SOLDER

REPORT

Alternative Low Carbon Fuel Use at the St Marys Cement St. Marys Cement Plant

Consultation Report

Submitted to:

St Marys Cement, Votorantim Cimentos North America Inc.

585 Water St. South St Marys Ontario, N4X 2B6

Submitted by:

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March 2022

Distribution List

- Electronic copy Votorantim Cimentos
- Electronic copy St Marys Cement
- Electronic copy Golder Associates Ltd.

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1.0 INTRODUCTION

St Marys Cement (SMC), a company of Votorantim Cimentos North America (VCNA), is undertaking efforts to use Alternative Low Carbon Fuels (ALCFs) as an energy source for their St. Marys Cement Plant (the Site). This initiative will help reduce greenhouse gas emissions in Ontario while diverting materials from landfills. The Site is located at 585 Water Street South, in St. Marys, Ontario (refer to Figure 1).



Figure 1: Project Site

In April 2010, SMC was approved to undertake an Alternative Fuel Demonstration project under the Certificate of Approval Number 2589-826K83. The purpose of the Demonstration Project was to demonstrate the use of alternative fuels at the facility and assess potential environmental effects associated with the use of alternative fuels at the facility and assess potential environmental effects associated with the use of alternative fuels at the facility relevant to baseline conditions. SMC completed the alternative fuel demonstration trials from May 11, 2011 to May 25, 2011.

SMC is preparing the ALCF Application for a Non-Demonstration (Permanent) Project under Ontario Regulation (O. Reg.) 79/15 (as amended by O. Reg. 54/21 and 824/21) of the Environmental Protection Act for an amendment to Environmental Compliance Approval (ECA) number 4546-AQ9GMB, issued on August 31, 2017 to proceed with regular use of ALCFs at the Site (the Amendment ECA Application).

As part of the Amendment ECA Application, SMC is requesting approval to:

 use ALCFs that may include the following example ALCF materials that are grouped into the associated ALCF material baskets (as noted in parathesis):

- Shredded wood from post construction waste (Construction & Demolition By-Products and Biomass Materials baskets).
- Nested plastics and paper and Shredded caps, labels and bags (Non-Recyclable Plastics and Non-Recyclable Paper Fiber/Wood/Plastic Composites baskets).
- Shredded conveyor belt rubber and Shredded conveyor skirt rubber (Rubber materials (non-tire derived) basket).
- install new equipment to feed ALCFs; and
- install ALCF storage using enclosed containers and buildings.

The Site will target approximately 40% thermal replacement by using mixtures of ALCFs to replace petroleum coke.

The above noted ALCFs would meet the following criteria:

- be used as mixtures of non-recyclable and non-odorous materials;
- not be derived from or composed of any material set out in Schedule 1 of O. Reg. 79/15;
- wholly derived from or composed of materials that are biomass, municipal waste, or a combination of both; and
- have a high heat value of at least 10 megajoules per kilogram.

In addition, SMC is seeking approval under O. Reg. 419/05 to use of Hydrogen as a fuel or for optimization of fuel combustion efficiency.

SMC considers the engagement of Indigenous groups and consultation with adjacent and nearby residents / property owners to be a critical component to their operations. As a result, and in line with the requirements outlined in O. Reg. 79/15, SMC has undertaken a range of consultation and engagement activities in support of the preparation of the Amendment ECA Application.

SMC retained Golder Associates Ltd. (Golder) to support SMC with preparing the Amendment ECA Application and to support consultation activities throughout the application process. On behalf of SMC, Golder has prepared this Consultation Report which provides an overview of all consultation and engagement activities undertaken for the Project to date. This Consultation Report captures consultation and engagement activities undertaken with members of the public and Indigenous communities up to March 24, 2022 and includes the following:

- A description of the consultation activities completed to date;
- Summaries of the information provided at the public meetings, copies of written comments or questions submitted and records of oral comments made, either at public meetings or by other means;
- A summary of discussions that the proponent had with Indigenous communities, copies of all written comments or questions submitted and records of oral comments made by Indigenous communities, either at public meetings or by other means;
- A description of what the proponent did to respond to concerns expressed in the course of the consultations; and
- Copies of notices, reports, and other materials prepared for and used in the public meetings.

2.0 CONSULTATION AND ENGAGEMENT ACTIVITIES

2.1 Stakeholder Identification

The Project Team has completed an array of consultation and engagement activities for the Project, with the objective of gathering input and feedback from Indigenous communities and stakeholders, and to allow for views and concerns to be addressed and considered during the Project and the preparation of the Amendment ECA Application. Specifically, SMC has consulted and engaged with the following stakeholder groups:

- Indigenous communities At the outset of the study, SMC contacted MECP requesting the Director's assistance in confirming a preliminary list of communities that will be engaged based on proximity to the Project. The MECP responded confirming a list of communities, and therefore the following communities were included on the Project contact list:
 - Aamjiwnaang First Nation
 - Caldwell First Nation
 - Chippewas of the Thames First Nation
 - Kettle and Stony Point First Nation
 - Munsee Delaware Nation
 - Oneida of the Thames First Nation

Agencies

- Elected officials:
 - Members of Parliament;
 - Members of Provincial Parliament;
 - Municipal and Regional Councillors of the Town of St. Marys.
- Municipal staff:
 - Town of St. Marys;
 - Township of Perth South; and
 - Perth County.
- Provincial agencies:
 - Ministry of the Environment, Conservation and Parks (MECP);
 - Ministry of Indigenous Affairs;
 - Ministry of Municipal Affairs and Housing;
 - Ministry of Northern Development, Mines, Natural Resources and Forestry;
 - Ministry of Transportation;
 - Ministry of Heritage, Sport, Tourism and Culture Industries;
 - Ministry of the Solicitor General;
 - Ministry of Labour, Training and Skills Development;
 - Ministry of Indigenous Affairs Ontario;
 - Office of the Auditor General of Ontario; and
 - Upper Thames River Conservation Authority
- Federal agencies:
 - Fisheries and Oceans Canada;
 - Transport Canada;

- Environment Canada; and
- Indigenous and Northern Affairs Canada.
- Public Stakeholders At the outset of the study, the Project Team developed an initial list of members of the public that may have interest in the Project, including those who have participated in consultation opportunities on other projects at the Site. Canada Post Neighbourhood Mail TM was utilized to send project notices to residents/property owners in the Town of St. Marys.

In addition to these initial lists of stakeholders and Indigenous communities, the Project Team continued to update the contact list with interested parties who contacted the Project Team in response to Project notices (refer to Section 2.2) and those who attended the public meetings and signed the sign-in register (refer to Section 2.4).

2.2 **Project Notification**

2.2.1 Notice of Intention to Apply under Ontario Regulation 79/15 and Notice of Public Meeting #1

The Notice of Intention to Apply under Ontario Regulation 79/15 was combined with the Notice of Public Meeting #1 and issued in October 2021. The notice was distributed in the following manner:

- Published in the following newspaper:
 - St. Mary's Independent on Thursday October 28, 2021, and Thursday November 4, 2021.
- Delivered to 3,997 residents / property owners in the Town of St Marys Canada Post's Neighbourhood Mailing / Unaddressed Admail Service on October 28, 2021; and
- Distributed via email to the contact list on October 28, 2021.

The Notice introduced the project indicating that SMC is preparing studies and an application under O. Reg. 79/15 for the use of ALCFs at the Site. The Notice invited the public to attend Public Meeting #1 and included Project Team contact information for further questions, as well as a link to the Project Website.

The Notice of Intention to Apply under Ontario Regulation 79/15, combined with the Notice of Public Meeting #1, was subsequently amended to reflect a change in the proposed daily throughput of ALCFs at the Site from up to 100 tonnes per day to up to 175 tonnes per day. This amended Notice was distributed in the following manner:

- Published in the following newspaper:
 - St. Mary's Independent on Thursday November 11, 2021.
- Distributed via email to the contact list on November 12, 2021.

Please refer to Appendix A for a copy of the original, and revised, *Notice of Intention to Apply under Ontario Regulation 79/15 and Notice of Public Meeting #1.*

Following the distribution of the first Notice and prior to Public Meeting #1, the Project Team received one email from the public on November 2, 2021 including one question. The topic of interest was addressed as part of Public Meeting #1.

2.2.2 Notice of Public Meeting #2

The Notice of Public Meeting #2 was issued in January 2022. The Notice was distributed in the following manner:

- Published in the following newspaper:
 - St. Mary's Independent on Thursday January 13, 2022, Thursday January 20 2022, and Thursday January 27 2022.
- Delivered to 4,006 residents / property owners in the Town of St Marys Canada Post's Neighbourhood Mailing / Unaddressed Admail Service on January 13, 2022; and
- Distributed via email to the contact list on January 13, 2022.

The Notice provided an overview of the study, invited the public to attend virtual Public Meeting #2 and included Project Team contact information for further questions, as well as a link to the Project Website.

Please refer to Appendix A for a copy of the Notice of Public Meeting #2.

Following the distribution of the second Notice and Prior to Public Meeting #2, the Project Team received one email on January 26, 2022 which noted what one member of the public learned from Public Meeting #1 and suggestions for Public Meeting #2, highlighting they were looking forward to learn more and hoping the rest of the public would as well.

2.2.3 Notice of Completion of the Consultation Report

The *Notice of Completion of the Consultation Report* is being issued in March 2022. The Notice will be distributed in the following manner:

- Being published in the following newspaper:
 - St. Mary's Independent on Thursday March 24, 2022, and Thursday March 31, 2022.
- Delivered to 4,014 residents / property owners in the Town of St Marys Canada Post's Neighbourhood Mailing / Unaddressed Admail Service on March 24, 2022 and
- Distributed via email to the contact list on March 24, 2022.

Please refer to Appendix A for a copy of the Notice of Completion of the Consultation Report.

2.3 Project Website

A Project website page (https://www.stmaryscement.com/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels.aspx) was established by SMC through their overall company website (stmarycement.com) to provide periodic Project updates. Updates provided in the Project website to date are listed in Table 1.

|--|

Date of Update	Summary of Update
October 2021	SMC uploaded the Notice of Intention to Apply under Ontario Regulation 79/15 and Notice of Public Meeting #1 on October 28, 2021.
November 2021	SMC uploaded the revised Notice of Intention to Apply under Ontario Regulation 79/15 and Notice of Public Meeting #1 on November 11, 2021.
November 2021	SMC uploaded the presentation materials available at the public meeting on November 18, 2021.
January 2022	SMC uploaded the Notice of Public Meeting #2 on January 13, 2022.
February 2022	SMC uploaded the Public Meeting #2 presentation on February 3, 2022.
March 2022	SMC will upload a copy of the Notice of Completion of Consultation Report and the Consultation Report on March 24, 2022.

As additional project materials are finalized (e.g., supporting study reports) and Project documentation are finalized, they will continue to be uploaded to the website to provide stakeholders with readily available Project information. SMC will also continue to provide status updates through the website and contact list as the Project progresses. Refer to Appendix B for a printout of the website.

2.4 Public Meetings

2.4.1 Public Meeting #1

The first public meeting (open house) for this Project was held on Thursday November 18, 2021, between 6:00 p.m. and 8:00 p.m. at the St. Marys Golf & Country Club, located in St. Marys, Ontario. The public meeting was held as a drop-in format where attendees could come at any time, review the materials and speak with members of the Project Team.

Information panels were arranged in the hall that covered the following topics:

- Purpose of the open house;
- Site overview;
- An overview of St Mary Cement and the cement and concrete industry in Ontario;
- An outline of the cement production process;
- An overview of ALCFs and how they are used in cement production;
- Overview of O. Reg. 79/15, Alternative Low Carbon Fuels,
- Current project overview, what is SMC proposing;
- ALCFs at SMC Process and Timeline;
- Environmental benefits of ALCFs sustainability and climate change, CO₂ emission intensity assessment
- St Marys Cement and the Environment;

- Overview of various monitoring practices and analytical monitoring instruments already in place at the Site;
- Environmental studies SMC is undertaking to assess the potential environmental effects of the increased substitution; and
- How to contact the Project Team and participate in the Study.

Refer to Appendix C for copies of the materials presented at the November 2021 public meeting.

Technical experts from SMC, Golder, BCX Environmental Consulting (BCX), and HGC Engineering (HGC), were in attendance to answer questions and document comments and concerns from attendees.

Twenty-six (26) attendees signed the sign-in register upon arrival at the public meeting. Attendees were encouraged to provide written comments through a comment form that was available at the public meeting. Comments were provided verbally to Project Team members that were present at the open house. No written comments were received at the meeting. After the Public Meeting, all of the materials were posted on the project website (refer to Section 2.3) and the public were encouraged to submit written comments by December 17, 2021. No written comments were received during after the public meeting. Discussions between the Project Team and members of the public during Public Meeting #1 included, but were not limited to, the following topics (detailed list of questions and topics are presented in Appendix G):

- Current Operations
 - Air quality and odour
 - Noise
 - Health impacts
- ALCFs General
 - Permitting
 - Technology in Ontario and Cement Industry
 - Fuels (types and sources)
- Future Operations with ALCFs
 - General: storage, amounts of ALCFs
 - Environmental impacts
 - Air quality and odour, including monitoring
 - Noise
 - Traffic
 - Other

Following Public Meeting #1, the Project Team received two emails with questions from the public (November 28, 2021 and December 16, 2021). The summary of these emails is included in Appendix E – Correspondence Summary Table. The topics of interest were addressed as part of Public Meeting #2.

2.4.2 Public Meeting #2

The second public meeting for this Project was held as a virtual information session (webinar) using GoToWebinar, on Thursday February 3, 2022 from 6:00 p.m. to 8:00 p.m. Public Meeting #2 consisted of a presentation given by members of the Project Team and a question-and-answer period. Due to restrictions related to COVID-19, and amendments made by O. Reg. 824/21, an in-person meeting did not take place.

The presentation slides covered the following topics:

- Site overview
- An overview of St Mary Cement and the cement and concrete industry in Ontario;
- Project Team;
- Project overview, process and timeline;
- ALCFs at St Marys Cement;
- St Marys Cement Production Process;
- Current air quality and noise compliance;
- Air quality monitoring;
- Overview of ALCFs and O. Reg 79/15;
- Proposed ALCFs at St Marys Cement;
- Supporting activities and processes;
- Sustainability and climate change;
- CO₂ emission intensity assessment;
- ALCF compliance Air Quality and Noise;
- Supplementary technical studies:
 - Archaeology
 - Traffic Impact Study
- How to contact the Project Team and participate in the Study.

Refer to Appendix C for copies of the materials presented at the February 2022 public meeting.

Technical experts from SMC, Golder, BCX, and HGC Engineering (HGC) were in attendance to answer questions and document comments and concerns from attendees.

Thirty-six (36) individuals registered to attend the virtual information session. Twenty-seven (27) individuals attended the virtual information session. Attendees were encouraged to ask questions during the presentation using the question/chat function of GoToWebinar.

Five (5) questions were received at the meeting, and no (0) written comments were received after the meeting (refer to Appendix G for details on these questions).

2.5 Indigenous Engagement

As indicated in Section 2.1, letters were sent to the following Indigenous communities at the outset of the study with details on the work being undertaken and inviting them to meet with the Project Team and again in advance of Public Meeting #2:

- Aamjiwnaang First Nation
- Caldwell First Nation
- Chippewas of the Thames First Nation
- Kettle and Stony Point First Nation
- Munsee Delaware Nation
- Oneida of the Thames First Nation

Aamjiwnaang First Nation and Chippewas of the Thames First Nation were the only communities to respond to the notices sent.

Aamjiwnaang First Nation emailed a letter to the Project Team on November 10, 2021 noting that the Aamjiwnaang Environment Committee is requesting further information on the project so a determination can be made as to any interest in further consultation. The Environment Committee also inquired about what alternative fuel will be used and asked that more information on the type of fuel be provided. On November 18, 2021 Aamjiwnaang First Nation emailed another letter to the project team to inquire about whether scrubbers would be utilized, where the ALCFs will come from, and if there are requirements to use air monitors. On Tuesday December 7, 2021 Project Team members from SMC, Golder and BCX Environmental Consulting (BCX), meet virtually with Aamjiwnaang First Nation's Environment Committee. The purpose of the meeting was to provide Aamjiwnaang First Nation with an overview of the Project and answer questions received from Aamjiwnaang First Nation's Environment Committee and answered questions asked by the committee. The following topics were discussed:

- what materials may be used as ALCFs;
- whether there will be a threshold for chlorine;
- air pollution control, including sulphur dioxide; and
- sources of ALCFs.

