Instrument Decision Notice:

Proponent: CMB Aggregates (Division of St. Mary's Cement Inc.)

55 Industrial Street
Toronto Ontario
M4G 3W9

Instrument Type: Permit to take water - OWRA s. 34

EBR Registry Number:
IA06E1293

Ministry Reference Number:
4455-6U9MKG

Ministry:
Ministry of the Environment

Date Proposal loaded to the Registry:
October 13, 2006

Date Decision loaded to the Registry:
July 08, 2008

November 30, 2006: This Instrument Proposal Notice has been re-posted to include the correct Government Contact Information. The balance of this notice has not been altered.

This Instrument Proposal Notice was originally posted on October 13, 2006 with a 30 day public comment period ending November 12, 2006. The Ministry has chosen to re-post this Proposal Notice and extend the comment period.

Decision on Instrument:

A Permit to Take Water was issued on July 8, 2008 for this applicant with an expiry date of June 30, 2009.

No Leave to Appeal provisions are provided on this decision. The permit that was issued is for less than a year and therefore, is no longer considered a "classified Instrument" under the Environmental Bill of Rights

Section 3.1 of Ontario Regulation 681/94 classifies Permit to Take water as follows:

"1. A proposal for a Permit under Section 34 of the Ontario Water Resources Act that would authorize the taking of water over a period of one year or more, except a proposal for a Permit to Take Water only for the purpose of irrigation of agricultural crops."

Contact:

Director, Permit to Take Water Program
West Central Region
119 King Street West, 12th floor
Hamilton Ontario
L8P 4Y7
Phone: (905) 521-7640
Fax: (905) 521-7820

Location(s) Related to this Instrument:

11 th Concession Rd E

Comment(s) Received on the Proposal: 532

Public Consultation on the proposal for this decision was provided for 49 Days, from October 13, 2006 to December 01, 2006.

As a result of public consultation on the proposal, the Ministry received a total of 532 comments: 532 comments were received in writing and 0 were received online.

Additionally, a copy of all comments are available for public viewing by contacting the Contact person listed in this notice.

Effect(s) of Consultation on this Decision:

Comments received were reviewed and where appropriate were considered in the ministry's decision whether or not to proceed with this proposal. In this case, comments were consistent with concerns within the ministry and as a result terms and conditions were added. These conditions do not represent all conditions imposed on the instrument holder but rather those that are directly in line with comments received.

EBR Comment Summary -- St. Marys Flamborough Quarry, PTTW

1.0 GROUNDWATER QUALITY- 440 comments received:
The majority of registry submissions related to groundwater quality outlined concerns about the protection of the quality of water being re-circulated or injected into the aquifer. To ensure that groundwater quality is not impacted by the water taking, the Ministry of the Environment (MOE) has included several protective and preventative conditions in the Permit To Take Water (PTTW). Condition 3.8 requires that the Permit Holder decommission the trench so it does not act as a vertical conduit for surface contamination to enter the groundwater. Condition 4.9 requires that the Permit Holder sample all private wells for bacteriological parameters after the installation of water level monitoring equipment, and also sample the private wells for all relevant parameters prior to and after the water taking. Condition 4.10 requires that the Permit Holder install a turbidity meter at the production wells of Stonebrook Estates, if requested. Condition 4.14 requires on-site water quality monitoring prior to and after the testing for all relevant parameters. Condition 4.15 requires focused water quality sampling for PCBs prior to the start-up and after the end of each phase of the water taking. Condition 4.16 requires focused water quality sampling for Copper prior to the start-up and after the end of each phase of the water taking. Condition 4.17 requires that the Permit Holder sample the discharge water, at a point prior to the trench, once daily for all relevant parameters, including VOCs, PCBs and Copper.

General comments from the public:
• *Testing will impact local water quality by recirculating contaminated water*
Groundwater quality sampling will ensure contaminated water will not be recirculated
• *Hydrofracturing may impact local water quality in the long term*
Hydrofracturing will not be a component of the three testing phases included in the PTTW
• *How will the extracted groundwater be decontaminated before being injected back into the aquifer?*
Extracted groundwater is not expected to be contaminated, based on background chemistry results for the site. Groundwater will also be routinely sampled prior to, during and after each phase of the test as per PTTW Condition 4.14. The trench discharge water will be sampled for water quality parameters once daily as per PTTW Condition 4.17.
• *How will the long term potential for thermal plumes be addressed?*

Milburough Line,Lots 1, 2 and 3, Concession 11, Flamborough, Hamilton

CITY OF HAMILTON

Additional Information:

The following government offices have additional information regarding this Decision. To arrange a viewing of these documents please call the Ministry Contact or the Office listed below.

