Alternative Low Carbon Fuel Use at St Marys Cement Bowmanville Plant

Frequently Asked Questions

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1. **Why is St Marys Cement holding public meetings?**
   St Marys Cement is holding meetings to inform the public and solicit feedback about the study that has been initiated to support the preparation of an Alternative Low Carbon Fuel (ALCF) Application under Ontario Regulation (O. Reg) 79/15 of the *Environmental Protection Act* to expand the current use of ALCFs at the Bowmanville Plant. This study supports St Marys Cement's strategy to reduce Greenhouse Gases (GHGs) and keep up with best practices implemented around the world.

   O. Reg 79/15, Alternative Low Carbon Fuels, came into force as of May 1, 2015 under the *Environmental Protection Act*. The Ontario Government put this regulation into place to:
   - Help reduce the use of coal and petroleum coke in Ontario
   - Promote reduction of GHGs
   - Regulate the use of ALCFs

   This regulation defines the framework and controls for facilities that want to use the ALCFs in terms of types and quantity of materials that can be used. The regulation outlines a consultation program to be completed by proponents prior to submitting an application to the Ontario Ministry of the Environment, Conservation and Parks (MECP).

2. **What are Alternative Low Carbon Fuels?**
   Alternative Low Carbon Fuels (ALCFs) are fuels (including but not limited to paper / paper fibre materials, cardboard, cotton, textiles, construction and demolition materials, non-recyclable plastics, ragger tails from cardboard and paper recycling, materials derived from agricultural crop production that cannot be consumed (not including materials derived from animals or animal by-products), etc.) that have a carbon dioxide emission intensity, which is less than conventional fuels (e.g., coal and petroleum coke) when combusted, and meet one of the following two descriptions according to O. Reg 79/15:
   1. The fuel:
      a. Must not be considered hazardous and must not be derived from animals or the processing and preparation of food;
      b. Must be wholly derived from (or composed of) materials that are biomass or municipal waste or a combination of both; and
      c. Must have a high heat value of at least 10,000 megajoules per tonne if it is not derived from or composed of materials that are solid biomass.
   2. The fuel must be derived from or composed of organic matter, (not including peat or peat derivatives), derived from a plant or micro-organism and grown or harvested for the purpose of being used as a fuel.

3. **When does St Marys Cement expect to start using Alternative Low Carbon Fuels at their Bowmanville Plant?**
   St. Marys Cement is already using woody materials as an ALCF at the Bowmanville plant under their current Environmental Compliance Approval. St Marys Cement is preparing this application to add biomass, cellulosic and plastic materials to the list of approved ALCFs at the plant. St Marys Cement intends to submit the ALCF application the Ministry of the Environment, Conservation and Parks in early 2020. The schedule to introduce the additional ALCFs at the Bowmanville plant will depend on the Ministry's review and approval of the application but is anticipated within year 2020.

4. **Is St Marys Cement increasing the amount of fuel they use at the Bowmanville Plant?**
   St Marys Cement is not increasing the amount of fuel they use at the Bowmanville Plant but is substituting the conventional fuels (coal and petroleum coke) for ALCFs. In 2015 St Marys Cement started using woody materials as ALCFs at their Bowmanville Plant and uses approximately 96 tonnes of ALCFs (woody materials) daily at the Bowmanville Plant under their current Environmental Compliance Approvals. St Marys Cement plans to expand ALCF use to approximately 400 tonnes per day (approximately 30% thermal replacement). By weight, more ALCFs are required per tonne of fuel than conventional fuel, but the intention is to produce the same amount of thermal energy with the substitution.

5. **What testing has St Marys undertaken to show that ALCFs are okay?**
   In September / October 2018 and December 2018, St Marys Cement carried out a demonstration project to use residuals derived from industrial and/or post-consumer sources including plastic polymers, paper fibres and woody materials as ALCFs at their Bowmanville Cement Plant. The demonstration project concluded the following:
   - The data obtained from the source testing program demonstrated that there was no statistically significant difference in kiln stack emissions and the closest receptors (point of impingement (POI)) concentrations of all contaminants as a result of the use of ALCFs relative to baseline conditions.
   - The raw feed and conventional fuel sampling program demonstrated that the input (metals and total halogens) into the system from raw feed and conventional fuel was generally consistent across all operating conditions.
   - The plant fully complied with their Operational Limits, their Performance Objectives, and with Regulation 419 while firing any amount of ALCF.
   - The data obtained from the ambient monitoring program demonstrated that, there was no statistically significant difference in ambient air concentrations of any contaminant as a result of the use of ALCFs, relative to current baseline conditions.

6. **Where is St Marys Cement getting the Alternative Low Carbon Fuel materials from?**
   There are many sources of ALCFs and the preferred source will be from manufacturing facilities with a predictable and long term supply. Whenever possible, St Marys Cement focuses on using locally sourced ALCFs, which is in the best interest of the community, St Marys Cement, and the environment (less transportation distance).