Chippewas of the Thames First Nation emailed a letter to the Project Team on November 26, 2021. Chippewas of the Thames First Nation noted that after reviewing the *Notice of Intention to Apply under Ontario Regulation 79/15 and Notice of Public Meeting #1*, Chippewas of the Thames First Nation identified minimal concerns with the Project; however, review of completed technical studies to confirm was requested. Chippewas of the Thames First Nation noted that if an Archaeology Assessment is conducted, Chippewas of the Thames First Nation requires notification and the opportunity to actively participate by sending First Nation Field Liaisons on behalf of the First Nation. As part of the *Notice of Public Meeting #2* sent to the Chippewas of the Thames First Nation, it was noted that as part of the proposed new ALCF storage facility location. It was also noted that the Stage 1 property inspection took place on December 17, 2021. At the time of the Notice, the Stage 1 Archaeological Assessment Report was underway.

Chippewas of the Thames First Nation emailed a second letter to the Project Team on February 24, 2022. Chippewas of the Thames First Nation asked whether a Stage 1 Archeological Assessment was completed and requested a copy of the assessment. Chippewas of the Thames First Nation also asked about the potential biomass source of ALCFs. Golder responded to these questions on March 24, 2022 and attached the Stage 1 Archeological Assessment Report, noting that it had been submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries on February 19, 2022.

2.6 Agency Meetings

2.6.1 MECP

The first Pre-Submission Consultation Meeting with the MECP's Permissions Branch was held virtually on September 17, 2021. The purpose of this meeting was to discuss the following topics:

- approach for public meetings;
- supporting documentation for Amendment ECA Application; and
- timing of Amendment ECA Application approval.

The second Pre-Submission Consultation Meeting with the MECP's Permissions Branch was held virtually on January 13, 2022. The purpose of this meeting was to present the following:

- an update on the public consultation component;
- preliminary results of the carbon dioxide emission intensity assessment;
- preliminary results of the air quality and noise assessments;
- review of local air quality in St. Marys, Ontario; and
- preliminary results of the supplementary studies (Archelogy and Traffic).

On February 1, 2022, the MECP forwarded comments and questions to the Project Team regarding the Project. The Project Team submitted responses to the MECP on February 3, 2022.

2.6.2 Town of St. Marys

On February 1, 2022, Project Team members from SMC and Golder met with staff from the Town of St. Marys. The purpose of the meeting was to provide municipal staff an opportunity to preview the materials that were being made available at Public Meeting #2 in February. This provided the opportunity for questions and discussion and for the Project Team to take into consideration municipal comments prior to finalizing the presentation. During the meeting, the Town of St. Marys asked questions about the weather conditions included as part of the air emissions assessment that has been completed, greenhouse gas emissions from the transportation of fuels, and the types of ALCFs. The Town of St. Marys noted that they support SMC's plan for using ALCFs to reduce greenhouse gas emissions and divert materials from landfills.

SMC sent the Town of St. Marys a copy of the presentation from Public Meeting #2 on February 7, 2022.

2.7 Community Liaison Committee

SMC has a Community Liaison Committee (CLC) that typically meets quarterly with SMC to discuss information about the Site, operations, and the local community. The meetings are held in an open forum manner with members of the CLC, which include local community residents, municipal Councillors, a representative from the MECP, and representatives from SMC. Two CLC meetings took place while the Amendment ECA Application was being prepared on December 3, 2021 and March 11, 2022.

SMC met with the CLC virtually on December 3, 2021 as part of their regular meeting schedule. At this meeting, SMC invited Project Team members from Golder and BCX to attend the meeting to introduce the Project. The Project Team presented the highlights of content from Public Meeting #1, including an overview of ALCFs, an introduction to the proposed Project, and provided the opportunity for questions and discussion on the information presented. At this meeting, Councillors Jim Craigmile, Tony Winter, and Brent Kittmer were in attendance.

SMC also met with the CLC virtually on March 11, 2022 as part of their regular meeting schedule. At this meeting, SMC invited Project Team members from Golder to attend the meeting to provide an update on the Project. The Project Team presented an overview of the materials presented during Public Meeting #2. At this meeting, Councillors Jim Craigmile, Tony Winter, and Brent Kittmer were in attendance.

3.0 HOW THE PROJECT TEAM ADDRESSED COMMENTS AND CONCERNS

Throughout the Project, the Project Team has actively sought feedback from stakeholders, including members of the public, municipal staff and agencies, and Indigenous communities. The O. Reg. 79/15 application process requires two main consultation opportunities, including Public Meeting #1 and Public Meeting #2 (described further in Section 2.4, and summarized in Appendix G). In addition to these two main opportunities, the Project Team held meetings with staff from the Town of St. Marys, met with MECP (Section 2.6), took opportunities to present about the Project at CLC meetings (Section 2.7), and responded to questions and comments directly via email or verbally at public meetings.

SMC will continue to meet with the CLC and present updates on the application and eventually the ongoing use of ALCFs. SMC will also continue to respond to comments received about this application and the use of ALCFs at the Site.

4.0 CORRESPONDENCE SUMMARY TABLE

Comments on the Project have been requested and encouraged by the Project Team through the various consultation and engagement activities completed for the Project. A table has been prepared to provide a detailed record of all correspondence received or sent in relation to the consultation and engagement activities for the Project. The correspondence summary table is presented in Appendix E and is current to March 24, 2022.

The questions and topics brought up during Public Meeting #1 were addressed in Public Meeting #2 and the technical studies that were prepared to support the Amendment ECA Application. There were no new topics of concern brought up during Public Meeting #2. Details on the questions and topics brought up during both Public Meetings are presented in Appendix G. The main topics of interest raised by the public are also addressed in the following required technical studies: Emission Summary and Dispersion Modelling Report, Acoustic Assessment Report, Carbon Dioxide Emission Intensity Report. Additionally, minor topics of interest are addressed in the following supplementary technical studies: Traffic Impact Study and Stage 1 Archeology Assessment. Appendix G includes a summary table of questions and topics from members of the public during Public Meeting #1 and Public Meeting #2.

An important topic of interest that was addressed in addition to the abovementioned reports is local air quality, which is presented in Appendix F – Local Air Quality Study. The Local Air Quality Study was completed by reviewing the St. Marys ambient air quality monitoring available to date for the main compounds of concern, as well as a review of two nearby areas (London and Grand Bend) to assess the measured concentrations against the applicable ambient air quality criteria on an hourly, daily, and/or annual basis. The monitoring conducted in St. Marys shows that the compounds of concern are below their applicable Ambient Air Quality Criteria. The results of the MECP local air quality monitoring in the Town of St. Marys is indicative of good air quality and is comparable to the NAPS London and Grand Bend monitoring.

5.0 CLOSURE AND NEXT STEPS

Consultation and engagement activities for the Project have included Project notifications via addressed email, mail, Canada Post Neighbourhood Mailing / Unaddressed Admail, and the project website, as well as public meetings, municipal meeting, phone calls, e-mails, website updates. These efforts have been completed by the Project Team to undertake early and meaningful consultation and engagement with persons and groups who may be affected or have an interest in the Project. SMC understands that early and meaningful consultation and engagement is an integral component of the Project planning and approvals processes, and it is a way for SMC to continue building a relationship of mutual respect and trust with the community in which the Project is located.

This Consultation Report is being made available on the Project website for public viewing. After this report is made available, the following activities are planned regarding the submission of the application:

- Preparation of the Amendment ECA Application package, including all supporting documents;
- Submission of the Amendment ECA Application package to MECP;
- MECP confirmation of completeness of the package;
- MECP to post the application on the Environmental Registry of Ontario (ero.ontario.ca) which will be available for a public review period; and
- MECP to make a decision if the application is approved.

During MECP's review period and going forward, SMC will continue to provide Project notifications through the Project website and Project Contact list.

Signature Page

Golder Associates Ltd.

Kyla Suchovs, B.ES. Environmental Specialist

KS/KL/FSC/ng

Sean Capstick, P.Eng. *Principal*

https://golderassociates.sharepoint.com/sites/147511/project files/6 deliverables/3000 - public consultation/3040 - consultation report/21468526-r-rev0 vcna alcf st. marys consultation report 23mar2022.docx

APPENDIX A

Project Notification



Notice of Intention to Apply under Ontario Regulation 79/15 (O. Reg. 79/15) Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

Background

St. Marys Cement Inc. (SMC) a company of Votorantim Cimentos North America (VCNA) is undertaking efforts to use Alternative Low Carbon Fuels (ALCF) as an energy source for their St. Marys Cement Plant (the Site). This initiative will contribute to reducing greenhouse gas emissions in Ontario while diverting materials from landfills. The Site is located at 585 Water Street South, in St. Marys, Ontario. St. Marys Cement (SMC) has current Environmental Compliance Approval (ECA), Number 4546-AQ9GMB that was issued on August 31, 2017.

Demonstration Trial

In April 2010, SMC was approved to undertake an Alternative Fuel Demonstration project under Certificate of Approval Number 2589-826K83. The purpose of the Demonstration Project was to demonstrate the use of alternative fuels at the facility and assess potential environmental effects associated with the use of alternative fuels at the facility relevant to baseline conditions. SMC completed the alternative fuel demonstration trials from May 11, 2011, to May 25, 2011.

Alternative Low Carbon Fuel Study

Perm Part 123 Perm Part 123 Eldinfield Rd Eldinfield Rd St. Marys Cement Property Boundary

In keeping with best practices being implemented around the world, SMC has initiated a study to support the preparation of an Amendment ECA Application under O. Reg. 79/15 of the *Environmental Protection Act* to permanently use ALCFs at the Site.

SMC is proposing to undertake studies and prepare an application to support the following:

- a daily throughput of ALCFs at the Site of up to 100 tonnes per day;
- develop a list of approved ALCFs for the Site based on the demonstration project at the Site and other facilities that include wood, paper or plastics that can not be recycled and are not odorous;
- install new equipment at the Site to feed ALCFs; and
- install ALCF storage at the Site using enclosed containers and buildings.

Public Meeting

In support of this application, and in accordance with O. Reg 79/15 and SMC's current ECA approval, SMC has scheduled the first of two public meetings. The first public meeting will be a drop-in, open house format. **You are welcome to attend any time between 6:00 p.m. and 8:00 p.m.** The meeting is designed to provide information on the intent to submit an application for the Site under O. Reg 79/15, present and discuss the results of the Demonstration Project, provide background information on ALCFs, and provide an overview of the studies that are being undertaken. Site plans and display panels with more details will be available for review at this public meeting and members of the Project Team will be circulating to answer questions throughout the evening. Please note that the Public Meeting will comply with all provincial and venue COVID-19 requirements, including the need for proof of vaccination.

Public Meeting / Open House #1 November 18, 2021, 6:00 p.m. to 8:00 p.m. St. Marys Golf & Country Club 769 Queen Street East, St. Marys, Ontario, N4X 1B6

Contact Us

St Marys Cement values your input on this matter. Please contact our Project Team for more information about this study or to be added to the contact list for future updates:

E-mail: StMarys_ALCF@golder.com

Ruben Plaza St. Marys Cement, Environmental Manager, Canada Phone: 905-243-5841 Kyla Suchovs Golder Associates Ltd. Environmental Assessment Specialist Phone: 416-524-1876

If you are unable to attend, information presented at the public meeting will be made available on the project website: http://www.stmaryscement.com/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels.aspx



Notice of Intention to Apply under Ontario Regulation 79/15 (O. Reg. 79/15) Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

Background

St. Marys Cement Inc. (SMC) a company of Votorantim Cimentos North America (VCNA) is undertaking efforts to use Alternative Low Carbon Fuels (ALCF) as an energy source for their St. Marys Cement Plant (the Site). This initiative will contribute to reducing greenhouse gas emissions in Ontario while diverting materials from landfills. The Site is located at 585 Water Street South, in St. Marys, Ontario. St. Marys Cement (SMC) has current Environmental Compliance Approval (ECA), Number 4546-AQ9GMB that was issued on August 31, 2017.

Demonstration Trial

In April 2010, SMC was approved to undertake an Alternative Fuel Demonstration project under Certificate of Approval Number 2589-826K83. The purpose of the Demonstration Project was to demonstrate the use of alternative fuels at the facility and assess potential environmental effects associated with the use of alternative fuels at the facility relevant to baseline conditions. SMC completed the alternative fuel demonstration trials from May 11, 2011, to May 25, 2011.

Alternative Low Carbon Fuel Study

Permed 122 Elgimfield Rd Elgimfield Rd St. Marys Cement Property Boundary

In keeping with best practices being implemented around the world, SMC has initiated a study to support the preparation of an Amendment ECA Application under O. Reg. 79/15 of the *Environmental Protection Act* to permanently use ALCFs at the Site.

SMC is proposing to undertake studies and prepare an application to support the following:

- a daily throughput of ALCFs at the Site of up to 175 tonnes per day;
- develop a list of approved ALCFs for the Site based on the demonstration project at the Site and other facilities that include wood, paper or plastics that can not be recycled and are not odorous;
- install new equipment at the Site to feed ALCFs; and
- install ALCF storage at the Site using enclosed containers and buildings.

Public Meeting

In support of this application, and in accordance with O. Reg 79/15 and SMC's current ECA approval, SMC has scheduled the first of two public meetings. The first public meeting will be a drop-in, open house format. **You are welcome to attend any time between 6:00 p.m. and 8:00 p.m.** The meeting is designed to provide information on the intent to submit an application for the Site under O. Reg 79/15, present and discuss the results of the Demonstration Project, provide background information on ALCFs, and provide an overview of the studies that are being undertaken. Site plans and display panels with more details will be available for review at this public meeting and members of the Project Team will be circulating to answer questions throughout the evening. Please note that the Public Meeting will comply with all provincial and venue COVID-19 requirements, including the need for proof of vaccination.

Public Meeting / Open House #1 November 18, 2021, 6:00 p.m. to 8:00 p.m. St. Marys Golf & Country Club 769 Queen Street East, St. Marys, Ontario, N4X 1B6

Contact Us

St Marys Cement values your input on this matter. Please contact our Project Team for more information about this study or to be added to the contact list for future updates:

E-mail: StMarys_ALCF@golder.com

Ruben Plaza St. Marys Cement, Environmental Manager, Canada Phone: 905-243-5841 Kyla Suchovs Golder Associates Ltd. Environmental Assessment Specialist Phone: 416-524-1876

If you are unable to attend, information presented at the public meeting will be made available on the project website: http://www.stmaryscement.com/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels.aspx



Notice of Public Meeting #2

Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

Background

St. Marys Cement Inc. (SMC) a company of Votorantim Cimentos North America (VCNA) is undertaking efforts to use Alternative Low Carbon Fuels (ALCF) as an energy source for their St. Marys Cement Plant (the Site). This initiative will contribute to reducing greenhouse gas emissions in Ontario while diverting materials from landfills. The Site is located at 585 Water Street South, in St. Marys, Ontario. St. Marys Cement (SMC) has current Environmental Compliance Approval (ECA), Number 4546-AQ9GMB that was issued on August 31, 2017.

Demonstration Trial

Information about the Demonstration Trial can be found in the Notice of Public Meeting #1.

Alternative Low Carbon Fuel Study

In keeping with best practices being implemented around the world, SMC has initiated the preparation of an Amendment ECA Application under O. Reg. 79/15 of the *Environmental Protection Act* to permanently use ALCFs at the Site. SMC has been undertaking technical studies to support the

following:

- a daily throughput of ALCFs at the Site of up to 175 tonnes per day;
- develop a list of approved ALCFs for the Site based on the demonstration project at the Site and other facilities that include wood, paper or plastics that can not be recycled and are not odorous;
- install new equipment at the Site to feed ALCFs; and
- install ALCF storage at the Site using enclosed containers and buildings.

Public Meeting #2

Public Meeting #1 was held on November 18, 2021 to provide an overview of the studies being undertaken and the proposed ALCF application. In support of the application, and in accordance with O. Reg. 79/15 (as amended by O. Reg. 824/21), SMC has now scheduled the second public meeting to address comments received after the first public meeting, present the results of the technical studies, and provide next steps in the process.

Public Meeting #2 will be held as a virtual information session, consisting of a presentation given by members of the Project team and a question-and-answer period. You will be able to ask questions during the public meeting, but if you would like to submit questions ahead of time, please email us at the Project email address provided below. Due to restrictions related to COVID-19, and amendments made by O. Reg. 824/21, we will not be hosting an in-person meeting.

The virtual information session (webinar) will be held on Thursday February 3, 2022, at 6:00 p.m. to 8:00 p.m.

