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Hamilton

October 26, 2007

Mr. Paul Odom, Supervisor
Water Resources Unit
South Central Region
Ministry of Environment
119 King St W
Hamilton Ontario

Subject: St. Mary's Flamborough Quarry Site

Dear Mr. Odom,

Subsequent to an application for a Permit To Take Water (PTTW) for the proposed St. Mary's Quarry in the Former Township of East Flamborough, there have been several Combined Aggregate Resource Team (CART) meetings involving numerous government agencies to assess the work plans and data provided by the proponent's consultants.

City of Hamilton Public Health Services (PHS) is a member of CART and has received/heard concerns from other CART members regarding a lack of detail in the hydrogeological work plan as it relates to the PTTW application currently under MOE review. The significance of the temporary PTTW in the context of the amount of groundwater to be pumped, the large area that could be potentially affected (not yet modeled), and the significant number of groundwater users in the area, has been interpreted by PHS to meet the spirit of the definition of a health hazard under the Health Protection and Promotion Act (HPPA). Approval of the temporary PTTW in the absence of addressing the following concerns could have an adverse effect on human health in the form of groundwater shortages or groundwater contamination. This position leads PHS to an obligation under section 11 of the HPPA to notify the ministry of the Government of Ontario that has primary responsibility in the matter of a health hazard related to environmental health. Please accept this document as notification, and an indication that the medical officer of health requests consultation in order to investigate and determine if the proposed PTTW and Hydrogeological Work Plan for the St. Mary's Flamborough Quarry Site (August 2007) could create a health hazard.

It is perceived that the amount of water proposed in the PTTW to draw down groundwater levels to the proposed elevation of the quarry floor in order to assess the GRS feasibility has a reasonable and probable risk of causing a public health concern in the form of adverse groundwater quantity and quality impacts.

The following comments and concerns are limited to the PTTW for pump tests and GRS feasibility assessment. PHS requests that the following be considered, addressed, and included in the conditions and/or approval for the PTTW. It would be diligent to assess the potential impacts of the proposed pump tests as much as possible, and have more detailed contingency plans in advance of conducting the pump tests.

1. It is the understanding of PHS that the PTTW application is to perform at least three different pump tests or phases of investigation to gather data for the feasibility of a proposed GRS. If possible, PHS recommends that consideration be given to portioning the PTTW into three phases, with progression to each phase contingent on data analysis and impact assessment, and an intervening stage with input from the commenting agencies (City of Hamilton, Hamilton/Halton Source Protection Authority, and the Region of Halton) prior to approval of the next phase to ensure risks to groundwater quantity and quality are not created.
2. PHS is concerned about water quantity impacts on regulated municipal and non-municipal groundwater water systems and private non-regulated groundwater systems. The most imminent

threat appears to be focused at nearby Stonebrook Estates and nearby residential groundwater users. The Carlisle communal groundwater supply is also included in our concerns, along with other potentially affected groundwater users.

- a. The present work plan does not define trigger points (p.31) that will be used to stop the pump tests or implement contingency measures and remediation actions that may be needed should the pump tests occur and jeopardize neighbouring groundwater supplies. PHS agrees with the workplan that the trigger point plan still needs development; however PHS is of the opinion that more trigger point detail is needed for the development, planning, and implementation of contingency measures, with input from the City of Hamilton. This should be done prior to pump tests being conducted. Such trigger points must ensure as much as possible that the PTTW does not allow pump tests to adversely affect offsite groundwater supplies to the point that there are offsite groundwater water shortages, especially at nearby Stonebrook Estates.
 - b. In order to better evaluate and recommend trigger points, the proponent should use updated predictive groundwater modeling data. This comment is based on the proponent's latest field data collected over the past year that differs from the setting used in the existing groundwater numerical model. Basically, the groundwater flow model should be updated and used to simulate potential pumping impact before embarking on significant pump tests. This should also be used to model and map a potential groundwater impact zone.
 - c. The complaint process in the current workplan (p. 32) indicates the City of Hamilton and Halton Region will be asked to participate in contacting residents who may have wells that could be adversely impacted by the proposed pump tests. Unfortunately the simulated impacts have not been established to pre determine who could be affected and contacted ahead of the pump tests. In the absence of knowing (to a reasonable degree of certainty) who could be potentially affected, in the presence of proposed pump tests, there could be unanticipated groundwater quantity deficiencies. This leads to a likelihood that the MOE, PHS, or another City of Hamilton (or Halton Region) dept will be caused to respond to complaints regarding dry wells caused by the pump tests. Should the pump tests be approved to occur as proposed and complaints are made regarding water shortages, a reasonable PHS response would be to Order the pump tests to stop under the Health Protection and Promotion Act. It is PHS position that adequate pump tests, based on updated impact simulations, can be run without allowing the impact to proceed to off-site groundwater shortages.
 - d. The proposed complaint response (p.33) indicates a temporary alternative water supply will be provided, but it is not explicit as to who will provide the alternative water supply, that the alternative water supply will be potable, when and how the temporary supply will be provided, the specifications of the alternative water supply, and that sufficient resources have been retained by the proponent to ensure that affected groundwater users will have a sufficient supply of potable water for drinking and sanitary purposes. Additionally, there is no detail regarding how the use of alternative water supplies will be rescinded. It is perceived that should a water well go dry, an alternative water supply will be provided by the proponent until the time that the water quantity in the affected well returns to normal levels. Prior to resuming use of the well, the water therein needs to be tested to ensure it is potable (meets reg 169), or made potable if indicated otherwise.
 - e. Equipment in water wells that do go dry can be damaged. There is no detail or mention that the proponent will assist with the repair or replacement of damaged well equipment or well rehabilitation in order for affected groundwater users to resume their normal groundwater use in a timely manner.
3. PHS has concerns that the PTTW pump tests could adversely affect groundwater quality and that a groundwater quality impact assessment has not been adequately included or assessed in the proponent's current work plan.
 - a. It appears that the significant amount of water proposed to be pumped from the ground has a reasonable degree of potential to cause groundwater movement that could cause turbidity in

nearby wells. Excessive and/or prolonged turbidity in drinking water supplies (especially regulated systems) is a health related parameter and is a cause for corrective action, which can result in the issuance of a Boil Water Advisory. The occurrence of turbidity concerns has the real potential to cause PHS and the MOE to mobilize and respond to numerous complaints.