Hamilton Regional Office
119 King Street West, 12th Floor
Hamilton Ontario
L8P 4Y7
Phone: (905) 521-7640

The documents linked below are provided for the purposes of enhancing public consultation.
All links will open in a new window

1. **Permit to Take Water (PTTW)**

Based on the relatively short duration of the testing, thermal plumes were not considered an issue for this PTTW.

Comments from Professional Consultants:

• *Water quality parameters should be identified for temperature, microbiological, physical and chemical parameters in the injected water.*

Condition 4.17 requires that the Permit Holder sample the discharge water daily for the parameters listed above, in addition to many other relevant parameters.

• *Water quality monitoring should be completed prior to, during and following the completion of the pumping tests.*

Condition 4.14 requires the Permit Holder to sample the observation wells prior to and at the end of each phase of the testing, for a defined list of water quality parameters.

2.0 GROUNDWATER QUANTITY – 440 comments received:

Groundwater quantity related issues that were raised in the registry submissions included concerns about a loss of normal water use for local well owners as well as the Town of Carlisle. The submissions also included concerns related to notification of testing to local people, and responsibility for providing a potable supply should local supplies be depleted from the testing. Through consultation with the Permit Holder, the City of Hamilton Source Protection and Public Health Departments, an expert in physical hydrogeology from Queen's University, the MOE developed a comprehensive plan for protecting local groundwater users. In order to protect the Carlisle municipal groundwater supply, a groundwater monitoring well was installed between the site and the Carlisle municipal wells. Target drawdown levels were developed for on site the off site well to help predict off site impacts. Conditions 4.4, 5.4, 5.5, 5.6 and 5.7 are included in the PTTW to ensure that the testing is monitored appropriately, and shut down if groundwater quantity impacts are anticipated.

General comments from the public:

• *Testing will impact local water quantity in the short term*

Protective measures are in place in the PTTW to safeguard against impacts to local groundwater supplies, both municipal and private.

• *Testing will impact local water quantity in the long term*

Based on previous pumping tests completed at the site, and the high transmissivity of the local bedrock aquifer, no long term impacts are expected and water levels will recover fairly quickly following the termination of pumping.

• *If water supplies are affected in long and short term who will be responsible to provide us with water?*

Condition 5.2 of the PTTW requires that the Permit Holder provide all impacted wells owners with a potable water supply, equivalent in quantity to their normal supply.

• *Adjacent land owners should be contacted and informed how their water will be protected*

Condition 4.1 of the PTTW requires that the Permit Holder notify all residents within 1000m of the site at least seven days prior to the beginning of each phase of pumping.

• *Carlisle water supply will be impacted*

In response to the City of Hamilton's concerns regarding the Municipality of Carlisle water supply, the Permit Holder installed a bedrock well between the municipal supply wells and the site. A target drawdown level has been set for this well to ensure that the testing is stopped if it is anticipated that water supply in the municipal wells will be impacted.

Comments from Professional Consultants:

• *If the pumping wells intersect permeable zones, how will the 30m target drawdown be reached?*

Through consultation with an expert in physical hydrogeology from Queens University, the City of Hamilton and the MOE, the Permit Holder has decided to reduce the target drawdown to well below 30m.

3.0 SURFACE WATER- 135 comments received:

The surface water issues raised by electronic registry submitters express concerns with the quantity of water being discharged and some minor water quality issues. Water quantity issues (flooding) have been addressed by the ministry in Conditions 4.18 to 4.21. The ministry has restricted the testing to conditions when Mountsberg Creek can contain additional discharge within its banks and no flooding occurs. The amount of the taking (and discharge) has also been reduced. Discharge from the test is bedrock groundwater from the area which also represents baseflow to the wetland headwaters via groundwater seepage. This groundwater is also used for public drinking water. There is no anticipated water quality impact from the discharge of this water and fish stocks are not expected to be impacted from such a short duration set of tests. The ministry has required testing of water quality from the pumping well (Condition 4.17, as well as monitoring of the discharge for water quality under Condition 4.19.