To participate in the virtual event, which will be held using GoToWebinar, please visit the Project website for the link to register for the event. Pre-registration is required.

http://www.stmaryscement.com/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels.aspx

Contact Us

St Marys Cement values your input on this matter. Please contact our Project Team for more information about this Project, of if you have any questions about the process, or how to participate in the virtual meeting:

E-mail: StMarys_ALCF@golder.com

Ruben Plaza St. Marys Cement, Environmental Manager, Canada Phone: 905-243-5841 Kyla Suchovs Golder Associates Ltd. Environmental Assessment Specialist Phone: 416-524-1876

If you are unable to attend, information presented at the virtual meeting will be made available on the Project website following the event.





Notice of Completion of the Consultation Report

Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

Background

St. Marys Cement Inc. (SMC) a company of Votorantim Cimentos North America (VCNA) is undertaking efforts to use Alternative Low Carbon Fuels (ALCF) as an energy source for their St. Marys Cement Plant (the Site). This initiative will contribute to reducing greenhouse gas emissions in Ontario while diverting materials from landfills. The Site is located at 585 Water Street South, in St. Marys, Ontario. SMC has current Environmental Compliance Approval (ECA), Number 4546-AQ9GMB, that was issued on August 31, 2017.

Alternative Low Carbon Fuel Study

In keeping with best practices being implemented around the world, SMC has initiated the preparation of an Amendment ECA Application under O. Reg. 79/15 of the *Environmental Protection Act* to use ALCFs at the Site. As part of the Amendment ECA Application, SMC is requesting approval to:

- operate with a daily throughput of ALCFs at the Site of up to 175 tonnes per day;
- use ALCFs that may include the following example ALCF materials that are grouped into the associated ALCF material baskets (as noted in parathesis):
 - shredded wood from post construction waste (Construction & Demolition By-Products and Biomass Materials baskets)
 - nested plastics and paper and shredded caps, labels and bags (Non-Recyclable Plastics and Non-Recyclable Paper Fiber/Wood/Plastic Composites baskets)
 - shredded conveyor belt rubber and shredded conveyor skirt rubber (Rubber materials (non-tire derived) basket)
 - install new equipment to feed ALCFs; and
- install ALCF storage using enclosed containers and buildings.

The above noted ALCFs would meet the criteria set out in O. Reg. 79/15.

In addition, SMC is seeking approval under O. Reg. 419/05 to use of Hydrogen as a fuel or for optimization of fuel combustion efficiency.

Consultation Report

SMC held two public meetings for this project, Public Meeting #1 on November 18, 2021 and Public Meeting #2 on February 3, 2022, in addition to other consultation undertaken to support this Project.

SMC has completed a Consultation Report for this project that is now available to interested parties to view on the **Project website:** http://www.stmaryscement.com/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels.aspx

The Consultation Report provides a summary of all consultation activities that have been conducted throughout the study including the following:

- an overview of the information that was provided at the public meetings;
- a record of feedback that was received throughout the Project;
- a summary of any discussions that SMC had with Indigenous communities regarding the Project;
- · a description of what SMC did to respond to concerns expressed during the consultation process; and
- copies of all notices, reports and other materials prepared for and used in the public meetings.

ALCF Application to MECP

SMC will be submitting the ALCF Application under O. Reg 79/15 for an Amendment to their current ECA (end of March 2022).

In addition to the Consultation Report, further information about this study, including materials from Public Meeting #1 and Public Meeting #2, are available on the Project website noted above.

Contact Us

St Marys Cement values your input on this matter. Please contact our Project Team for more information about this Project, or if you have any questions about the process:

E-mail: StMarys_ALCF@golder.com

Ruben Plaza St. Marys Cement, Environmental Manager, Canada Phone: 905-243-5841 Kate Liubansky Golder Associates Ltd. Air Quality Specialist Phone: 905-567-4444



APPENDIX B

Project Website

March 2022

St Marys Alternative Low Carbon Fuels

St Marys Alternative Low Carbon Fuels

Home () / Sustainability (/Pages//Sustainability)

/ St Marys Alternative Low Carbon Fuels (https://www.stmaryscement.com/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels.aspx)

Background

St. Marys Cement (SMC) a company of Votorantim Cimentos North America (VCNA) is undertaking efforts to use Alternative Low Carbon Fuels (ALCF) as an energy source for their St Marys Cement Plant (the Site). This initiative will contribute to reducing greenhouse gas emissions in Ontario while diverting materials from landfills. The Site is located at 585 Water St. S in St Marys, Ontario.

Notice of Public Meeting

Public Meeting/Virtual Meeting #2 February 3, 2022, 6:00 p.m. to 8:00 p.m.

Please register for Public Meeting #2: St Marys Cement, Alternative Low Carbon Fuel Use on Feb 3, 2022 6:00 PM EST at:

https://attendee.gotowebinar.com/register/2667704800762151951 (https://attendee.gotowebinar.com/register/2667704800762151951)

After registering, you will receive a confirmation email containing information about joining the webinar.

Contact Us

St Marys Cement values your input on this matter. Please contact our Project Team for more information about this study or to be added to the contact list for future updates:

E-mail: StMarys_ALCF@golder.com

Ruben Plaza St Marys Cement, Environmental Manager, Canada Phone: 905-243-5841 Kyla Suchovs Golder Associates Ltd. Environmental Assessment Specialist Phone: 416-524-1876

Links

Public Meetings

Second Public Meeting - February 3, 2022 - Notice of Meeting Notice-PublicMeeting2.pdf (/PublishingImages/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels/Notice-PublicMeeting2.pdf)

Second Public Meeting - February 3, 2022 - Presentation VCNA SMC Alt Fuels Public Meeting 2 Feb 3, 2022 Presentation - Final.pdf (/PublishingImages/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels/VCNA%20SMC%20Alt%20Fuels%20Public%20Meeting%202%20Feb%203%2c%202022%20Pres entation%20-%20Final.pdf)

First Public Meeting - November 18, 2021- Presentation Boards VCNA SMC Alt Fuels - Public Meeting - 18Nov21 - Display Boards (/SMC%20ALCF/VCNA%20SMC%20Alt%20Fuels%20- %20Open%20House%201%20-%20Display%20Boards%20-%20Final%20%281%29.pdf)

First Public Meeting - November 18, 2021 - Notice of Intent/Meeting - <u>Notice-Intention to Apply-</u> <u>PublicMeeting_04Nov21.pdf (/SMC%20ALCF/Notice-Intention%20to%20Apply-</u> <u>PublicMeeting_04Nov21.pdf)</u>

Reports

2021 Emission Summary Dispersion Model - St Marys Cement 2021 Emission Summary Dispersion Model Executive Summary.pdf (/PublishingImages/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels/St%20Marys%20Cement%202021%20Emission%20Summary%20Dispersion%20Model%20Execut ive%20Summary.pdf)

2021 Acoustic Assessment Report - St Marys Cement 2021 Acoustic Assessment Report Executive Summary.pdf (/PublishingImages/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels/St%20Marys%20Cement%202021%20Acoustic%20Assessment%20Report%20Executive%20Sum mary.pdf)

Newspaper Articles

St. Marys Cement Looking To Switch To Low Carbon Fuels (https://stmarysindy.com/news/article.php?St.-Marys-Cement-looking-to-switch-to-low-carbon-fuels-482)

St. Marys ALCF meeting Feb 2022 Article.pdf (/PublishingImages/Pages/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels/St.%20Marys%20ALCF%20meeting%20Feb%202022%20Article.pdf)

<u>Links</u>

St Marys Cement Community Liaison Committee (/Pages/Sustainability/Community-Liaison-Committee.aspx)

Company

About Us (/Pages/Company/About Us.aspx) History (/Pages/Company/History.aspx) Locations (/Pages/Company/Locations.aspx) Location Finder (/Pages/Company/Location-Finder.aspx) ESTMA Reports (/Pages/Company/ESTMA-Reports.aspx) Hutton Transport (/Pages/Company/hutton-transport.aspx) Industry Links (/Pages/Company/industry-links.aspx) Compliance & Code of Conduct (/Pages/Company/compliance-and-code-of-conduct.aspx)

Products & Services

Portland Cements (/Pages/Products and Services/Portland-Products.aspx) Blended Cement (/Pages/Products and Services/Blended-Cement.aspx) Slag Cement (/Pages/Products and Services/Slag-Cement.aspx) Masonry Cements (/Pages/Products and Services/Masonry-Products.aspx) Brochures (/Pages/Products and Services/Brochures.aspx) Data Sheets (/Pages/Products and Services/data-sheets.aspx) Safety Data Sheets (/Pages/Products and Services/data-sheets.aspx) Environmental Product Declaration (/Pages/Products and Services/Enviornmental-Product-Declaration.aspx)

Investors

Be a Customer

Sales Terms and Conditions (/Pages/Be a Customer/Sales-Terms-and-Conditions.aspx) Customer Portal (/Pages/Be a Customer/Customer-Portal.aspx)

Sustainability

Alternative Low Carbon Fuels Project (/Pages/Sustainability/AlternativeLowCarbonFuelsProject.aspx) Our Commitment (/Pages/Sustainability/Our-Commitment.aspx) Economic (/Pages/Sustainability/Economic.aspx) Social Responsibility (/Pages/Sustainability/Social Responsibility.aspx) Environment (/Pages/Sustainability/Environment.aspx) Health and Safety (/Pages/Sustainability/health-and-safety.aspx) Sustainable Development (/Pages/Sustainability/Sustainability Development.aspx) Bowmanville Community Relations (/Pages/Sustainability/Bowmanville-CRC.aspx) Dixon IL Blasting Schedule (/Pages/Sustainability/Dixon-IL-Blasting-Schedule.aspx) Town of St Marys Community Liaison Committee (/Pages/Sustainability/Community-Liaison-Committee.aspx) Bowmanville Environment (/Pages/Sustainability/Integrated-Report.aspx)

Careers

Careers (/Pages/Careers/Default.aspx)

Media

News (/Pages/Media Centre/News.aspx)



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APPENDIX C

Public Meeting Materials

Welcome to Public Meeting #1

Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

November 18, 2021





Introduction

- St. Marys Cement Plant is currently approved to operate under an Environmental Compliance Approval (ECA) that includes kiln operations using the following fuels:
 - Conventional Fuel
 - petroleum coke, coal and natural gas for regular firing
 - diesel, propane and natural gas for pre-heating during start-up
 - Fuel Adjunct Material
 - solid fuel as supplementary fuels including carbon dust, metallurgical coke and carbon black
- St. Marys Cement proposes to use Alternative Low Carbon Fuels (ALCFs) at the Site as part of its strategy to reduce greenhouse gas emissions, adapt to a low-carbon economy, support the circular economy, in keeping with best practices implemented around the world
- St. Marys Plant has commenced the application to amend the current ECA for the Site to incorporate the following:
 - allow for the permanent use of ALCFs; and
 - include Hydrogen in the list of fuels used at the Site
- The amendment application will be prepared under O. Reg. 79/15
 Alternative Low Carbon Fuels
 - The 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





Overview of Public Meeting #1

- St. Marys Cement, a company of Votorantim Cimentos North America (VCNA), is undertaking efforts to use Alternative Low Carbon Fuels (ALCF) as an energy source for their St. Marys Cement (SMC) Plant
- Today our Project Team is here to discuss the following areas of interest and hear your feedback:

SMC Plant Overview

- SMC Plant & the Community
- Cement Industry & Production

ALCF Overview

- What are ALCFs?
- Examples of ALCFs
- ALCFs Around the World
- O. Reg. 79/15 Overview

ALCF at SMC

- ALCFs & Cement Production
- Initial ALCF Project
- Proposed ALCFs for the SMC Plant
- Timeline

Sustainability & Climate Change

- Sustainability Commitments
- Environmental Benefits
- Carbon Dioxide Emission Intensity Assessment Preparation

ALCFs & Environment

- Approach for Technical Studies
 - Air Quality
 - Noise
- Archeology
- Traffic



St. Marys Cement Plant

Site Overview

- St. Marys Cement Plant (SMC) is located at 585 Water Street South in St. Marys, Ontario
- SMC extracts limestone at the Thomas St. Quarry and processes it to produce clinker and cement for both Ontario and US markets
- The cement produced at the Site contributes to building infrastructure (e.g., roads, bridges, buildings) across Ontario and North America
 - Examples of projects using SMC products include the CN Tower, Pyramid Centre, St. Marys Memorial Hospital, and Maple Leaf Gardens
 - SMC has current Environmental Compliance Approval (ECA), Number 4546 AQ9GMB that was issued on August 31, 2017
 - In 2010, SMC was approved to undertake an Alternative Fuel Demonstration project under their Environmental Compliance Approvals (ECA) Number 2589-826K83



Site Facts

- Established in 1912, SMC has been a part of the Town of St. Marys, Ontario for over 100 years.
- Approved clinker capacity: 1,100,000 tonnes per year
- Manufactures nine different blends of cement:
 - Contempra cement
 - Masonry cement
 - Silica Fume blended cement
 - General Use cement
 - High Early cement
 - The other types of cement vary on strength and set time depending on what the end use is for.


St. Marys Cement and the Community



- The Site contributes to provide local jobs and support local economy:
 - Source of direct and indirect employment
 - SMC employs 3rd, 4th and even 5th generation residents of St. Marys
 - Over 120 jobs created on-site
 - SMC works with numerous suppliers and contractors and creating indirect jobs (e.g., truck drivers, electricians, millwrights, skilled professionals)
- SMC participates in local initiatives such as:
 - Opening of St. Marys Memorial Hospital
 - Donated land for the Canadian Baseball Hall of Fame
 - Provided resources for the growth of the swimming quarry
 - Redevelopment of Cadzow Park
 - Hockey teams
 - Local hospice



Community Liaison Community (CLC)

- In 2017, SMC formed the CLC with the Ontario Ministry of Environment, Conservation and Parks, community members and members of the Town council
- The CLC meets quarterly to discuss community concerns regarding cement plant operations, including odour, noise and dust



Site Certifications

- Environmental
 Management:
 ISO 14001 certified since
 2006
- Occupational Health & Safety: OSHAS 18001 certified since 2010
- Quality Management: ISO 9001 certified since 2006
- Energy Management: ISO 50001 certified since 2020



Cement and Concrete Industry in Ontario

Why is the cement industry important for Ontario?

- The cement industry is a vital participant in Ontario's economy
 - **54,000** direct and indirect jobs across Ontario
 - Generates over \$25 billion in direct, indirect and induced economic activity
- Six Cement Plants across Ontario
 - St. Marys Cement St. Marys
 - St. Marys Cement Bowmanville
 - Lafarge (Bath)
 - Lehigh (Picton)
 - CRH (Mississauga)
 - Federal White (Woodstock)
- Concrete operations across Ontario
 - **285** ready mixed concrete plants
 - 20 precast concrete plants
 - 11 concrete pipe plants

Industry's priorities:

- Deliver solutions that stimulate the economy, create jobs and protect taxpayer investment
- Innovation to enhance competitiveness and attract Ontario investment
- Protect the environment for future generations by embracing innovation and focusing on initiatives that deliver results and build climate-resilient communities

1 cubic metre

Estimated amount of concrete per Canadian used per year to build our homes, office towers and public spaces; pave our roads, highways, sidewalks and parking lots; construct sewers and water treatment facilities; build our bridges, ports, airports, dams, power plants and oil wells. Source: Cement Association of Canada (2019)

Concrete is the second material used most in the world after water¹



St. Marys Cement Production Process

Raw Material Processing

- Limestone is blasted from the face of the Quarry.
- Blasts occur 1-2x per month based on production needs.



- Limestone is combined with other raw materials to get the chemical composition required for clinker production.
- Full analysis is completed on the limestone and the other recycled raw materials feedstock to verify that they meet production and ECA requirements.

Clinker Process

• Raw material mixture is fed counter-flow through a preheater tower into a rotary kiln which transforms the mixture into clinker. The counter-flow system promotes energy efficiency and reduces some air emissions by "scrubbing effect" of the raw feed.



- The primary reaction in the rotary kiln is the conversion of calcium carbonate to calcium oxide under very high temperatures, resulting in raw materials reaching over 1,500°C.
- Most trace metals contained in the raw materials are retained in the clinker resulting in very low air emissions of these compounds.



- The clinker is cooled and combined with gypsum and limestone in a grinding mill to make cement.
- SMC manufactures 9 different types of cement, which a range of strengths and set times.



- Cement is packaged in bags which can be purchased individually at hardware stores or shipped in bulk trucks for large projects (e.g., the Pyramid Centre in St. Marys).
- Cement is essential to our way of life and key to the construction of durable infrastructure around us including buildings, bridges, and roads.







Alternative Low Carbon Fuels

What are Alternative Low Carbon Fuels (ALCFs)?

