June 3, 2008

Section 34 Director
Ministry of the Environment, West Central Region
119 King Street West
HAMILTON, Ontario
L8P 4Y7

F O R C E
Friends of Rural Communities and the Environment

Dear Director/Mr. Bardswick,

Re: EBR # 010-3469 – Draft Permit to Take Water
St Marys CBM Proposed Pumping Test

Please accept this submission, with enclosure from our expert hydrogeologist (Dr. K Raven, INTERA) as FORCE's comments on the draft Permit to Take Water (PTTW) for the public record, on behalf of our Communities. We ask that you take them into consideration as you review the draft PTTW for St Marys CBM. St Marys plans to test its unproven and theoretical Groundwater Recirculation pumping System (GRS) to try to reduce the unacceptable negative impacts of their proposed quarry development on our communities. Our communities have been consistent in our feedback to this proposed development since it was first raised in 2004 and since the proposed permit application was submitted in 2006.

Stop the Quarry

In our area, groundwater is the only source of potable water. The Carlisle municipal drinking water system, which serves some 3,000 people, and the private individual and communal wells for homes, schools, farms and businesses all use groundwater as the source for drinking water and other uses. We have had both documented quantity and quality challenges for years.

The *Clean Water Act* promises protection for Wellhead Protection (WHPA) and recharge areas, among other key areas. It is based on the principle of prevention first. The Act is designed to address existing and *future* proposed activities.

The Minister's Technical Experts Committee established a Threats Assessment Framework as part of its November 2004 report. It identified land use activities that threaten drinking water sources and are sufficiently serious to be of provincial concern (Table 3.1). Pits, quarries, and mines were listed as human-made pathways to the aquifer in this category. Their primary issue is "vulnerability" as the direct pathways are made to current or future potential drinking water systems. The Committee provided examples of Risk Management approaches for threats of provincial concern (Table 6.2). It recommended that pits/quarries and their final land disposition be assessed according to new municipal well standards and be restricted within the 5 year Time of Travel (TOT). The Committee also recommended that two pathogen management zones should be delineated within the WHPA (recommendation 46). A 100 metre pathogen security area and a 2 year Time of Travel (TOT) zone should be considered as the area of concern with respect to bacteriological/pathogenic contaminants.

We note that the proposed St Marys quarry falls within the 2 year TOT to the Carlisle municipal drinking water system. It is closer than the 5 year TOT recommended by the Technical Expert Committee. It also falls within one of the key areas recommended as a pathogen management zone.

The land base of many of our communities fall within the Greenbelt Plan as does the proposed development in question. The Greenbelt Plan includes a number of permissive and protective policies. For example, it permits consideration of aggregate developments, under certain conditions, and it promises increased protections for water resources. What is particularly relevant in this case is that the Greenbelt Plan prohibits new or extensions to existing lake-based water systems. This means that there is no Plan B for this community if its groundwater based drinking water system is adversely impacted in terms of quantity and/or quality.

Water is one of the key reasons this proposed development makes no sense here. For this reason, because there are no appropriate haul routes, because of the impacts on our communities, and because we should be protecting the fragile natural features and agricultural lands of the Greenbelt, we have called on the McGuinty provincial government to Stop the Quarry.

We are not alone in our concerns about this proposed development. Our legal case is supported by Environmental Defence. The proposed development is one of the aggregate hotspots for the Ontario Greenbelt Alliance. The Water Guardians Network is monitoring this situation as a potential hotspot and as to how the government demonstrates its commitment to source protection planning and the engagement of the Source Protection Committees.

This is the first Greenfield below the water table aggregate extraction proposal in the Greenbelt. It sits completely within the Natural Heritage System. The McGuinty government has demonstrated concern since the overall development was proposed. The government acted by regulation, under Minister Gerretsen when he served at Municipal Affairs & Housing, to transition this proposal into the Greenbelt Plan in February 2005.