   Obtaining ALCFs is a dynamic process and is managed on an ongoing basis. St Marys Cement has an ALCF Manager who is constantly working with potential suppliers who may have the type of materials that meet the needs and approvals of each of the St Marys Cement plants. St Marys Cement's Bowmanville Plant is in discussion with Durham Region to look at using Durham Region materials as a priority.

7. **What is the "smoke" that I see from the top of the stack at the Bowmanville Plant?**
   The "smoke" you see is not actually smoke at the top of the stack at the Bowmanville Plant but rather sulfur dioxide (SO_2) a by-product of the process, which is within regulatory limits. St Marys Cement is looking to introduce a "Wet Scrubber" to the production process which will help capture the sulphur dioxide prior to it reaching the stack.

   Coal has a high percentage of sulfur content, which through the cement production process, results in the emission of sulfur dioxide. This initiative for 30% thermal replacement of conventional fuels with ALCFs will reduce the amount of sulfur introduced into the process as the new materials do not have the same level of sulphur content as the conventional fuels.

8. **Is burning plastics bad for the environment?**
   In an uncontrolled scenario, such as in a fire pit in your backyard, burning plastics would be considered bad for the environment. The reason for that is because open fires only average around 600 degrees Celsius and are not a controlled environment. This results in incomplete combustion of the various in the plastics and can emit harmful pollutants into the air.

   A cement kiln is a very controlled environment that must reach extremely high temperatures in order to produce cement. Plastics will only be introduced into the production process when the kiln has reached very high temperatures (1550 degrees Celsius) which results in the complete combustion of all of those compounds in the plastics. This was demonstrated in the source test during the pilot process at the Bowmanville Cement Plant and proven at other sites that use similar ALCF materials.

9. What type of monitoring does St Marys Cement have in place?

The Bowmanville Cement Plant has various monitoring practices and analytical monitoring instruments already in place that are used to provide feedback on the production process and confirm that the environmental emission limits are being met. Current monitoring includes but is not limited to:

- Vendor evaluation process for ALCF materials supplier;
- Conventional and ALCF feed rates to track coal substitution rates;
- Periodic ALCF material testing to control the feed materials;
- Temperature profile of the kiln and combustion air oxygen levels to demonstrate complete combustion of the fuels and proper operating conditions to produce the clinker;
- Continuous emission monitoring for nitrogen oxides, sulphur dioxides, opacity and total hydrocarbon in the kiln exhaust to demonstrate that the pollution control equipment is operating properly; and
- Ambient air monitoring around the Site perimeter (PM10 monitors) to verify the emission from the process.

The Plant is equipped with a control operation system that automatically monitors air emissions and process parameters and is linked to an Alarm system that emails alarms to staff when set parameters are not being met; and an Interlock system that will shut down the system in the event of any abnormality and before any exceedance.

10. What studies are being undertaken to consider potential environmental effects?

As part of this ALCF application, St Marys Cement has hired consultants to undertake the following studies:

- Air Quality Study and Cumulative Effects Assessment
- Acoustic (Noise) Study
- Carbon Dioxide Emissions Intensity Report
- Traffic Impact Study

These studies are in progress and the results are anticipated to be available at the second Public Open House in December 2019.

11. What consultation has already taken place for this study?

Public Meeting / Open House #1 was held on September 5, 2019 at the Garnet B. Rickard Recreation Complex in Bowmanville, Ontario. The meeting was held as a drop-in, open house format, and members of the public, and agency and municipal staff were invited to attend anytime between 6:30 p.m. and 8:30 p.m. The meeting provided information on St Marys Cement's intention to submit an application for the Bowmanville Plant under Ontario Regulation 79/15, the results of the Demonstration Project (ECA 1255-7QVJ2N), background information on ALCFs, and an overview of the studies that were being undertaken. Display panels were available for review and members of the Project Team were circulating to answer questions throughout the evening. Samples of the proposed ALCF materials and conventional fuels were available at the Open House to look at. Thirty-one (31) attendees chose to register at the sign-in desk upon arrival. Attendees were encouraged to provide comments to the Project Team at the Open House or after during the comment period, up to October 4, 2019.

Materials from Public Meeting / Open House #1 are available on the website:
http://stmaryscement.com/bowmanvilleALCF

12. What is the Project Team working on right now and when is the next public meeting / open house?

The Project Team is currently working on responding to comments received at the Open House and during the comment period. The Project Team is also undertaking ongoing consultation with the Region of Durham and Municipality of Clarington. The Project Team is preparing the environmental studies and reports outlined in #9 above and preparing to present the results of these studies and responses to public comments at the second open house.

Public Meeting / Open House #2 is scheduled for December 17, 2019. Notices will be distributed to the project contact list, published in local newspapers, delivered via Canada Post to residents and will be posted on the project website in advance of the open house.