In accordance with O. Reg. 97/15, ALCFs are fuels that have a carbon dioxide emission intensity less than coal or petroleum coke when combusted, and meet one of the two following descriptions:

1. The fuel

- Is not derived from or composed of any material set out in Schedule 1 of O. Reg. 79/15;
- Is wholly derived from or composed of materials that are biomass or municipal waste or a combination of both; and
- Has a high heat value of at least 10,000 megajoules per tonne (unless a fuel is wholly derived from or composed of materials that are solid biomass).

2. The fuel is wholly 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.



ALCF materials on conveyor belt

Example of an ALCF path



Construction & Demolition Waste



Waste Processing Plant

Materials

Recyclable



e.g., treated wood





Alternative Low Carbon Fuels

Examples of ALCFs

Non-Recyclable Plastics

- Materials from resource recovery facilities
- Plastics bags
- Shrink wrap packaging

Construction & Demolition

- Carpets and textiles
- Sawdust
- Floor laminates

Non-Recyclable Paper Fiber/Wood/Plastic Composites

- Single-serve coffee pods
- Paper towels
- Trimmings from paper recycling facilities

Biomass Fuel

- Sawdust
- Wood chips
- Wood

Other

- Treated wood
- Asphalt shingles
- Non-recyclable rubber

Examples of Materials That Are Not ALCFs*

Organic waste from food processing, distribution and preparation operations

- Food packing
- Restaurants and grocery stores
- Organic waste from wastewater treatment at food processing/preparation facilities

Biomass Compost

- Soil
- Leaf and yard waste collected or accepted by a leaf and yard waste system
- Compost produced by composting
- Organic waste material from a greenhouse, nursery, garden centre or flower shop

Other

- · Waste electrical and electronic equipment
- Used tires, shredded and chipped tires and crumb rubber recovered from used, chipped or shredded tires, except for tire fluff
- Asbestos waste
- Hazardous waste



Alternative Low Carbon Fuels

• There has been a long history of alternative fuels used in cement production around the world¹





- The European Cement Association estimates that by 2050, 40% of kiln energy could potentially come from traditional sources (e.g., coal and petroleum coke), while 60% of kiln energy could potentially be provided by alternative fuels of which 40% could be biomass. The fuel mix would lead to an overall decrease of 27% in fuel CO₂ emissions²
- 1. The Pembina Institute and Environmental Defence. Alternative Fuel Use in Cement Manufacturing. Implications, Opportunities and barriers in Ontario, 2014.
- 2. CEMBUREAU, The European Cement Association. Alternative Fuels. 2018. https://lowcarboneconomy.cembureau.eu/5-parallel-routes/resource-efficiency/alternative-fuels/



Ontario Regulation 79/15

What is Ontario Regulation (O. Reg) 79/15, Alternative Low Carbon Fuels?

- 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 in place to:
 - **Help** reduce the use of coal and petroleum coke in Ontario
 - **Promote** reduction of greenhouse gases (GHG)
 - **Streamline** the use of Alternative Low Carbon Fuels
- The regulation defines the framework and controls for facilities that want to use the Alternative Low Carbon Fuels in terms of types and quantity of materials that can be used
- This regulation is proposed to be amended in the near future to reflect current market and environmental conditions [ERO Number 019-3544*]



Potential Set Up for an Enclosed ALCF Storage Container

"There is no 'singular' solution to reducing the impact of society on the environment."

Source: Concrete Council of Canada. Rediscover Concrete, Reducing our Footprint.



ALCFs at St. Marys Cement

How will the ALCFs be used in the production process?

- SMC is currently approved to use petroleum coke (petcoke), coal and natural gas as the conventional fuels for regular firing as well as diesel, propane and natural gas for pre-heating and during start-up
- SMC is also approved to use solid fuel as supplementary fuels, including carbon dust, metallurgical coke and carbon black
- ALCFs will be introduced into the kiln through solid fuel delivery system which operates at extremely high temperatures along with conventional fuels
- The fuel delivery system is interlocked with the plant control system
- ALCFs will not be used during the start-up and shut-down of the kiln





Initial ALCF Project

As per O. Reg. 79/15, the Initial ALCF Project (Demonstration Project) was undertaken in 2011 (May 11-25).

Purpose of Initial ALCF Project

- Operations Can SMC successfully utilize alternative fuels as defined in their ECAs to offset a portion of conventional fuel?
- Environment Can SMC meet all air quality standards and demonstrate that there is no statistically significant change in local air quality?



Summary of Results

- SMC complied with their Operational Limits and Performance Objectives, as well as O. Reg. 419/05 during the Initial ALCF Project
- There was no statistically significant difference in ambient air concentrations of any contaminant as a result of the use of alternative fuel, relative to baseline conditions



Proposed ALCF for St. Marys Cement Plant

As part of its Alternative Low Carbon Fuels (ALCFs) Project, St. Mary Cement (SMC) is proposing the following:

- daily throughput of ALCFs at the Site of up to 175 tonnes per day
- installation of new equipment at the Site to feed ALCFs
- installation of ALCF storage at the Site using enclosed containers and buildings

SMC is considering the use of the following mixtures of non-recyclable and non-odorous materials as ALCFs at its Plant:

Non-Recyclable Paper Fiber/Wood/Plastic Composites

single-serve coffee pods, printed papers, paper towels, rejects and trimmings from paper recycling facilities such as ragger tails (residue including plastic trimmings, staples, paper fibre and metal wire), end rolls and cores

Non-Recyclable Plastics

manufacturing rejects, material resource recovery facility rejects, plastics bags and packaging

Biomass Materials

sawdust, wood chips, wood, miscanthus grass, millet, sorghum, hemp, switch grass, and maize

Construction & Demolition By-Products

scrap wood, treated lumber, carpets, textiles, sawdust, floor laminates and asphalt shingles

Rubber Materials

weather stripping or other nontire derived materials



ALCFs at SMC – Process and Timeline

Initial ALCF Project Project Project	Continue Technical Studies	Public Meeting #2	Complete Technical Studies	Permit Application Preparation & Submission	Application Review
 Approval from MECP to undertake a Demonstration Project (completed in May 2011) 2011 Demonstration Project (completed in May 2011) Approach for technical studies 	 Air Emissions Assessment Carbon Dioxide Emission Intensity Assessment Traffic Impact Study Local Air Quality Study Respond to and address public comments 	 Summary of comments from Public Meeting #1 Results from technical studies 	 Emission Summary and Dispersion Modelling Report Noise Statement Traffic Impact Study Respond to and address public comments 	 Consultation Report All technical studies Application Package Submit the ALCF Application under O. Reg. 79/15 for an Amended Environmental Compliance Approval 	• MECP application review period 1-year guarantee
				March 2022	2023

Votorantim Cimentos Life is made to last

Sustainability and Climate Change

- Emissions from cement production account for ~7% of global greenhouse gas (GHG) emissions
- The global cement and concrete manufacturing industry has made the following commitments:
 - By 2030: reduce GHG emissions by 25%
 - By 2050: achieve carbon neutrality
- The Canadian cement sector is dedicated to reduce GHG emissions through:
 - Replacing conventional fuels with alternative low carbon fuels
 - Implementing transformative technologies such as carbon capture and reuse and other manufacturing innovations
- VCNA is committed to following the global and Canadian cement industry's commitments. VCNA is working to develop products that would be carbon neutral by 2050.

Pond Technologies

- SMC is working with Pond Technologies on developing carbon capture technology for reducing GHG emissions from industrial facilities
- The research focuses on carbon capture, optimization, and the use of algae as a product



Over the past 20 years in Canada, the energy required to produce 1 tonne of cement was reduced by 20%

Portland-Limestone Cement (PLC)

- PLC, or Contempra, is a lower carbon intensity cement that reduces greenhouse gases in concrete by 10%
- Produces concrete with the same strength, durability and performance







Sustainability and Climate Change

 SMC has shown it can replace conventional fuels with ALCFs, thereby reducing the amount of petroleum coke used in the production of company. 		 Ontario's Made in Ontario Environment Plan (November 2018) notes that the introduction of ALCFs will assist in addressing the following actions: 		
 Where possible, SMC will focus on using locally sourced ALCFs 	Reduce the use of on-renewable fossil fuels	Divert non- recyclable materials with significant heat value landfills	 Reduce the amount of materials having the potential to be used as fuel from going to landfills Increase opportunities to use technologies, such as thermal treatment, to recover valuable resources in waste 	
 Direct reduction in GHG emissions is due to: the lower CO₂ emission intensity of ALCFs replacing the amount of long-cycle carbon used with short-cycle carbon from plants Indirect reduction in GHG emissions is do organic materials from landfills, thus avoid organic material, resulting in methane releat environment 	ALCF educe Greenhouse Gas Emissions in Ontario	s will Support the Circular Economy model	 The strategy of the cement industry to use ALCF (e.g., non- recyclable materials) in their cement production process supports the Circular Economy model Focus on design for: Longevity Reuse Material/Energy Recovery 	



Sustainability and Climate Change

St. Marys Cement Decarbonization Strategy

Reduce greenhouse gases and create long term value

Emission target: Net Zero CO₂ concrete by 2050

--- Think globally, but act locally --

	J J J J J J J J J J	
Levers	Development	Operating Model
Clinker substitution	SCM Contracts, new sources & suppliers	Own development & partnership with suppliers
Alternative fuels	AFR know how, contracts and supplier quality	Own development & partnership suppliers' development
Energy efficiency	New equipment & learning curve	Own implementation
Innovation (technologies & products)	R&D and operational know how of green solutions	Partnership with industries, peers, universities and value chain

Advocacy: Carbon regulation, Independent verification, AFR, market development, concrete life cycle



Carbon Dioxide Emission Intensity Assessment

What is Carbon Dioxide Emission Intensity?

- Carbon Dioxide Emission Intensity is a form of measurement that allows different fuel types to be compared and is an indicator of the amount of Carbon Dioxide (CO₂), which is a Greenhouse Gas (GHG), that is emitted into the atmosphere when the fuel is used
- A lower CO₂ Emission Intensity value means that the material will release less CO₂. The lower intensity fuel sources used in cement production will have lower total carbon content, a higher biological carbon content and useful heat value

How does this project consider and measure Carbon Dioxide Emission Intensity?

 In accordance with O. Reg. 79/15, the CO₂ emission intensity calculations must be based on chemical analysis data of the conventional fuels and proposed ALCFs. As the carbon content of ALCFs may vary depending on the fuel supplier, St. Marys Cement is developing a fuel testing program to regularly monitor the CO₂ emission intensity of the ALCFs used at the Site

Type of Conventional Fuel	Typical CO ₂ emission intensity ¹ [kg of CO ₂ /MJ]			
Canadian bituminous coal	0.0855			
United States bituminous coal	0.0815			
Sub-bituminous coal	0.0903			
Anthracite coal	0.0863			
Petroleum coke	0.0826			

Typical Conventional Fuel

Alternative Low Carbon Fuels (ALCFs)

Type of ALCF	Estimated CO ₂ emission intensity ² [kg of CO ₂ /MJ]		
100% Wood	0		
100% Plastic	0.03 - 0.05		

1 Values of CO₂ emission intensities presented in O. Reg. 79/15 for facilities that facilities have not commenced manufacturing products such as clinker at an ALCF facility

2 Estimated from literature values



St. Marys Cement and the Environment

- The cement industry is closely monitored both Federally and Provincially
- The nature of the cement making process minimizes the potential environmental impacts from using ALCFs as extremely high temperatures are necessary to produce the clinker product
- The ECA requires compliance with O. Reg. 419/05 which protects human health and the environment and prescribes continuous emission monitoring (CEM) and record-keeping



- SMC submits air quality-related annual reports to the federal and provincial government, including:
 - Multi-Sector Air Pollutant Regulations requires the CEM to measure SO₂ & NOx and sets an emission intensity for these compounds per tonne of clinker
 - National Pollutant Release Inventory (NPRI) requires annual reporting of trace compounds and combustion products
 - Federal and Provincial GHG Reporting Programs require:
 - Third party verification of GHG emissions
 - Emission Performance Standards place a cost on the amount of GHG released



Air Emissions and Dispersion Modelling

What Do We Know?

Compliance with the Ministry Regulatory Air Limits

The Ministry has developed Province-wide Point of Impingement (POI) limits to protect human health and the environment.

The modelled maximum POI concentrations from St. Marys Cement, based on maximum operating scenarios, are currently below these limits.

Prior to implementing any changes at the Site, modelling is performed to confirm compliance with Ministry POI limits.



Proposed Approach for Emission Summary and Dispersion Modelling Report Update

The Site's Emission Summary and Dispersion Modelling Report will be updated to reflect the normal operational variability and allow for a broad range of ALCF operating conditions.

Compounds for Assessment:

- Inorganics (trace metals)
- Chlorinated compounds (HCl and organics)
- Volatile Organic Compounds (benzene)
- Polycyclic Aromatic Hydrocarbons (benzo(a)pyrene)
- Dioxins & Furans

Particulate Matter

 No changes to emissions are expected as emissions are controlled by pollution control equipment

Nitrogen Oxides and Sulphur Dioxide

 No changes to emissions are expected as they are monitored by Continuous Emission Monitoring and controlled by pollution control equipment

Odour

- ALCFs are not odourous (no organic component that would decompose)
- ALCFs will be stored indoors
- Fuel handling protocols will minimize fugitive emission
- ALCFs to be contracted through long-term suppliers



Local Air Quality



ECCC National Air Pollution Surveillance (NAPS) Monitoring Station

MECP St. Marys Air Monitoring Station (active 2017-2018)

St. Marys Cement (SMC) Plant

St. Marys Cement Plant Boundary



St. Marys

The annual monitored concentrations of NO_2 and SO_2 at the MECP Station were below the corresponding Canadian Ambient Air Quality Criteria (2017-2018).

London

The annual monitored concentrations of $PM_{2.5}$, NO_2 , NO and NO_x at the ECCC Station were below the corresponding Canadian Ambient Air Quality Criteria or Ontario's Ambient Air Quality Criteria (2014-2018).

Grand Bend

The annual monitored concentrations were lower than the concentrations monitored in London (2014-2018).



Noise (Acoustic) Assessment

What do we know?

 The sound emissions of the St. Marys Cement Plant are subject to the limits of the Ontario Ministry of the Environment, Conservation and Parks (MECP)



- The MECP limits are applicable to the total sound levels of the facility (rather than to individual equipment or activities), evaluated at surrounding sound-sensitive points of reception
- HGC Engineering maintains a detailed acoustical model of the Site and surrounding area, based on extensive acoustical measurements conducted of all non-negligible sound sources at the Facility

Proposed Approach

- Sound sources associated with the ALCF Project will be input into the model
- Based on assessments of other similar projects, sound sources associated with the ALCF Project are not anticipated to contribute significantly to the total sound emissions of the Facility





Supplementary Technical Studies – Archaeology

What do we know?

- No Archaeological Assessments have been undertaken within the SMC – St. Marys Site
- There are currently no archaeological sites registered in the Ontario Archaeological Sites Database within a 1 km radius of the St. Marys Site/proposed building footprint

Proposed Approach: Stage 1 Archaeological Assessment

- Review of relevant archaeological, historical, and environmental literature pertaining to the Site
- Review of relevant historical mapping and aerial photographs of the Site
- Review of an updated list of archaeological sites within 1 km of the Site from the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI)
- Review of all archaeological assessments within 50 m of the Site
- Complete a property inspection





Supplementary Technical Studies – Traffic Impact Study

What do we know?

- Proposed ALCF truck volumes will account for a small volume of current truck traffic
- The sources of ALCFs are being finalized and potential sources include:
 - Northeast of the Site
 - Sarnia
 - Greater Toronto Area
- Trucks serving the St. Marys Cement Plant will not be routed through the Town of St. Marys
- It is proposed that trucks will use Perth Road 123 (south of facility) as the main access route
- Significant impacts to the roads used to access the SMC facility are not anticipated

Proposed Approach: Traffic Impact Study (TIS)

- Review and assess existing and future traffic conditions in terms of traffic volumes, capacity, operational issues and safety
- Assess potential traffic operational and safety implications of the increase in truck movements on the roads used for SMC access relative to existing conditions
- Review implications with respect to truck and weight restrictions and geometric limitations (e.g., at intersections)
- Provide recommendations with respect to traffic mitigation measures, if required







We want to hear from you!

How can you participate in this project?

- Talk to our team members today or fill out a comment form and we will respond
 - We would appreciate if you send your comment forms to us by December 17, 2021
- Visit our website: www.stmaryscement.com/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels
 - All notices and presentation materials will be posted on the Project website
- Contact us by Phone or Email:

StMarys_ALCF@golder.com





Alternative Low Carbon Fuel Use at St Marys Cement Plant Public Meeting / Open House #1 - Comment Form

We welcome your comments on the proposed application for expanded use of Alternative Low Carbon Fuels at the St Marys Cement Plant. We are collecting this information to help us understand and address your views.