The 2006-2007 Annual Report of the Environment Commissioner of Ontario (ECO) cites this proposed development as a case example of the flaws within the aggregate planning process for its proximity to hydrologic resources, Provincially Significant Wetland complexes, significant woodlands and species habit as well as source protection reasons. The ECO called on the provincial government to reconcile its conflicting priorities between aggregate extraction and environmental protection. Specifically, the ECO calls for screening out proposals conflicting with identified natural heritage or source water protection values (recommendation 3, p49).

On Febuary 27, 2008, the Hamilton City Council unanimously approved a motion (full text included as an appendix), signed off by the relevant staff departments, which called on Hamilton City Council to:

- bring to the attention of the provincial government its concerns regarding potential adverse impacts on the Carlisle groundwater based municipal drinking water system
- request the provincial government, through the Premier and the Ontario Minister of the Environment, to fully consider the potential ramifications of the proposed development and
- before any provincial permits or approvals are issued, the province should require a formal review by the Halton-Hamilton Source Protection Authority, as part of the local source protection planning process.

We call on the McGuinty government to honour its legacy policies. Honour the intent of the *Clean Water Act.* Honour the intent of the Greenbelt Plan. Reconcile conflicting priorities in favour of environmental protection for the long term. Honour the provincial/municipal relationship – listen to the City of Hamilton. Stop the quarry.

Put Source Water Protection First

In response to the Walkerton tragedy, the McGuinty government has established Source Protection Committees (SPCs) and authorities to protect our drinking water sources from existing and *future* development threats. The substantive work of these organizations is just beginning. Preliminary work has begun on watershed characterization and water budgets. The Halton-Hamilton Source Protection Committee recently received more than $950,000 to advance this work.

Indeed, our SPC in Halton-Hamilton has just announced its public consultation on its draft Terms of Reference (ToR). Public meetings on the ToR are scheduled for just after the ministry's public consultation on this draft permit concludes. The SPC's public statements speak to the importance of the draft Terms of Reference and companion work plan and budget to guide the required Assessment Report and Source Protection Plan. If we are to take the SPC, its required Terms of Reference, and source protection planning process seriously, we have to believe that MOE and the McGuinty government take it seriously too. We note again the call by the City of Hamilton in its February 27, 2008 motion asking the province to consider the full ramifications of the development and to undertake a formal review by the Source Protection Authority as part of the source protection planning process *before issuing any permits or approvals.*

The draft permit simply proposes to share data and reports with the SPC and the Source Protection Authority in order to inform its work. This is a minimalist approach. There has been no meaningful engagement of this SPC on this file or on this permit application. We question how the SPC will be engaged before the test begins and during the testing process. The lack of guidelines or rules of engagement for Source Protection Committees as the *Clean Water Act* legislation approaches its second anniversary is troubling.

We believe it is premature and would be putting the "cart before the horse" to issue this PTTW now. Let the source protection process work proceed first.

Mimic More, Model Less in a Test

We have said that in our view, as communities, before the overall development application should proceed for municipal and provincial approvals, we would expect a legitimate field test of the proposed GRS *at an appropriate point in time*. Yes, we are concerned about the potential for negative off-site impacts of the overall development. We are concerned about the potential for negative effects from the phased test. We have documented that. We are equally concerned about whether the testing, as now proposed, is truly a meaningful field test. In MOE's attempt to balance the potential for off-site impact against the objectives of the GRS pumping tests, the merit of the test and its results has been drawn further into question.

1. There are good reasons to mimic full quarry drawdown more and model less in a test. By doing so, you create a more realistic set of hydraulic/drawdown conditions. This is important for a variety of reasons.

    a. MOE staff, as early as January 19, 2005 documentation from B. Ryter to MMAH staff (L. Bitoni), described this setting as an unconfined aquifer in a unique fractured rock environment.