General comments from the public:

• *Who will guarantee sensitive fish stocks are protected?*
Water quality and temperature are not anticipated to impact the fishery during these short-term tests.
• *What will be the impacts of such a large discharge to Mountsberg Creek?*
Quantity is controlled by limiting the discharge from the test to low flow periods; quality is not an issue based on groundwater analysis.
• *Who will ensure that flooding does not occur?*
The ministry is controlling flooding under Condition 5.8. Conservation Halton will be issuing their own permit.
• *Discharge to Mountsberg Creek may cause 3-4X spring runoff levels and some properties could be flooded.*
Discharge amounts have been significantly reduced from the original submission and Condition 5.8 prohibits flooding. In addition, PTTW Condition 5.10 requires that the Permit Holder obtain a permit from Conservation Halton.
• *The planned discharge is on or adjacent to a cattle farm which may cause water quality problems worse than Walkerton.*
Discharge will be directly to the Mountsberg Creek wetlands (through a filtration/energy dissipation device) and the adjacent horse farm is not involved.
• *There will be impacts to the Provincially Significant Wetland.*
Sedimentation and scour are controlled in Condition 4.20 and the impact on the wetland is controlled under Condition 4.21. Identification of potential impact of water taking at this location on the surrounding wetlands is one of the objectives of the pumping test (Condition 4.18).

Comments from Professional Consultants:

• *Water quality impacts on Mountsberg Creek have been underestimated by the consultant. Discharge from the test is 112 L/s and flows are essentially zero in the creek at the time of discharge and discharge from the previous pumping test show the groundwater may exceed Provincial Water Quality Objectives for Iron, Aluminum and Zinc.*
The ministry has relied on the available field data more than the model predictions. While the flows in the creek will be low, monitoring has shown that natural streamflow is present, particularly in the main stem. The discharge will also mix with water in the wetland prior to entering the creek. We have assessed the impact of the discharged groundwater on the creek and agree that there may be a slight exceedence of Zinc but that Aluminum and iron should be below PWQO. We have evaluated the literature and concluded that there is sufficient safety factor between the predicted mixed concentration and any impact, particularly given that a) the test will now occur at a reduced volume of 52 L/s, b) each test will only be 6-8 days in duration and c) this water was discharge to Mountsberg Creek without incident during the previous testing to which the consultant refers.
• *There should be an assessment of seasonal sensitivities of breeding fish and*

amphibians or times when there is a significant temperature difference. Will test 1 be run long enough to create a hydraulic head that may impact wetland water levels?
The ministry anticipates such assessments to be a longer term objective and not as part of these initial pumping tests. Each phase is required to be approved by the ministry prior to proceeding to the next phase. Since one of the objectives of the 3-phase test is to assess the impacts on the wetlands (phase 1) and potential mitigation by the GRS phases 2 & 3), it is our understanding that the proponent will continue each test until steady state is reached.

4.0 GROUNDWATER RECIRCULATION SYSTEM (GRS)- 450 comments received:
The majority of the GRS related registry comments received raised issues related to the feasibility of the GRS technology and the appropriateness of the test design. The purpose of the testing completed under this PTTW is in part, to evaluate the feasibility of the GRS as a mitigation option for large scale quarry impacts. The issuance of this PTTW does not mean that the MOE supports the use of the GRS technology at the site beyond this temporary PTTW. MOE review of the proposed testing has not raised any concerns related to the short term application of the GRS at the site. Protective measures have been included in the PTTW to ensure that groundwater quality in the local aquifer is protected during the testing (Conditions 4.14, 4.15, 4.16, 4.17). Condition 3.8 of the PTTW also requires that the Permit Holder decommission the trench system once the testing is complete.

Comments from Professional Consultants:
• *How will the GRS testing quantify recirculating water?*
Condition 4.6 of the PTTW requires the Permit Holder to monitoring the amount of water discharged to the GRS, and also the rate of recharge in each borehole for the third phase of the testing.
• *Careful documentation of the methods and results of the GRS pilot test is necessary for demonstrating success or failure of the system.*
Condition 4.22 requires that the Permit Holder complete a report documenting the information that would be required to evaluate the success or failure of the GRS. The report must be submitted to the Director for review and acceptance prior to moving on to the subsequent phase of the testing.
• *Because the GRS technology is unproven, stakeholders other than the proponent should be allowed to monitor field implementation of the pilot test.*
Condition 4.2 requires the Permit Holder to retain the services of an independent group of qualified professionals to oversee and document the testing process.