Do you have any comments about the proposed application?

Do you have questions that you would like answered by our team?

Please turn over

If you would like a response to any of your questions from the Project Team please leave your contact details below and we will get back to you as soon as possible.

Name / Organization:	
Email:	
Phone:	
Address:	

Thank you for taking the time to fill out this comment form. If you require more time, you are welcome to take the form home and send it to:

StMarys ALCF@golder.com

Ruben Plaza VCNA, St. Marys Cement Environmental Manager, Canada Phone: 905-243-5841

Kvla Suchovs Golder Associates Ltd. **Environmental Assessment Specialist** Phone: 416-524-1876

Please send your comment forms by Friday December 17, 2021.

Alternative Low Carbon Fuel Use at St Marys Cement Plant Public Meeting / Open House #1 - Comment Form

Do you have any other comments?

Please send your comment forms by Friday December 17, 2021.

Supplementary Handout

Example of Alternative Low Carbon Fuels

- Biomass fuel derived directly from harvested plant and forest sources, from end-of-life agricultural sources, or wood waste, and includes but is not limited to sawdust, wood chips, wood, miscanthus grass, millet, sorghum, hemp, switch grass and maize
- Materials made predominantly from biomass (excluding biomass from animals, biomass from food processing and preparation operations, and odourous biomass)
- Non-recyclable plastics such as contaminated materials not fit for recycling or mixed debris from conveyor belt, plastics bags, shrink wrap packaging
- Non-recyclable paper fiber/wood/plastic composites, such as single-serve coffee pods, paper towels, trimmings from paper recycling facilities (e.g., ragger tails), end rolls and cores
- construction & demolition waste, including but not limited to carpets, textiles, sawdust, floor laminates
- Tire fluff and non-recyclable rubber
- Compost materials which are not approved to be received at the facility or that does not meet compost quality specifications, such as plastic bags and woody materials
- Treated wood, including but not limited to railway ties, telephone poles
- Asphalt shingles

Examples of materials not considered as an Alternative Low-Carbon Fuel (ALCF) per Schedule 1 of O. Reg. 79/15

- Hazardous waste, except for liquid biomass that is ignitable waste only
- Waste that is both liquid waste and industrial waste, except for waste that is liquid biomass that has a high heat value of at least 10,000 megajoules per tonne
- Residue from the incineration of waste
- Asbestos waste
- Biomedical waste, treated biomedical waste, and sharps waste
- Dead animals and waste resulting from the rendering of animals or animal by-products
- Pesticides and empty pesticide containers
- A drug as defined by the Food and Drugs Act (Canada)
- Organic waste from food processing, distribution and preparation operations [examples: food packing, food preserving, wine making, cheese making, restaurants and grocery stores, including organic waste from the treatment of wastewater from facilities where food or feed is processed or prepared]
- Organic waste material from a greenhouse, nursery, garden centre or flower shop
- Source separated organics, except for residues generated by the processing of the waste
- Compost produced by composting
- Anaerobic digestion output
- Soil
- Non-combustible material, other than incidental amounts
- Used tires, shredded and chipped tires and crumb rubber recovered from used, chipped or shredded tires, except for tire fluff.
- · Blue box waste, except for the residues generated by the processing of the waste for the recovery of materials
- Leaf and yard waste, except for residues generated by the composting of the waste at a leaf and yard waste composting site
- Municipal hazardous or special waste, except for residues generated by the processing of the waste under a waste diversion
 program
- Waste electrical and electronic equipment, except for residues generated by the processing of the waste for the purpose of reuse or recycling under a waste diversion program

Note: Additional exclusions listed in Schedule 1 of O. Reg. 79/15 are associated with the following provincial regulations or documents:

- Ontario Regulation 347 General Waste Management
- Guideline C-4: The Management of Biomedical Waste in Ontario (November 2009)
- Ontario Regulation 102/94 (Waste Audits and Waste Reduction Work Plans)
- Ontario Regulation 103/94 (Industrial, Commercial and Institutional Source Separation Programs)
- Ontario Regulation 101/94 (Recycling and Composting of Municipal Waste)
- Waste Diversion Transition Act, 2016

Welcome to Public Meeting #2

Thank you for joining us, we will start at 6:05 pm

Alternative Low Carbon Fuel Use at the St Marys Cement Plant

585 Water Street South, St. Marys, Ontario

February 3, 2022





Meeting Format

2	?		
The project team will provide a presentation with information about the project.	A Q&A portion will be held after the presentation is finished.	Microphones of attendees will not be operational.	Use the questions panel to submit questions or comments throughout the presentation.
Inquiries will be addressed at var points during the presentation, ar the end during the Q&A portion	ious The virtua nd at session is b n.	al information T being recorded. availa the	The slide deck will be made able on the project website after e virtual information session.

We look forward to answering your questions and having a meaningful and respectful Q&A session with attendees.



How to Submit Questions





Introduction

- The St Marys Cement Plant is currently approved to operate under an Environmental Compliance Approval (ECA) that includes kiln operations using conventional fuels
- St Marys Cement (SMC), a company of Votorantim Cimentos North America (VCNA), proposes to use Alternative Low Carbon Fuels (ALCFs) at the Site as part of its strategy to reduce greenhouse gas emissions, adapt to a low-carbon economy, support the circular economy while keeping materials out of landfills, in keeping with best practices implemented around the world
- St Marys Plant has commenced the application to amend the current ECA for the Site to incorporate the following:
 - allow for the permanent use of ALCFs; and
 - include Hydrogen in the list of fuels used at the Site
- The amendment application will be prepared under O. Reg. 79/15
 Alternative Low Carbon Fuels (amended by O. Reg. 824/21)
- We are here today to share with you to present the progress since the first public meeting (November 2021)





Cement Association of Canada

- The Cement Association of Canada (CAC) represents the Cement manufacturers of Canada including St Marys Cement
- The Cement Industry is a vital participant in Ontario's economy
 - -50,000 direct and indirect jobs across the province
 - Generates over \$6 billion in economic activity and supports a
 \$37 billion construction industry
- Concrete is the foundation of economic development and prosperity, the world's most important building material
 - Twice as much concrete is used than all other materials combined
 - Second most consumed commodity in the world, second only to water
- The CAC is a strong supporter of the use of ALCFs as one of the options to reduce green house gases for the Cement Industry





Project Team

St Marys Cement

Kara Terpstra – Environmental Manager Alejandro Aviles – Operations Manager Robin Manzer – Production Manager Vanessa Barr – Human Resources Manager

VCNA

Ruben Plaza – Environmental Manager Bill Asselstine – Vice President Sustainability Wayne Probst – Director of Alternative Fuels and Raw Materials Joe Frost – Environmental Specialist Ywrrenan Amorim – Environmental Coordinator

> Votorantim Cimentos

\rm St Marys Cement

HGC Engineering Petr Chocensky – Senior Engineer



Golder Associates Ltd., Member of WSP

Sean Capstick – Principal, Sustainable Development and Climate Change Kate Liubansky – Air Quality Specialist Kyla Suchovs – Environmental Assessment Specialist

> **GOLDER** MEMBER OF WSP

BCX Environmental Consulting Bridget Mills – Senior Environmental

Engineer Xiaoxi (Winnie) Song – Senior Environmental Engineer





Process and Timeline

Initial ALCF Project	Public Meeting #1	Continue Technical Studies	Public Meeting #2	Complete Technical Studies	Permit Application Preparation & Submission	Application Review
 Approval from MECP to undertake a Demonstration Project (completed in May 2011) 	 Description of activities Fuel categories Approach for technical studies 	 Air Emissions Assessment Carbon Dioxide Emission Intensity Assessment Traffic Impact Study Local Air Quality Study Respond to and address public comments [by Dec 17] 	 Summary of comments from Public Meeting #1 Results from technical studies 	 Emission Summary and Dispersion Modelling Report Noise Statement Traffic Impact Study Respond to and address public comments 	 Consultation Report All technical studies Application Package Submit the ALCF Application under O. Reg. 79/15 for an Amended Environmental Compliance Approval 	• MECP application review period 1-year guarantee
			We Are Here	[by Feb 24]	March 2022	2023



Process and Timeline

Initial ALCF Project	Public Meeting #1	Continue Technical Studies	
 Approval from MECP to undertake a Demonstration Project (completed in May 2011) 	 Description of activities Fuel categories Approach for technical studies 	 Air Emissions Assessment Carbon Dioxide Emission Intensity Assessment Traffic Impact Study Local Air Quality Study 	
2011	November 2021	Respond to and address public comments	
		[by Dec 17]	

- Public Meeting #1
 - No written comments or questions
 - Topics/comments/questions were recorded by VCNA/SMC/Consultants at the public meeting
- Community Liaison Committee
- Consultation with Indigenous Communities
- MECP second pre-submission consultation meeting
- Town of St. Marys
- Questions submitted to Project Email:
 - One prior to first public meeting
 - Two after first public meeting



Process and Timeline

Initial ALCF Project	Public Meeting #1	Continue Technical Studies	Public Meeting #2
 Approval from MECP to undertake a Demonstration Project (completed in May 2011) 	 Description of activities Fuel categories Approach for technical studies 	 Air Emissions Assessment Carbon Dioxide Emission Intensity Assessment Traffic Impact Study Local Air Quality Study 	 Summary of comments from Public Meeting #1 Results from technical studies
2011	November 2021	Respond to and address public comments [by Dec 17]	February 2022
			We Are Here

- Public consultation is a significant component of the permit application process
- Compilation of topics and questions from the consultation associated with the first public meeting
- Presentation of results of all technical studies which helped address the public's topics and questions
- Technical studies and reports that will support the permit application



Overview of Public Meeting #2

- Today, our Project Team will present the following topics of interest and respond to questions or concerns
- Our team consists of VCNA and SMC personnel as well as third-party consultants

Background

- SMC Cement Production
- SMC Current Compliance
- Air Quality Monitoring
- ALCFs and O. Reg. 79/15

ALCFs at SMC

- Proposed ALCFs
- Supporting Activities and Processes

Sustainability & Climate Change

- Sustainability Commitments and Environmental Benefits
- Carbon Dioxide Emission
 Intensity Assessment

ALCFs & Environment

- ALCF Compliance
 - Air Quality
- Noise

Supplementary Studies

- Archeology
- Traffic Impact Study



Use of ALCFs at St Marys Cement

What Will Remain the Same? What Will Change? Reduced amount of conventional fuel use Cement Production Process at Plant Process Process reduction in greenhouse gases Kiln operations at 1500°C Increased use of ALCFs in rotary kiln High temperatures and counter-flow of no change in compliance with O. materials to heat result in most of the trace Reg. 419/05 air quality standards compounds being retained in the product reduction in landfill materials Compliance -New Enclosed ALCF Storage Continued O. Reg. 419/05 Requirements Regulation no change in noise levels prevention of odour and dust Odour Abatement Plan Compliance nuisance Dust Best Management Practices Plan Permit Noise Abatement Action Plan Compliance – New Requirements under O. Reg. 79/15 Regulation & Complaint Program Permit Fuel Handling & Testing Manual SMC CEM & CPM Fuel Material QA/QC Monitoring SMC Source Testing MECP Ambient Monitoring



CEM – Continuous Emission Monitoring CPM – Continuous Process Monitoring QA/QC – Quality Assurance and Quality Control


Use of ALCFs at St Marys Cement

Environment

- Continued compliance with all Provincial and Federal regulations and requirements
- MECP limits the substances released into air that can affect human health and the environment through air quality standards through O. Reg. 419/05
- Local air quality has been monitored by the MECP and SMC's programs

Health

- Perth District Health Unit (PDHU) St. Marys Cement - Health Hazard Investigation Report (2018)
 - Report may be found on the Town of St. Marys website (Air Quality page)
 - PDHU found that while emissions from SMC are likely contributing to local air pollution levels, they are within the acceptable standards set out by the MECP to protect the environment and human health
 - PDHU examined local health data and data showed that there is no evidence of elevated rates of adverse health outcomes in St. Marys





Background





St Marys Cement Production Process

Raw Material Processing

- Limestone is blasted from the face of the Quarry.
- Blasts up to 1-2x per week based on production needs.



- Limestone is combined with other raw materials to get the chemical composition required for clinker production.
- Full analysis is completed on the limestone and the other recycled raw materials feedstock to verify that they meet production and ECA requirements.

Clinker Process

• Raw material mixture is fed counter-flow through a preheater tower into a rotary kiln which transforms the mixture into clinker. The counter-flow system promotes energy efficiency and reduces some air emissions by "scrubbing effect" of the raw feed.



- The primary reaction in the rotary kiln is the conversion of calcium carbonate to calcium oxide under very high temperatures, resulting in raw materials reaching **over 1,500°C**.
- Most trace metals contained in the raw materials are retained in the clinker resulting in very low air emissions of these compounds.



- The clinker is cooled and combined with gypsum and limestone in a grinding mill to make cement.
- SMC manufactures 9 different types of cement, with a range of strengths and set times.



- Cement is packaged in bags which can be purchased individually at hardware stores or shipped in bulk trucks for large projects (e.g., the Pyramid Centre in St Marys).
- Cement is essential to our way of life and key to the construction of durable infrastructure around us including buildings, bridges, and roads.







Current Compliance – Air Quality

Compliance with the Ministry Regulatory Air Limits

SMC is operating under their air ECA No. 4546-AQ9GMB, dated August 31, 2017. This ECA is an ECA with limited operational flexibility which requires the facility to keep their air assessment up-to-date and to report to the Ministry annually.

The air assessment requires the facility to demonstrate compliance with the Ministry's Point of Impingement (POI) limits to protect human health and the environment.

Under maximum emissions scenarios, the Facility is below these limits. The latest air assessment (ESDM) results can be found on SMC's website.

The ECA also contains the following conditions:

- Continuous Emissions Monitoring for NOx, SO₂ and Opacity
- Raw materials and conventional fuel analysis
- Best management practices plan for fugitive dust

Emission Control Technology

Kiln Stack: Main baghouse and by-pass precipitator (particulate) Ammonia injection system (NOx)

Material/Product Transfer and Storage: 60+ baghouses

Voluntary Annual Source Testing

The plant conducts annual source testing for key contaminants of concern outside the requirements of the current ECA.



*Trace amounts including: Other Sulphur Compounds, Volatile Organic Compounds, Hydrochloric Acid, Particulates, Ammonia, Metals, Polycyclic Aromatic Hydrocarbons,Dioxins & Furans

Odour Abatement Action Plan

Per the ECA, SMC developed and implemented an odour abatement action plan that was approved by the Ministry. The plan included source testing, materials/conventional fuel testing and odour modelling.

Through the plan, SMC identified that the primary source of odours is the natural make up of the raw materials.

To date, SMC has installed a 30m stack extension to improve dispersion. SMC is currently assessing the effectiveness of the stack extension using the Envirosuite monitoring program and complaints data.

Progress on the plan is reported through the Community Liaison Committee.



Current Compliance – Noise

- Existing noise emissions regulated via Environmental Compliance Approval, number 4546-AQ9GMB
- A 10-year long noise mitigation plan in place since 2017
- Equipment successfully mitigated include exhaust silencer at dryer plant and upgraded walls of secondary crusher building
- Upcoming measures: Main kiln stack
- Future: approximately 40 silencers and enclosures for ventilation fans, replacement cooling fans, etc.