- b. A significant change in groundwater flow direction and or volume has the potential to introduce contaminants into presently potable groundwater supplies, should sources of such contaminants exist. It appears that a sufficient investigation into such contamination threats has not been conducted or proposed in the latest hydrogeological workplan.
 - i. Lands located within the area of groundwater influence of the proposed pump tests in PTTW should be included in a review of MOE records regarding the existence of historic contaminated sites, dumps, or MOE investigations regarding environmental contamination/complaints under present and previous legislation under the authority of the MOE. These records should be reviewed and included in the water quality impact assessment in the work plan for the PTTW, especially regarding the threat to groundwater contamination due to potential changes in groundwater flow directions and flow rates. This has the potential to require a removal, containment, or control plan, depending on the contaminant(s) and the potential threat of movement of the contaminant, if any.
 - ii. Present and previous owners of lands located within the area of groundwater influence of the proposed PTTW should be interviewed regarding their knowledge of historic land uses related to the disposal of wastes of any kind under or on the ground. The responses of the occupants should be recorded and witnessed. Any indication of illegal waste disposal should be investigated by an independent third party. Any findings found to be a concern or contravention under the Environmental Protection Act, Clean Water Act, or other environmental legislation will be forwarded to the agency of authority. Any findings found to be a concern or contravention under the Environmental Protection Act, Clean Water Act, or other environmental legislation will be included in the water quality impact assessment of the PTTW.
 - iii. The work plan should include inorganic and organic testing (Schedules 23 and 24 of O.Reg 170) of the pump test discharge waters so that if inorganics or organics are detected at levels of concern (i.e. close to or above drinking water standards) then an investigation into a source of the contamination can be initiated, and progress of the PTTW pump tests can be halted until groundwater contamination threats have been found/abated/removed.
- c. In order to better evaluate the potential for groundwater quality impacts, the proponent should provide updated predictive groundwater modeling. Basically, the groundwater flow model should be updated and used to simulate the potential area at risk of groundwater quality impacts before embarking on significant pump tests.
- d. The proposed tracer study (p.33) in the work plan proposes the use of dyes that have not been approved in Canada for use in food. It is agreed that the degree of toxicity of the proposed dyes to human health is extremely low, and that tracing flows of the GRS water is necessary to assess the feasibility of the GRS. However, the introduction of a tracer dye into a groundwater system should be done according specific conditions/procedures for introducing the dyes, based on a review of actual toxicity data. Such conditions might best be issued in the form of a Certificate of Approval. This item was briefly discussed with the proponent's consultant during a meeting on October 17th 2007, and there was a differing perspective regarding the need for conditions for a tracer study.
- e. The proposed GRS contingency measures (p.39, 40, 41) in the work plan need further research and design details. One apparent missing detail are trigger points that would indicate the GRS is not working safely, and the point at which action would be taken or when a contingency measure would be invoked.

- f. Security of the pump test and GRS site is a concern to PHS. Given the high degree of opposition to the PTTW and the quarry, there is a potential for sabotage in the form of intentional introduction of contaminants into the pump test and GRS site. A security plan should be developed and added to the work plan to ensure as much as possible that the pump test and GRS site is secure.

I look forward to meeting and discussing the St. Mary's PTTW application and the above concerns.

Sincerely and Respectfully,

Eric Mathews, Manager
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City of Hamilton

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cc Dr. Elizabeth Richardson, Medical Office of Health, City of Hamilton
Dr. Robert Nosal, Medical Officer of Health, Halton Region
CART Members

Complaint re health hazard related to occupational or environmental health

11. (1) Where a complaint is made to a board of health or a medical officer of health that a health hazard related to occupational or environmental health exists in the health unit served by the board of health or the medical officer of health, the medical officer of health shall notify the ministry of the Government of Ontario that has primary responsibility in the matter and, in consultation with the ministry, the medical officer of health shall investigate the complaint to determine whether the health hazard exists or does not exist. R.S.O. 1990, c. H.7, s. 11 (1).

Report

(2) The medical officer of health shall report the results of the investigation to the complainant, but shall not include in the report personal health information within the meaning of the *Personal Health Information Protection Act, 2004* in respect of a person other than the complainant, unless consent to the disclosure is obtained in accordance with that Act, 2004, c. 3, Sched. A, s. 86.

Conflict

(3) The obligation imposed on the medical officer of health under subsection (2) prevails despite anything to the contrary in the *Personal Health Information Protection Act, 2004*, 2004, c. 3, Sched. A, s. 86.

Duty of M.O.H. re occupational and environmental health

12. (1) Every medical officer of health shall keep himself or herself informed in respect of matters related to occupational and environmental health. R.S.O. 1990, c. H.7, s. 12 (1).

Provision of information to M.O.H.

(2) The Ministry of the Environment, the Ministry of Health and Long-Term Care, the Ministry of Labour or a municipality shall provide to a medical officer of health such information in respect of any matter related to occupational or environmental health as is requested by the medical officer of health, is in the possession of the ministry or municipality and the ministry or municipality is not prohibited by law from disclosing. R.S.O. 1990, c. H.7, s. 12 (2); 2006, c. 19, Sched. L, s. 11 (3).