b. The difficulty in modelling fractured bedrock environments is well documented. There are certainly limitations in the models used for this site. Again, B. Ryter in correspondence to L. Bitoni in July 27, 2005 and August 31, 2005 noted the limitations of MODFLOW as a finite difference model. In particular, its limitations in accurately modelling groundwater systems on a local scale in fractured rock environments were noted, especially if the fracture network (size, connectivity, orientation) is less well known. Use of the equivalent porous medium approach in MODFLOW generally oversimplifies these complex models on a local scale. Raven, CART and Jagger Himms have commented on model and methodological issues in critiquing draft hydro-geological work plans. The May 22, 2008 CART response to the March 2008 Hydro-geological Work Plan still documents the need to revise the groundwater model significantly and to incorporate the new information garnered from the work plan – further rationale for providing representative and accurate data.

c. Numerous experts have documented their uncertainty about and criticisms of St Mary's drawdown predictions by Gartner Lee Limited, including Drs. Novakowski and Raven. The May 2008 CART response noted above also flags this issue, raising immediate questions about the values for transmissivity used.

d. It is also important because the first pumping test to better describe the aquifer is to provide data and conditions against which the subsequent GRS mitigation tests can be assessed. That data and those conditions should be as accurate and representative as possible. The MOE correspondence noted above calls for clear baseline and impact data on the groundwater system, streams and wetlands – how much and what kind of impact (water levels, geochemistry, temperature,...) will this operation actually have? Can these specific impacts be successfully mitigated? This need has been identified by municipal and agency reviewers over time as well as by FORCE and its experts, on behalf of our communities.

e. The proposed GRS remains the only mitigation method tabled by St Marys.

f. The proposed GRS remains unproven technology without precedent, especially in the Canadian context, in the view of CART, FORCE and our communities. Despite vague references to quarries in Ontario (i.e. Kirkfield) and the southern United States, neither the proponent nor MOE have shared detailed data and information pertaining to geology comparatives, quarry scale, size and depth, production tonnage, operating status, current and long term operating performance data, and other relevant factors.

2. It is increasingly unclear what these short term tests will mean. Even if the tests are declared a "success" by St Marys, MOE's Director questioned the scale based on the test described in the application at the April 16 public meeting and he commented that the proponent would have a long way to go to convince MOE that this system will work. Other experts, notably Drs. Novakowski and Raven, have come to the same conclusion and question whether the test can really be evaluated as simulating full depth quarry drawdown and mitigation conditions.

3. Some of the main causes of failure in this type of system, according to case studies provided by Gartner Lee Limited, are caused by conditions such as plugging up and dissolution of the bedrock over the long term. The tests will still do nothing to help assess the known long term failure scenarios.

4. The issue of winter effectiveness of the GRS will also not be addressed.

5. Groundwater discharge to Mountsberg Creek could still be significant even with the reduced pumping volumes, especially under summer conditions when the Creek's water flow might otherwise be low. We are concerned about potential impacts and believe that daily discharge water testing (section 4.12) and field monitoring of surface water (section 4.14) will be important to provide warning of adverse impacts. This is especially due to the fact that resident brown and brook trout are known to occur in Mountsberg Creek. Their fall spawning is clearly a critical time in their lifecycle and their spawning redds are associated with groundwater upwellings. CART too has questioned the impact of the GRS testing on the watercourse and its associated upwellings. CART's feedback that the proposed testing does not appear to evaluate the effectiveness of the GRS on mitigating the impacts of dewatering on the adjacent wetlands should also be noted. If this is indeed part of the intent of the testing program, it should be clarified how the water can be discharged to the surface water system and not affect the observations/results on wetland water levels.