Air Quality Monitoring

• Air quality monitoring in St. Marys involves the following components:



• These components help characterize the air quality in St. Marys



Air Quality Monitoring

- Local air quality monitoring
 - MECP Stationary Monitor in community (2017-2018)
 - MECP Mobile Air Monitoring Surveys (TAGA) (2016-2020)







Local Air Quality Monitoring – Annual Analysis



ECCC National Air Pollution Surveillance (NAPS) Monitoring Station

MECP St. Marys Air Monitoring Station (active 2017-2018)

St. Marys Cement (SMC) Plant St. Marys Cement Plant Boundary

St. Marys local air quality is comparable to London and is below the Annual AAQC/CAAQS

			SM - Stationary	NAPS - London	NAPS - Grand Bend					
Compound			1-year average	5-year average	5-year average					
	[µg/m]	[µg/m]	(Sep 1, 2017 - Aug 31, 2018)	(2014-2018)	(2014-2018)					
Benzene	0.45	—	Not Measured	0.4	Not Measured					
SPM	60	—	25.7	25.6	21.8					
PM _{2.5}	—	8.8	7.7	7.7	6.5					
NO ₂	—	22.6	10.0	11.4	5.9					
SO ₂	10.5	10.5	2.2	Not Measured	Not Measured					
Notes:	Temperature u	sed for conversion of CAA	QS in ppb to μg/m ³ = 25°C							
	Bolded numbe	Bolded numbers represent actual monitored concentrations; remaining values are calculated [PM2.5 = 54% of PM10, PM2.5 = 30% of SPM (Lall et al., 2004)]								
	No Annual AAQC or CAAQS for PM10									

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Local Air Quality Monitoring – Hourly Analysis

- 1-hour NO₂ Monitored Concentration
 - Compiled upwind and downwind data from St. Marys to characterize the local air quality and compare to London and Grand Bend





- 1-hour SO₂ Monitored Concentration
 - Not measures at London and Grand Bend
 - Mobile St. Marys Monitoring Summary (upwind and downwind):

		SM – Mobile					
Compound	1-hr AAQC	90th %ile of data points	Maximum data points				
Compound	[µg/m³]	from monitoring days	from monitoring days				
		(2017-2020)	(2017-2020)				
SO ₂	105	0.2	0.7				

St. Marys local air quality is comparable to London and is below the 1-hour AAQC



Air Quality Monitoring – Complaint Program

- Complaint Program
 - Envirosuite Complaint Response Tool (trial) Trajectory Analysis for Received Complaints





Air Quality Monitoring

- Two on-site air quality monitoring components:
 - Continuous Emissions & Process Monitoring (CEM & CPM) real-time monitoring
 - Source Testing kiln stack exhaust emission sampling





Air Quality Monitoring

- Air quality monitoring is in place to monitor and control the local air quality
- Air quality monitoring will continue during the future use of Alternative Low Carbon Fuels





[Background]

ALCFs at St Marys Cement





Ontario Regulation 79/15

What is Ontario Regulation (O. Reg) 79/15?

- O. Reg. 79/15, Alternative Low Carbon Fuels, came into force as of May 1, 2015, under the *Environmental Protection Act* and was recently amended to streamline the approval process
- The Ontario Government put this regulation in place to:
 - **Help** reduce the use of coal and petroleum coke in Ontario
 - Promote reduction of greenhouse gases (GHG)
 - **Streamline** the use of Alternative Low Carbon Fuels
- The regulation defines the framework and controls for facilities that want to use the Alternative Low Carbon Fuels in terms of types and quantity of materials that can be used



Potential Set Up for an Enclosed ALCF Storage Container

"There is no 'singular' solution to reducing the impact of society on the environment."

Source: Concrete Council of Canada. Rediscover Concrete, Reducing our Footprint.



ALCFs and O. Reg. 79/15

What are Alternative Low Carbon Fuels (ALCFs)?

In accordance with O. Reg. 97/15, ALCFs are fuels that have a carbon dioxide emission intensity less than coal or petroleum coke when combusted, and meet one of the two following descriptions:

1. The fuel

- Is not derived from or composed of any material set out in Schedule 1 of O. Reg. 79/15;
- Is wholly derived from or composed of materials that are biomass or municipal waste or a combination of both; and
- Has a high heat value of at least 10,000 megajoules per tonne (unless a fuel is wholly derived from or composed of materials that are solid biomass).

2. The fuel is wholly 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.



ALCF materials on conveyor belt

ALCE

Example of an ALCF path



Construction & Demolition Material





e.g., treated wood



Alternative Low Carbon Fuels

Examples of ALCFs

Non-Recyclable Plastics

- Materials from resource recovery facilities
- Plastics bags
- Shrink wrap packaging

Construction & Demolition

- Carpets and textiles
- Sawdust



Floor laminates

Non-Recyclable Paper Fiber/Wood/Plastic Composites

- Single-serve coffee pods
- Paper towels
- Trimmings from paper recycling facilities

Biomass Fuel

- Sawdust
- Wood chips
- Wood

Other

- Treated wood
- Asphalt shingles
- Non-recyclable rubber



Examples of Materials That Are Not ALCFs*

Organic waste from food processing, distribution and preparation operations

- Food packing
- Restaurants and grocery stores
- Organic waste from wastewater treatment at food processing/preparation facilities



Biomass Compost

- Soil
- Leaf and yard waste collected or accepted by a leaf and yard waste system
- Compost produced by composting
- Organic waste material from a greenhouse, nursery, garden centre or flower shop



Other

- Waste electrical and electronic equipment
- Used tires, shredded and chipped tires and crumb rubber recovered from used, chipped or shredded tires, except for tire fluff
- Asbestos waste
- Hazardous waste



*Schedule 1 of O. Reg. 79/15



ALCFs and O. Reg. 79/15

- Long history of alternative fuels used in cement production around the world for more than 20 years¹
- Six Cement Plants across Ontario
 - St Marys Cement St. Marys
 - St Marys Cement Bowmanville
 - ALCFs: shredded wood from post construction waste, nested plastics and paper, and shredded caps, labels and bags
 - Lafarge (Bath)
 - ALCFs: local supplies such as construction and demolition site debris (wood based), railway ties, and other energy
 containing materials that cannot be recycled
 - CRH (Mississauga)
 - Lehigh (Picton)
 - Federal White Cement (Woodstock)
- Canada Cement Industry (1990 to 2019)²
 - Conventional fuel use: reduced from 97% to 85%
 - Alternative fuels and mixed materials use: increased from 3% to 13%
- Europe has one of the highest alternative fuel substitution rate in the cement sector (almost 40%)

^{1.} The Pembina Institute and Environmental Defence. Alternative Fuel Use in Cement Manufacturing. Implications, Opportunities and barriers in Ontario, 2014

^{2.} Global Cement and Concrete Association, GNR PROJECT Reporting CO2 (https://gccassociation.org/gnr/)



ALCFs at St Marys Cement

How will the ALCFs be used in the production process?

- SMC is currently approved to use petroleum coke (petcoke), coal and natural gas as the conventional fuels for regular firing as well as diesel, propane and natural gas for pre-heating and during start-up
- SMC is also approved to use solid fuel as supplementary fuels, including carbon dust, metallurgical coke and carbon black
- ALCFs will be introduced into the kiln through solid fuel delivery system which operates at extremely high temperatures along with conventional fuels
- The fuel delivery system is interlocked with the plant control system
- ALCFs will not be used during the start-up and shut-down of the kiln





Proposed ALCFs

- As part of its Alternative Low Carbon Fuels (ALCFs) Project, St Mary Cement is proposing the following:
 - daily throughput of ALCFs at the Site of up to 175 tonnes per day [t/d]
 - installation of new equipment at the Site to feed ALCFs
 - installation of ALCF storage at the Site using enclosed containers and buildings





Proposed ALCF for St Marys Cement Plant

SMC is considering the use of the following **mixtures** of non-recyclable and non-odorous materials as ALCFs at its Plant to target a 40% thermal replacement:



single-serve coffee pods, printed papers, paper towels, rejects and trimmings from paper recycling facilities such as ragger tails (residue including plastic trimmings, staples, paper fibre and metal wire), end rolls and cores

Non-Recyclable Plastics

manufacturing rejects, material resource recovery facility rejects, plastics bags and packaging

Biomass Materials

sawdust, wood chips, wood, miscanthus grass, millet, sorghum, hemp, switch grass, and maize

Construction & Demolition By-Products

scrap wood, treated lumber, carpets, textiles, sawdust, floor laminates and asphalt shingles

Rubber Materials

weather stripping or other nontire derived materials

The ALCF materials that will be used at the Cement Plant are:

- not derived from or composed of any material set out in Schedule 1 of O. Reg. 79/15 (e.g., not hazardous)
- wholly derived from/composed of materials that are biomass/municipal waste/a combination of both
- has a high heat value of at least 10 MJ/kg



Supporting Activities and Processes

- ALCF Handling Procedures and Testing Manual
 - Reception
 - ALCFs will be transported to the Facility in enclosed trailers
 - Material will be unloaded directly from the truck into the ALCF building to prevent fugitive emissions
 - ALCF Vendor Screening
 - Sampling and Testing (Quarterly)
 - Operational objectives: plant must ensure that the materials meet specifications related to particle size and moisture content so that the materials are suitable for injection into the process
 - Parameters: Moisture, total halogen content, caloric value, carbon content (biological and total)
 - Environmental objectives: metals/metal hydrides scan will be completed in accordance with the current adjunct fuel requirements in the plant's ECA
 - Parameters: metals and metal hydrides (e.g., Arsenic, Cadmium, Tin)
 - Storage



[ALCFs at St Marys Cement]

Sustainability & Climate Change





Sustainability and Climate Change

- Emissions from cement production account for ~7% of global greenhouse gas (GHG) emissions
- The global cement and concrete manufacturing industry has made commitments to reduce 25% of GHG emissions by 2030 and achieve carbon neutrality by 2050
- The Canadian cement sector is dedicated to reduce GHG emissions through replacing conventional fuels with ALCFs and implementing transformative technologies such as carbon capture and reuse and other manufacturing innovations
- VCNA is committed to following the global and Canadian cement industry's commitments. VCNA is working to develop products that would be carbon neutral by 2050.

St Marys Decarbo	Cement nization		Reduce greenhouse gases and create long term value					
5118	legy	l	Emis	ssion target: Net Zero CO ₂ concrete by Think globally, but act locally	/ 2050 -			
	Levers			Development		Operating Model		
C	Clinker substitution			SCM Contracts, new sources & suppliers		Own development & partnership with suppliers		
	Alternative fuels Energy efficiency Innovation (technologies & products)		AFR know how, contracts an supplier quality			Own development & partnership suppliers' development		
			New equipment & learning curve R&D and operational know how of green solutions			Own implementation		
Innova						Partnership with industries, peers, universities and value chain		

Advocacy: Carbon regulation, Independent verification, AFR, market development, concrete life cycle



CO₂ Emission Intensity Assessment

What is Carbon Dioxide Emission Intensity?

- Carbon Dioxide Emission Intensity is a form of measurement that allows different fuel types to be compared and is an indicator of the amount of CO₂, which is a GHG, that is emitted into the atmosphere when the fuel is used
- A lower CO₂ Emission Intensity value means that the material will release less CO₂.

How does this project consider and measure Carbon Dioxide Emission Intensity?

- In accordance with O. Reg. 79/15, the CO₂ emission intensity calculations must be based on chemical analysis data of the conventional fuels and proposed ALCFs
- The CO₂ emission intensity calculation for conventional fuels is based on the total amount of carbon as there is no biogenic carbon contained in conventional fuel
- The CO₂ emission intensity calculation for ALCFs is based on the amount of non-biogenic carbon amount as that is the main contributor to climate change



 As the carbon content of ALCFs may vary depending on the fuel supplier, St Marys Cement's fuel testing program to regularly monitor the CO₂ emission intensity of the ALCFs used at the plant will be part of the ALCF Handling Procedures and Testing Manual



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CO₂ Emission Intensity Assessment

Parameters of CO₂ Emission Intensity Calculation:

Type of Fuel	Conventional Fuel	Alternative Low Carbon Fuels								
		Shredded woo	d from post cons	truction waste	Nested plastics and paper	Shredded caps, labels and bags	Shredded conveyor belt rubber			
	Petcoke	Supplier 1	Supplier 2	Supplier 3	Supplier 4	Supplier 5	Conveyor belt rubber*			
High Heat Value [MJ/kg]	32.95	15.61	17.18	17.57	18.34	28.28	34.28			
Non-Biological Carbon [% wt]	—	0.39%	0.87%	0.0%	20%	51%	25.5%			
CO ₂ Emission Intensities [kg CO ₂ /MJ]	0.0931	0.0009	0.0019	0.0000	0.0401	0.0659	0.0273			
Notes:	Petcoke parameters are based on the average of six samples *Published literature was used to estimate CO ₂ Emission Intensity while St Marys Cement awaits laboratory results of % biogenic carbon									

- The ALFCs meet the requirements in O. Reg. 79/15
- CO₂ emission intensity: ALCFs < Petcoke
 ALCFs High Heat Value > 10 MJ/kg

CO₂ Emission Intensity Calculations:

Conventional Fuel

 CO_2 emission intensity = $CC_{total} \times 3.67/HHV$

ALCFs

 CO_2 emission intensity = $CC_{non-bio} \times 3.67/HHV$

 $CC_{non-bio}$ = total carbon [%wt] x (1 - biological carbon [% wt])



CO₂ Emission Intensity Assessment

- The maximum throughput of ALCFs is anticipated to be 175 tonnes per day [t/d]
- For comparison, a petcoke-only scenario (Baseline) was compared to an ALCFs blend scenario (ALCF Mixture)



	Petcoke		Petcoke	ALCF Mixtur
Maximum Throughput [tonne/day]	288	Maximum Throughput [tonne/day]	193	175
Average Fuel HHV [MJ/kg]	32.95	Average Fuel HHV [MJ/kg]	32.95	17.82
Maximum Required Heat Input [GJ/day]	9490	Maximum Required Heat Input [GJ/day]	6372	3118

ALCF 33% Thermal Replacement



[Sustainability & Climate Change]

Environment





ALCF Compliance

- St Marys Cement is preparing the application to amend the current ECA for the Site to incorporate the following:
 - allow for the permanent use of ALCFs; and
 - include Hydrogen in the list of fuels used at the Site.
- St Marys Cement's application will meet all the requirements under Section 9 of the Environmental Protection Act





ALCF Compliance – Air Quality

- Per the requirements of O. Reg. 419/05, a maximum emissions scenario for all contaminants of concern was assessed.
- A maximum emissions scenario reflects the maximum capacity of the facility and the facility's operational variability including a broad range of ALCFs.
- In reality, a maximum emissions scenario is never reached which means the predicted impacts are overestimated.
- A total of 104 Contaminants of Concern were assessed:
 - Inorganics (trace metals)
 - Chlorinated compounds (HCI and organics)
 - Volatile organic compounds (e.g. benzene)
 - Polycyclic aromatic hydrocarbons (e.g. benzo(a)pyrene)
 - Dioxins and Furans
 - Particulate Matter
 - Nitrogen Oxides and Sulphur Dioxide
 - Carbon Monoxide
 - Ammonia



*Trace amounts including: Other Sulphur Compounds, Volatile Organic Compounds, Hydrochloric Acid, Particulates, Ammonia, Metals, Polycyclic Aromatic Hydrocarbons, Dioxins & Furans



ALCF Compliance – Air Quality

- Kiln Stack Emission Estimation Methodology Maximum Emissions Scenario
 - Two emission estimation methods were used to calculate the maximum emission rates:

Process and Air Pollution Control Equipment Dominant Contaminants

 The maximum emission rate for each contaminant from all tests (2011 demonstration and annual testing) was used.

 Particulate, NOx, CO, Ammonia, nonchlorinated VOCs and PAHs

Kiln Input Dominant Contaminants

The maximum emission rate for each contaminant from all tests to date was prorated based on % change in total kiln input for that contaminant.

 Trace metals, Sulphur-based compounds including SO₂, Chlorinated compounds (HCl, organics including Dioxins and Furans)

- Actual source testing data from the St Marys Cement Plant and ALCF fuel analysis from the Bowmanville plant were used.
- The Facility will continue with their current monitoring efforts (CEMS and Raw Material QAQC). Once approved, the amended ECA is expected to have requirements for annual stack testing, ALCF material analysis and continuous processing monitoring (CPM) during the use of ALCF.



