-ground sewage system is approved by the Ministry of the Environment it must demonstrate that the groundwater off site of the owners property limits will not be exceeded and only be allowed to increase background contaminate concentrations by a certain percentages keeping it below drinking water standards. Groundwater quality monitoring at the property limits is a standard requirement. In this case there are no groundwater quality monitoring being proposed only if it happens too bad sorry.

It is illegal to contaminate ground water beyond your own property limits. What happens if somebody wants to build a new house down gradient of the proposed pit

and the groundwater is contaminated? Will the Conservation Authority or the Municipality pay the cost to extend the municipal water supply system to all properties on Witmer Road. Somebody must take responsibility for any decision made about the long term term (50 – 100 years) groundwater quality. Will the proposed pit interfere with an existing property owner from potentially severing off a part of their existing large lot and that lot have ground water quality that will meet the Ontario Drinking Water Objectives like the residents who are served by a municipal water system.

In closing, it is MNR's mandate to promote gravel pits as a source of revenue for the government and not to protect our drinking water. The rules and guidelines for gravel pits are minimum standards to allow for gravel extraction not maximums or even necessarily water quality protection standards.

Surface water is a much easier science because at least you can typically see what you're dealing with and any impacts show up much faster. Groundwater typically at some point was surface water and surface water was groundwater. We are dealing with the same water that washed the backs of dinosaurs, water isn't created or destroyed just changes form. WE must do everything we can to minimize further impacts to this resource.

Douglas M. Huber, P.Geol.