6. Other outstanding issues that have not been addressed or remain to be confirmed include:

    a. The thermal plume effect cited by MOE and MNR as early as the above noted summer 2005 correspondence, as well as by other agencies and FORCE, has still not been addressed as part of the test nor as it pertains to the overall proposed development. Temperature monitoring alone does not constitute fully addressing this issue.

    b. Hamilton Public Health Services indicates that further discussion with MOE is required pertaining to verification of MOE that no history or evidence of waste disposal or contamination exists on this site or adjacent properties. We request the status of required actions and investigations in the May 1, 2008 MOE letter to St Marys prior to any decision on the draft PTTW. We understand the first reporting requirement to be June 2, 2008. Further work and completion dates were to be set accordingly. We are also obviously concerned by the extent of the historical activities with potential for contamination on the site and timeframes as documented in MOE files, released by Councilor McCarthy and reported in the Halton Compass of June 3, 2008. We understand that this may impact City comments on the draft PTTW and desired undertakings by MOE and the proponent should the PTTW be issued and any adverse impact upon the groundwater be realized. We understand elected councilors in Milton want Region of Halton and Conservation Halton staff to review these files as well.

    c. Acceptable impact should be confirmed as "no loss of normal water use in the area" as requested by the involved agencies. We ask what the corresponding definition of acceptable impact on local wetlands, creeks and other surface features will be. Agency concerns have also been raised about trigger points that would indicate when the GRS is not working safely, at what point action would be taken and when a contingency measure would be involved with phases 2 and 3 of the proposed test.

    d. Conservation Halton has raised a number of design, location, and permitting matters related to the GRS trench.

Keep the Test Process Transparent

The transparency of the test process is very important.

One of the biggest surprises for our communities in the draft PTTW was the lifting of the embargo on summer testing and its lack of transparency. We were given assurances by MOE and City officials at the April 16 public meeting that there would be no summer testing and it was explained by one city official during the Q&A session why testing immediately following the summer was a better time to test when the aquifer was most "stressed" after summer conditions. Not many days later, in a behind closed door meeting, with no community representation, and no transparency, the summer embargo was lifted. We do not dispute the scientific perspective as noted in Dr. Raven's report. Having St Marys pump millions of litres of water out of the aquifer when Carlislians are subject to water restrictions and barely have sufficient water in the evening to bathe children and brush teeth hardly seems fair, however, even if the pumping capability at the municipal wells may be the historic cause. The issue now is about how the decision was made. We also wonder how the test will be treated if Conservation Halton and the Hamilton Conservation Authority issue low water warnings and call for usage cutbacks as they did last summer and fall.

There are some promising sections in the draft PTTW relating to transparency.

1. We think the requirement for independent testing oversight and reporting (section 4.2) is a positive step in the direction we have called for. We think that MOE should retain the one or more independent third party consultants, however, in order to provide both real and perceived independence and the proponent should be responsible for costs.

2. We raise the question about whether the community should be allowed to have a consultant sit as a member of this group, at least to actively monitor the data and the daily review meetings in light of the summer embargo lifting. If not, minutes of these daily meetings, recommendations and decisions should be publicly available within 24 hours.

3. Access to monitoring data (section 4.10) and to reports (section 4.17) is also promising. We think that all available and relevant monitoring data for the test and sentry wells and for surface and groundwater monitoring should be included in reports (section 4.17) and made available to the community (i.e. include the data under sections 4.12 and 4.14 and any other relevant material). Additional monitoring requirements for groundwater recirculation volumes/rates to the recirculation trench should be added.

4. The proposed monitoring programs, reporting and decision making mechanisms, and response actions should provide a clear and traceable process. We note our communities' ongoing concern with the St Marys residential private well monitoring program and question its effectiveness given such low take-up. An independent third party monitoring program funded by St Marys would have been preferable. We note that in the draft PTTW provisions there is a considerable role for the Director. Some aspects of that role are discretionary. We ask whether and how the daily decisions will be vetted by the Director and how his decisions relating to the test phases will be made, reported and communicated publicly. We also ask how CART's request that the proponent not progress to phases 2 or 3 of the GRS testing until phase 1 data and results are provided to CART for review and comment will be accommodated. We ask for confirmation that Conservation Halton's request that more intrusive measures to enhance recharge (i.e. hydraulic fracturing or enlargement of the trench) be considered as part of a new PTTW will be satisfied.

Thank You

Thank you for consideration of our concerns.

Respectfully submitted,

Graham Flint BASc, P. Eng
Chair & Spokesperson

ENCLOSURE