ALCF Compliance – Air Quality

ESDM Assessment Results

- All Compounds for Assessment are **below** their Ministry's Air Quality Standards under O. Reg. 419/05 (MECP POI Limits)
- The updated ESDM results show that the use of ALCF will not result in a change in local air quality
- Of the 104 compounds assessed,
 - 82 compounds were below 1% of the MECP POI Limits
 - Dioxins and Furans are less than 1% of the MECP POI Limit
 - 4 compounds were above 30% of the MECP POI Limits : particulate matter, respirable crystalline silica, nitrogen oxides and sulphur dioxide (for the 2023 1-hr standard)

0	Particulate	matter	is 55%	of the	POI	limit	(highest	result)
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Contaminant Name	CAS #	Maximum Total Emission Rate (g/s)	Air Dispersion Model Used	Maximum POI Concentration	Averaging Period		Ministry POI Limit	Limiting Effect	Ministry Regulation Schedule #	Percentage of Ministry POI Limit
Suspended Particulate Matter	PM	1.13E+01	AERMOD	6.63E+01	24 hr	24 hr	120	Visibility	3	55.2%
Gaseous Compounds										
Nitrogen Dioxide	10102-44-0	4.69E+01	AERMOD	1.95E+02	1 hr	1 hr	400	Health	3	48.8%
Nitrogen Dioxide	10102-44-0	4.69E+01	AERMOD	4.41E+01	24 hr	24 hr	200	Health	3	22.0%
Sulphur Dioxide	7446-09-5	3.45E+01	AERMOD	5.52E+01	1 hr	1 hr	690	Health & Vegetation	3	8.0%
Sulphur Dioxide	7446-09-5	3.45E+01	AERMOD	5.52E+01	1 hr	1 hr	100	Health	3 (July 2023)	55.2%
Sulphur Dioxide	7446-09-5	3.45E+01	AERMOD	8.46E+00	24 hr	24 hr	275	Health & Vegetation	3	3.1%
Sulphur Dioxide	7446-09-5	3.45E+01	AERMOD	1.03E+00	annual	annual	10	Vegetation	3 (July 2023)	10.3%
Metals										
Manganese	7439-96-5	1.86E-02	AERMOD	6.13E-02	24 hr	24 hr	0.4	Health	3	15.3%
Dioxin and Furans										
TOTAL Dioxin and Furans (TEQ)	CCD	1.19E-09	AERMOD	2.90E-10	24 hr	24 hr	0.0000001	Health	3	0.3%
Hydrogen Chloride										
Hydrogen Chloride	7647-01-0	1.23E+00	AERMOD	3.01E-01	24 hr	24 hr	20	Health	3	1.5%
Polycyclic Aromatic Hydrocarbons										
Benzo(a)pyrene	50-32-8	7.00E-06	AERMOD	1.71E-06	24 hr	24 hr	0.005	Health	DAV/URT	<0.1%
Benzo(a)pyrene	50-32-8	7.00E-06	AERMOD	1.63E-07	24 hr	Annual	0.0001	Health	AAV	0.2%
Benzo(a)pyrene	50-32-8	7.00E-06	AERMOD	1.63E-07	Annual	Annual	0.00001	Health	3	1.6%
Volatile Organic Compounds										
Benzene	71-43-2	1.10E+00	AERMOD	2.68E-01	24 hr	24 hr	100	Health	DAV/URT	0.3%
Benzene	71-43-2	1.10E+00	AERMOD	2.56E-02	24 hr	Annual	4.5	Health	AAV	0.6%
Benzene	71-43-2	1.10E+00	AERMOD	2.56E-02	Annual	Annual	0.45	Health	3	5.7%



ALCF Compliance – Noise

- Existing noise emissions regulated by the plant's current ECA
- Noise from the proposed ALCF project will be negligible relative to the overall sound levels from the plant
 - The ALCF operations will be located within a building noise will be contained indoors
 - Noise from truck deliveries will be minimal the maximum number of trucks associated with the project are estimated only at 5 between 7 am and 7 pm, and 4 between 7 pm and 7 am



[Environment]
Supplementary Technical Studies





Archeology

- Based on the criteria identified by the Ministry of Heritage, Tourism, Sport and Culture Industries for assessing archaeological potential, and compared to the historical and archaeological context of the Study Area/Proposed Building Footprint, it appeared the Study Area had archaeological potential for pre- and post-contact Indigenous resources as well as historical Euro-Canadian resources
 - This potential was determined by environmental factors such as the proximity of water sources and suitable soils as well as being located in an area of Blanshard Township with historical settlement dating to the mid-19th century







Archeology

- Entire Study Area has been subject to extensive belowgrade land disturbance in the 20th century
- It was concluded that any archaeological potential that may have existed in the Study Area has been removed as a result of quarrying in that area during the 20th century
- There is no potential for archaeological resources within the limits of the Study Area and as such no further archaeological work is recommended





Traffic Impact Study

What do we know?

- The suppliers of ALCFs are in the process of being evaluated. St Marys Cement will prioritize
 proximity to the cement plant
- Trucks serving the St Marys Cement Plant will not be routed through the Town of St. Marys
 - Trucks will use Perth Road 123 (south of facility) as the main access route

Traffic Impact Study

- Traffic volume data
 - Existing conditions based on 2015 and 2017 turning movement counts
 - Future volumes in 2023 based on a 1.2% annual linear growth rate
- Daily peak hours:
 - AM peak: 7:30-8:30 a.m.
 - PM peak: 4:30-5:30 p.m.
- Number of trucks in and out of the Site:
 - Existing conventional trucks:
 - 20 trucks in and 20 trucks out
 - Future ALCF trucks:
 - 2 trucks in and 2 trucks out





Traffic Impact Study

- Current traffic levels meet the Ministry of Transportation of Ontario's acceptable levels
- Traffic performance remains unchanged between existing and future conditions
 - Increase in ALCF trucks during the AM and PM peak hours do not have a major impact on traffic conditions
 - Traffic movements at stop approaches in future conditions continue operating at LOS C or better except for the southbound movement at James Street that operates at LOS D.





[Supplementary Technical Studies]



We want to hear from you!

How can you participate in this project?

- Talk to our team members today or fill out a comment form and we will respond
 - We would appreciate if you send your comment forms to us by February 24, 2022
- Visit our website: www.stmaryscement.com/Sustainability/St-Marys-Alternative-Low-Carbon-Fuels
 - All notices and presentation materials will be posted on the Project website
- Contact us by Phone or Email:

StMarys_ALCF@golder.com





APPENDIX D

Copies of Written Comments Received [Please note that personal information of public stakeholders has been removed for protection of privacy]



978 Tashmoo Ave. Sarnia, Ontario N7T 7H5 Ph.: 519-336-8410 Fax: 519-336-0382

November 10, 2021

St. Mary's Cement Plant

P.O. Box 1000, 585 Water Street South

St. Mary's, Ontario N4X 1B6

Attention: Kyla Suchovs

Golder Associates Ltd., Environmental Assessment Specialist

Re: Notice of Intention to Apply under Ontario Regulation 79/15 (O. Reg. 79/15)

Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

Dear Ruben,

Further to our letter dated October 28, 2021, Aamjiwnaang Environment Committee have requested further information on the project so a determination can be made as to any interest in further consultation. Please forward any relevant documentation to this office.

The Environment Committee is asking what Alternative Fuel will be used and could you provide more information on the type of fuel?

Miigwech,

Norman Joseph Environment/Interim Consultation Worker Aamjiwnaang First Nation 978 Tashmoo Avenue Sarnia, ON N7T 7H5 njoseph@aamjiwnaang.ca

SARNIA Indian

978 Tashmoo Ave. Sarnia, Ontario N7T 7H5 Ph.: 519-336-8410 Fax: 519-336-0382

November 18, 2021

St. Mary's Cement Plant

P.O. Box 1000, 585 Water Street South

St. Mary's, Ontario N4X 1B6

Attention: Kyla Suchovs

Golder Associates Ltd., Environmental Assessment Specialist

Re: Notice of Intention to Apply under Ontario Regulation 79/15 (O. Reg. 79/15)

Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

Dear Kyla,

Thank you for the information regarding this project dated October 28, 2021. This item has been reviewed by the Aamjiwnaang Environment Committee and they have a few questions and concerns regarding your project.

- 1. Will you be utilizing scrubbers?
- 2. Where will the waste come from?
- 3. Do you have a requirement to use air monitors?

It was also mentioned by the Committee to look at "Best Economical Control Technology" available on the market.

Miigwech,

Norman Joseph Environment/Interim Consultation Worker Aamjiwnaang First Nation 978 Tashmoo Avenue Sarnia, ON N7T 7H5 njoseph@aamjiwnaang.ca



CHIPPEWAS OF THE THAMES FIRST NATION

November 26, 2021

VIA EMAIL

Kyla Suchovs Golder Associates Ltd. Environmental Assessment Specialist StMarys_ALCF@golder.com

RE: Response to Notice of Intention to Apply for Use of ALCFs at St. Marys Cement

Dear Kyla,

We have received information concerning the aforementioned project. The proposed project is located within Chippewas of the Thames First Nation Traditional Territory and the Big Bear Creek Additions to Reserve (ATR) land selection area.

After reviewing the Notice, we have identified minimal concerns at this point. However, we will need to review the completed technical studies to confirm. As the project progresses and studies are completed, please forward an electronic copy to consultation@cottfn.com. Once we have the studies, we may request a meeting with our consultation and environment staff.

If there is an Archaeology Assessment conducted, we require notification and the opportunity to actively participate by sending First Nation Field Liaisons on behalf of this First Nation.

We look forward to continuing this open line of communication. To implement meaningful consultation, COTTFN has developed its own protocol - a document and a process that will guide positive working relationships. As per 'Appendix D' of the Wiindmaagewin, please find attached invoice #0190. Please do not hesitate to contact me if you need further clarification of this letter.

Sincerely,

genif mile

Jennifer Mills

Energy Sector Consultation Coordinator Chippewas of the Thames First Nation (519) 289-5555 ext. 236 consultation@cottfn.com

cc: Ruben Plaza, St. Marys Cement



CHIPPEWAS OF THE THAMES FIRST NATION

February 24, 2022

VIA EMAIL

Kyla Suchovs Golder Associates Ltd. StMarys_ALCF@golder.com

RE: Response to 2nd Public Meeting for Use of ALCFs at St. Marys Cement

Dear Kyla,

We have reviewed the slides for the 2nd public meeting. As previously noted, the proposed project is located within Chippewas of the Thames First Nation Traditional Territory and the Big Bear Creek Additions to Reserve (ATR) land selection area.

After reviewing the slides, we have identified minimal concerns. We are pleased to see St Marys Cement taking steps to reduce the use of petroleum coke and the site's greenhouse gas emissions.

We must note that we previously requested to be sent the completed studies and updates. I found notice of the 2nd public meeting by going on the project website. We'd like to reiterate that we require updates on the project to be emailed to us.

We currently have two questions for the project team to address.

1. We understand that the study area has been under excavation for many decades. However, at the Nov. 18th Open House, I learned that an archaeological study would still be completed. To determine that there is no potential for archaeological resources in the study area, was a Stage 1 assessment (or equivalent) completed? If so, please forward a copy of that assessment.

2. The slides note that potential biomass sources include miscanthus grass, millet, sorghum, hemp, switch grass, and maize. Would portion of the ALCFs do you anticipate coming from these kinds of biomass sources? Where would they be sourced from? Due to Ontario regulations, we know that these sources would not be waste from food processing. We have some concerns if the project would be taking significant amounts of primary agricultural products, which require water, land, and other resources to grow, to incinerate as fuel. We would like more details about this aspect.

We look forward to continuing this open line of communication. To implement meaningful consultation, COTTFN has developed its own protocol - a document and a process that will guide positive working relationships. As per 'Appendix D' of the Wiindmaagewin, please find attached invoice #0210. Please do not hesitate to contact me if you need further clarification of this letter.



CHIPPEWAS OF THE THAMES FIRST NATION

Sincerely,

Jennifer milk

Jennifer Mills

Energy Sector Consultation Coordinator Chippewas of the Thames First Nation (519) 289-5555 ext. 236 consultation@cottfn.com

cc: Ruben Plaza, St. Marys Cement

APPENDIX E

Correspondence Summary Table [Please note that personal information of public stakeholders has been removed for protection of privacy]

Alternative Low Carbon Fuel Use at the St. Marys Cement Plant

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
September 17, 2021	Meeting	Virtual	Agency	Shareen Han, Neryed Ragbar, Sushant Agarwal, Bob Slivar	MECP Permission and Program Services Unit	Ruben Plaza (VCNA); Kara Terpstra (SMC); Sean Capstick and Kate Liubansky (Golder WSP); Winnie Song (BCX)	Pre-Submission Meeting	Proje meet provi next
								SMC meet timin move
October 28, 2021	Newspaper	N/A	Public	Public	Public	N/A	Notice of Intent to Apply and Notice of Public Meeting #1	The I Publi
October 28, 2021	Canada Post Neighbourhood Mail ™ (unaddressed mail)	N/A	Public	Public	Public	N/A	Notice of Intent to Apply and Notice of Public Meeting #1	The I Publi Towr
October 28, 2021	Email	N/A	Indigenous Communities	Chief Chris Plain; Sharilyn Johnston; Dennis Plain; Chief Charles Sampson; Dean Jacobs; Jason Henry; Chief Jacqueline French; Theordore Albert; Emma Young; Fallon Burch; Chief Adrian Chrisjohn; Kailey Thomson; Sandra Doxator; Chief Mark Peters; Lori Fisher; Mary Duckworth; Brianna Sands; Tammy Jolicoeur	Aamjiwnaang First Nation; Walpole Island First Nation; Kettle and Stony Point First Nation; Chippewas of the Thames First Nation; Oneida of the Thames First Nation; Munsee Delaware Nation; Caldwell First Nation	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla conta invita enga planr SMC and c
October 28, 2021	Email	N/A	Federal Government Agencies	Fisheries Protection Program; EA Program, Ontario Region; Jennifer Hughes; Rob Dobos; Cynthia Brown	Fisheries and Oceans Canada; Transport Canada; Environment Canada; Indigenous and Northern Affairs Canada	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla conta invita
October 28, 2021	Email	N/A	Provincial Government Agencies	Bob Silvar; Sushant Agarwal; Andrew Neill; Steven McAvoy; Shareen Han; Jeffrey McKerral; Rob Wrigley; Jessica Ceneviva; Dan Cromp; Kieu Van; David Grisbrook; Krystyn Ordyniec; Michelle Knieriem; David Stubbs; Derek Seim; Khatera Safi; Ken Cornelisse; Andrew Ogilvie; Darlene Dove; Jennifer Graham Harkness; James Hamilton; Hon. Sylvia Jones; Samantha Gomez; Office of the Auditor General; Jenna Allain; Imtiaz Shah	Ministry of the Environment, Conservation and Parks; Ministry of Indigenous Affairs; Ministry of Municipal Affairs and Housing; Ministry of Northern Development, Mines, Natural Resources and Forestry; Ministry of Transportation; Ministry of Heritage, Sport, Tourism and Culture Industries; Ministry of the Solicitor General; Ministry of Labour, Training and Skills Development; Office of the Auditor General; Upper Thames River Conservation Authority	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla conta invita

mary of Communication

ect Team members from SMC and Golder attended a pre-submission ting with staff from MECP Permission and Program Services Unit to ide an overview of the Site, including the current approvals and confirm steps in obtaining permanent approval to use ALCFs.

C discussed the application process, including the approach for public tings, supporting documentation for the amendment ECA application, and of the amendment ECA application approval. SMC indicated they will e forward with the O. Reg. 79/15 Amendment ECA Application.

Notice of Intent to Apply under Ontario Regulation 79/15 and invitation to ic Meeting #1 was published in the *St. Mary's Independent* newspaper.

Notice of Intent to Apply under Ontario Regulation 79/15 and invitation to ic Meeting #1 was delivered to 3,997 residents/property owners in the n of St. Marys.

Suchovs (Golder, on behalf of SMC) emailed Indigenous community acts the Notice of Intent to Apply under Ontario Regulation 79/15 and ation to Public Meeting #1. Ms. Suchovs noted that SMC considers agement with Indigenous communities a critical component of the Project ning and development of environmental studies. Ms. Suchovs noted that C would be pleased to arrange a meeting to gather the community's input discuss the Project details.

Suchovs (Golder, on behalf of SMC) emailed federal government acts the Notice of Intent to Apply under Ontario Regulation 79/15 and tion to Public Meeting #1.

Suchovs (Golder, on behalf of SMC) emailed provincial government acts the Notice of Intent to Apply under Ontario Regulation 79/15 and ation to Public Meeting #1.