5.0 MONITORING – 210 comments received:
Many registry submissions addressed concerns related to the monitoring of the testing. Specifically, the public was concerned with the number and location of wells to be monitored, as well as what parameters would be monitored. The monitoring plan was developed through technical consultation between the Permit Holder, the City of Hamilton Public Health and Source Water Protection branches and the MOE. Resulting from this consultation, additional monitoring wells were installed between the site and nearby subdivision Stonebrook Estates, and also between the site and the Carlisle municipal supply wells. The groundwater monitoring is included in PTTW Conditions 4.5, 4.7, 4.8 and 4.9. Surface water monitoring is included in PTTW Conditions 4.18, 4.19, 4.20, 4.21.

Comments from the Public:
• *How will MOE monitor rates and amounts of water taken?*
Conditions 4.5 of the PTTW require the Permit Holder to monitoring the rate of water taking using a flow meter installed at the production well. Condition 4.6 of the PTTW requires the Permit Holder to monitor the amount of water discharged to the GRS, as well as the rate of recharge.
• *Local domestic water wells should be monitored prior to, during and after the test*
Conditions 4.8 and 4.8 require the Permit Holder to offer groundwater monitoring to all

well owners within 1km of the pumping wells and to ensure that this monitoring does not impact water quality. Condition 4.4 requires that the Permit Holder establish the private well monitoring program at minimum 15 days prior to commencing the pumping.

• *Groundwater temperature monitoring should be included in the permit*

Condition 4.19 requires that all groundwater discharged to surface water be monitored for temperature prior to discharge. Condition 4.14 requires groundwater quality monitoring for temperature.

• *Existing monitoring wells at the perimeter of the site should be monitored during the test*

Condition 4.7 requires continuous monitoring at all perimeter wells starting one week prior to the start of each phase of the water taking and ending at minimum one week each phase of the water taking ceases.

• *Multi-level piezometers should be installed near natural features in Halton Region to monitor vertical gradients and changes due to pumping.*

Condition 4.7 requires water level monitoring of mini-piezometers in the wetlands on the west portion of the site to be taken every 4-6 hours.

• *External agencies should be monitoring the test*

Condition 3.6 requires independent oversight of the testing by a third party group of professional consultants specializing in hydrogeology, hydrology and environmental monitoring and sampling. The oversight is required 24 hours a day for the duration of each phase of the testing. In addition, the third party is required to write a report on pumping test activities. The MOE will also be attending on-site testing to observe and monitor activities.

Comments from Professional Consultants:

• *Monitoring intervals for wells installed prior to 2005 were not in the most permeable sections of the rock, and monitoring at these location may not represent the most significant drawdown expected.*

Since 2005, the Permit Holder has rehabilitated a number of existing wells in order to better capture the most transmissive sections of the rock.

6.0 NOTIFICATION-10 comments received:

Registry submissions related to notification and contingency included concerns about who and when local individual homeowners, subdivisions and agencies would be notified. Condition 4.1 requires that the Permit Holder notify all well owners within 1000m of the site seven days prior to the beginning of each phase of the pumping. The notification must include a complaint protocol, which must be submitted to local agencies.

7.0 LEGAL IMPLICATIONS AND PLANNING ISSUES- 310 comments received:

Concerns related to the legal implications and timing of the testing were raised in registry comments.

• *Allowing this test contravenes duties spelled out in the Clean Water Act, in the Directors considerations of O. Reg. 387/04 and the Greenbelt Act.*

The issuance of this PTTW does not contravene any enacted provincial legislation.

• *Testing shouldn't be completed until the land use planning review process is complete*

The land use planning review is ongoing by the City of Hamilton. The City of Hamilton relies on a Combined Aggregate Review Team (CART) for input into the planning decision. CART members support the need for the testing, as it will provide information that will assist the land use planning decision.

• *Testing shouldn't be completed until the Wellhead Protection Study is approved*

The MOE is not in a position to deny a temporary PTTW application for a pump test because of an ongoing Wellhead Protection Study. The data collected during the test will provide additional information to the source water protection studies being undertaken.

• Who will be liable if the test causes long term affects to our water supply? Will the MOE accept liability?
Condition 5.2 of the PTTW requires the Permit Holder to provide a supply of water, equivalent in quantity and quality to the original supply, to the impacted well owner, or compensate the impacted party for the reasonable cost of replacing the supply. Condition 5.3 requires the Permit Holder to replace any equipment (i.e., pump) that is damaged as a result of the water taking. It is important to note, however, upon review of the PTTW supporting documentation, and liaison with professional staff from public external agencies, the MOE does anticipate any short or long term impacts from the testing authorized under this PTTW.

Leave to Appeal Provisions:

No Appeal exists on the ministry's decision pertaining to this instrument.

View Proposal

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