Appendix E - Alternative Low Carbon Fuel Use at the St. Marys Cement Plant Record of Consultation: Updated to March 24, 2022

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
October 28, 2021	Email	N/A	Municipal Government	Al Strathdee; Fern Pridham; Jim Craigmile; Lynn Hainer; Marg Luna; Robert Edney; Tony Winter; Jenna McCartney; Brent Kittmer; Dave Blake; Jed Kelly; Richard Anderson; Lizet Scott; Adam Kozlowski; Lori Wolfe; Sally McMullen; David Gundrum	Town of St. Marys; Township of Perth South; Perth County	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla conta invita
October 28, 2021	Email	N/A	Elected Officials	Hon. John Nater; Hon. Randy Pettapiece	MP – Perth-Wellington; MPP – Perth-Wellington)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla Notic Publi
October 28, 2021	Email	N/A	Community Liaison Committee (CLC)	CLC Members	CLC	Kara Terpstra (SMC)	Notice of Intent to Apply and Notice of Public Meeting #1	SMC Onta
October 28, 2021	Website	N/A	Public	Public	Public	N/A	Notice of Intent to Apply and Notice of Public Meeting #1	SMC and i
November 2, 2021	Email	N/A	Member of the Public	Member of the Public	Member of the Public	StMarys_ALCF@golder.c om	ALCF General Inquiry	A me abou
November 4, 2021	Newspaper	N/A	Public	Public	Public	N/A	Notice of Intent to Apply and Notice of Public Meeting #1	The I Publi
November 10, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om	Notice of Intent to Apply and Notice of Public Meeting #1	Aamj inqui more
November 11, 2021	Newspaper	N/A	Public	Public	Public	N/A	Notice of Intent to Apply and Notice of Public Meeting #1	An ai invita news throu tonne
November 11, 2021	Canada Post Neighbourhood Mail ™ (unaddressed mail)	N/A	Public	Public	Public	N/A	Notice of Intent to Apply and Notice of Public Meeting #1	An ai invita owne the p day t
November 11, 2021	Website	N/A	Public	Public	Public	N/A	Notice of Intent to Apply and Notice of Public Meeting #1	SMC 79/15
November 12, 2021	Email	N/A	Indigenous Communities	Chief Chris Plain; Sharilyn Johnston; Dennis Plain; Norm Joseph Chief Charles Sampson; Dean Jacobs; Jason Henry; Chief Jacqueline French; Theordore Albert; Fallon Burch; Jennifer Mills; Chief Adrian Chrisjohn; Kailey Thomson; Sandra Doxator; Chief Mark Peters; Lori Fisher; Mary Duckworth; Brianna Sands; Tammy Jolicoeur	Aamjiwnaang First Nation; Walpole Island First Nation; Kettle and Stony Point First Nation; Chippewas of the Thames First Nation; Oneida of the Thames First Nation; Munsee Delaware Nation; Caldwell First Nation	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla conta 79/15 chan tonne

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Suchovs (Golder, on behalf of SMC) emailed municipal government acts the Notice of Intent to Apply under Ontario Regulation 79/15 and ation to Public Meeting #1.

Suchovs (Golder, on behalf of SMC) emailed the local MP and MPP the ce of Intent to Apply under Ontario Regulation 79/15 and invitation to lic Meeting #1.

C emailed CLC members a copy of the Notice of Intent to Apply under ario Regulation 79/15 and invitation to Public Meeting #1.

C uploaded the Notice of Intent to Apply under Ontario Regulation 79/15 invitation to Public Meeting #1 to the Project website.

ember of the public emailed the Project Team to request more information ut burning plastics at the Site.

Notice of Intent to Apply under Ontario Regulation 79/15 and invitation to lic Meeting #1 was published in the *St. Mary's Independent* newspaper.

jiwnaang First Nation emailed the Project team to provide a letter, which ired about what alternative fuel will be used and asked that SMC provide e information on the type of fuel.

imended Notice of Intent to Apply under Ontario Regulation 79/15 and ation to Public Meeting #1 was published in the *St. Mary's Independent* spaper. The amended notice reflected a change in the proposed daily ughput of ALCFs at the Site from up to 100 tonnes per day to up to 175 es per day.

amended Notice of Intent to Apply under Ontario Regulation 79/15 and ation to Public Meeting #1 was delivered to 3,997 residents/property ers in the Town of St. Marys. The amended notice reflected a change in proposed daily throughput of ALCFs at the Site from up to 100 tonnes per to up to 175 tonnes per day.

C uploaded the revised Notice of Intent to Apply under Ontario Regulation 5 and invitation to Public Meeting #1 to the Project website.

Suchovs (Golder, on behalf of SMC) emailed Indigenous community acts an amended Notice of Intent to Apply under Ontario Regulation 5 and invitation to Public Meeting #1. The amended notice reflected a nge in the proposed daily throughput of ALCFs at the Site from up to 100 es per day to up to 175 tonnes per day.

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sur
November 12, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla to tł Env prej mec cou Kyla mec deta Not Pub dail 175
November 12, 2021	Email	N/A	Federal Government Agencies	Fisheries Protection Program; EA Program, Ontario Region; Jennifer Hughes; Rob Dobos; Cynthia Brown	Fisheries and Oceans Canada; Transport Canada; Environment Canada; Indigenous and Northern Affairs Canada	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla con 79/1 cha tonr
November 12, 2021	Email	N/A	Provincial Government Agencies	Bob Silvar; Sushant Agarwal; Andrew Neill; Steven McAvoy; Shareen Han; Jeffrey McKerral; Rob Wrigley; Jessica Ceneviva; Dan Cromp; Kieu Van; David Grisbrook; Krystyn Ordyniec; Michelle Knieriem; David Stubbs; Derek Seim; Khatera Safi; Ken Cornelisse; Andrew Ogilvie; Darlene Dove; Jennifer Graham Harkness; James Hamilton; Hon. Sylvia Jones; Samantha Gomez; Office of the Auditor General; Jenna Allain; Imtiaz Shah	Ministry of the Environment, Conservation and Parks; Ministry of Indigenous Affairs; Ministry of Municipal Affairs and Housing; Ministry of Northern Development, Mines, Natural Resources and Forestry; Ministry of Transportation; Ministry of Heritage, Sport, Tourism and Culture Industries; Ministry of the Solicitor General; Ministry of Labour, Training and Skills Development; Office of the Auditor General; Upper Thames River Conservation Authority	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla con 79/ ⁻ cha tonr
November 12, 2021	Email	N/A	Municipal Government	Al Strathdee; Fern Pridham; Jim Craigmile; Lynn Hainer; Marg Luna; Robert Edney; Tony Winter; Jenna McCartney; Brent Kittmer; Dave Blake; Jed Kelly; Richard Anderson; Lizet Scott; Adam Kozlowski; Lori Wolfe; Sally McMullen; David Gundrum	Town of St. Marys; Township of Perth South; Perth County	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla con 79/ ⁻ cha tonr
November 12, 2021	Email	N/A	Elected Officials	Hon. John Nater; Hon. Randy Pettapiece	MP – Perth-Wellington; MPP – Perth-Wellington)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply and Notice of Public Meeting #1	Kyla ame invil prop to u
November 12, 2021	Email	N/A	Community Liaison Committee (CLC)	CLC Members	CLC	Kara Terpstra (SMC)	Notice of Intent to Apply and Notice of Public Meeting #1	SM Ont noti Site

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a Suchovs (Golder, on behalf of SMC) emailed Aamjiwnaang First Nation hank them for providing the response letter on behalf of Aamjiwnaang *v*ironment Committee. Kyla Suchovs noted that the Project team is paring information regarding the proposed ALCFs for the upcoming public eting on November 18, 2021. Kyla Suchovs noted that the information ild be provided to Aamjiwnaang First Nation later that week once available. a Suchovs also noted that the Project team would be pleased to arrange a eting with the Aamjiwnaang Environment Committee to discuss the Project ails, if desired. Lastly, Kyla Suchovs provided a copy of the amended ice of Intent to Apply under Ontario Regulation 79/15 and invitation to blic Meeting #1. The amended notice reflected a change in the proposed ly throughput of ALCFs at the Site from up to 100 tonnes per day to up to 5 tonnes per day.

a Suchovs (Golder, on behalf of SMC) emailed federal government tacts an amended Notice of Intent to Apply under Ontario Regulation 15 and invitation to Public Meeting #1. The amended notice reflected a ange in the proposed daily throughput of ALCFs at the Site from up to 100 nes per day to up to 175 tonnes per day.

a Suchovs (Golder, on behalf of SMC) emailed provincial government tacts an amended Notice of Intent to Apply under Ontario Regulation 15 and invitation to Public Meeting #1. The amended notice reflected a ange in the proposed daily throughput of ALCFs at the Site from up to 100 nes per day to up to 175 tonnes per day.

a Suchovs (Golder, on behalf of SMC) emailed municipal government tacts an amended Notice of Intent to Apply under Ontario Regulation 15 and invitation to Public Meeting #1. The amended notice reflected a ange in the proposed daily throughput of ALCFs at the Site from up to 100 nes per day to up to 175 tonnes per day.

a Suchovs (Golder, on behalf of SMC) emailed the local MP and MPP an ended Notice of Intent to Apply under Ontario Regulation 79/15 and tation to Public Meeting #1. The amended notice reflected a change in the posed daily throughput of ALCFs at the Site from up to 100 tonnes per day up to 175 tonnes per day.

SMC emailed CLC members an amended Notice of Intent to Apply under Ontario Regulation 79/15 and invitation to Public Meeting #1. The amended notice reflected a change in the proposed daily throughput of ALCFs at the Site from up to 100 tonnes per day to up to 175 tonnes per day.

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
November 15, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Aam with note note
November 15, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Kyla Dece also
November 15, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Aam mee
November 16, 2021	Email	N/A	Member of the Public	Member of the Public	Member of the Public	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	ALCF General Inquiry	Kyla inforu upco enco and 19 pu indiv woul the F
November 17, 2021	Email	N/A	Indigenous Communities	Fallon Burch	Consultation Coordinator (Chippewas of the Thames First Nation)	StMarys_ALCF@golder.c om	Notice of Intent to Apply and Notice of Public Meeting #1	Chip a new First and t subn meau subn Cons
November 17, 2021	Email	N/A	Provincial Government Agencies	N/A	Minister of the Solicitor General	StMarys_ALCF@golder.c om	Notice of Intent to Apply and Notice of Public Meeting #1	The than Gene a suc
November 17, 2021	Meeting	St. Mary's Golf & Country Club	Public	Public	Public	SMC; Golder, CX Environmental Consulting, HGC Engineering	Public Meeting #1	Publi Golf wher mem regis team follow with
November 18, 2021	Website	N/A	Public	Public	Public	N/A	Public Meeting #1	SMC the F
November 18, 2021	Email	N/A	Municipal Government	Dave Blake	Environmental Services Supervisor (Town of St. Marys)	StMarys_ALCF@golder.c om	Notice of Intent to Apply and Notice of Public Meeting #1	The inter appli com mee awar

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jiwnaang First Nation emailed the Project team to advise that a meeting the Environment Committee would be great. Aamjiwnaang First Nation d availability for the Project team to present on December 7, 22021, and d that the meeting starts at 5:30 p.m.

Suchovs emailed Aamjiwnaang First Nation to note that availability on ember 7, 2021 would be confirmed with the Project team. Kyla Suchovs inquired whether the meeting would be held virtually or in-person.

ijiwnaang First Nation emailed the Project team to confirm that the ting on December 7, 2021 would be held virtually.

Suchovs emailed the member of the public that requested more mation about plastics at the Site and advised the individual that mation regarding the proposed ALCF use was being prepared for the oming public meeting to be held on November 18, 2021. Kyla Suchovs ouraged the member of the public to attend the public meeting if possible, provided details regarding the time, location, meeting format, and COVIDrecautions that would be in place. Kyla Suchovs noted that if the ridual was unable to attend the meeting in-person, the meeting materials Id be available on the Project website following the meeting; a hyperlink to Project website was provided.

ppewas of the Thames First Nation emailed the Project team to advise that w consultation record had been submitted to Chippewas of the Thames Nation. A summary of the Project was noted in the consultation record, the Chippewas of the Thames First Nation noted that the email confirms nission of the project to the Community KnowledgeKeeper and does not n that consultation has occurred. It was noted that a response to the nission would be provided within 45 days. A copy of the Wiindmaagewin sultation Protocol was also provided as an email attachment.

Ministry of the Solicitor General emailed the Project team to provide ks for the invitation to Public Meeting #1. The Ministry of the Solicitor eral noted regrets for their attendance, but noted hope that the meeting is ccess.

lic Meeting #1 was held between 6:00 p.m. and 8:00 p.m. at St. Mary's and Country Club. The public meeting was held as a drop-in format re attendees could come at any time, review the materials and speak with obers of the Project team. Twenty-six (26) attendees signed the sign-in ster upon arrival at the public meeting. Discussions between the Project of and members of the public included, but were not limited to, the wing topics: current operations; ALCFs (general); and future operations ALCFs.

C uploaded the presentation materials available at Public Meeting #1 to Project website.

Town of St. Mary's emailed the Project team to advise that there is est at a Town level to set-up a virtual meeting to discuss SMC's ication with interested Town staff. Given the interest within the munity regarding air emissions, the Town of St. Mary's noted that a ting with the Project Team may provide a better forum for Town staff to be re and informed of the Project.

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
November 18, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om	Notice of Intent to Apply and Notice of Public Meeting #1	Aam addi scru requ prefe tech
November 19, 2021	Email	N/A	Public	Public	Public	StMarys_ALCF@golder.c om	Contact List	A m the I
November 19, 2021	Email	N/A	Municipal Government	Dave Blake	Environmental Services Supervisor (Town of St. Marys)	Kara Terpstra (SMC)	Notice of Intent to Apply and Notice of Public Meeting #1	SMC inter was tenta stud the F sche pres
November 19, 2021	Email	N/A	Public	Public	Public	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Contact List	Kyla conf upda
November 19, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Kyla to th ques Such Aam 5:30 displ note Envi
November 23, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Aam bein Envi requ atter pres
November 23, 2021	Phone Call	N/A	Indigenous Communities	Rochelle Smith	Chippewas of the Thames First Nation	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Project Information	Chip (KM
November 26, 2021	Email	N/A	Indigenous Communities	Jennifer Mills	Energy Sector Consultation Coordinator (Chippewas of the Thames First Nation)	StMarys_ALCF@golder.c om	Notice of Intent to Apply and Notice of Public Meeting #1	Chip was Chip attac Chip mini Natio Chip Asse notif Field

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jiwnaang First Nation emailed the Project team with a letter containing tional questions regarding the Project. Questions asked included whether bbers would be utilized; where waste will come from; and if there is a irrement for the use of air monitors. Aamjiwnaang First Nation also noted erence for the Project team to look at the best economical control nology available on the market.

ember of the public emailed the Project team requesting to be added to Project contact list to receive further updates via email.

C emailed the Town of St. Mary's to thank them for reaching out and their est in the Project. SMC provided an overview of Public Meeting #1, which held the previous evening. SMC noted that Public Meeting #2 is atively scheduled for January 2022, and will present the results of the ies and formally address any questions and comments brought forward to Project team. SMC suggested that a meeting with Town staff be eduled directly before Public Meeting #2 so that the Project team can ent the results of the studies and discuss the concerns brought forward.

Suchovs (Golder, on behalf of SMC) emailed a member of the public to irm that they've been added to the Project contact list and will receive ates via email moving forward.

Suchovs (Golder, on behalf of SMC) emailed Aamjiwnaang First Nation ank them for the additional questions received and to note that the stions have been circulated to the Project team for response. Kyla novs confirmed that the Project team is available to meet with the jiwnaang First Nation Environment Committee on December 7, 2021 at p.m. A link to the Project website was also provided, noting that the lay boards from Public Meeting #1 were available online. Kyla Suchovs d that the Project team looks forward to meeting with the Aamjiwnaang ronment Committee on December 7, 2021.

jiwnaang First Nation emailed the Project team to confirm that time was g allocated for the Project team to provide a presentation to the ronment Committee on December 7, 2021. Aamjiwnaang First Nation lested email addresses for all Project team members that would be in indance and noted that 30-40 minutes would be allocated for the entation, accompanied by questions and answers.

ppewas of the Thames First Nation called Golder to request a spatial file Z) of the property boundary for the St. Marys Cement Plant.

ppewas of the Thames First Nation emailed the Project team to note that it great meeting staff at Public Meeting #1 on November 18, 2021. ppewas of the Thames First Nation provided a response letter as an email chment, and the corresponding invoice. The response letter noted that opewas of the Thames First Nation has reviewed the notice and identified mal concerns at this point, but noted that Chippewas of the Thames First on would need to review the completed technical studies to confirm. opewas of the Thames First Nation noted that if an Archaeology essment is conducted, Chippewas of the Thames First Nation requires ication and the opportunity to actively participate by sending First Nation d Liaisons on behalf of the First Nation.

Appendix E - Alternative Low Carbon Fuel Use at the St. Marys Cement Plant Record of Consultation: Updated to March 24, 2022

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
November 28, 2021	Email	N/A	Member of the Public	Member of the Public	Member of the Public	Kara Terpstra (SMC)	ALCF General Inquiry	A me in a o The burn publi outd mem will b
November 29, 2021	Email	N/A	Indigenous Communities	Rochelle Smith	Chippewas of the Thames First Nation	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Project Information	Kyla First Mary
December 1, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Aam the E requ Dece
December 1, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Kyla to pr Kyla woul Proje coule
December 2, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Aam copy
December 3, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Kyla to co 2021
December 3, 2021	Meeting	Virtual	Community Liaison Committee (CLC)	CLC Members	CLC	Kara Terpstra (SMC)	CLC Meeting	SMC mee Gold Tear over oppc
December 6, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Meeting	Kyla to pr Aam
December 7, 2021	Meeting	Virtual	Aamjiwnaang First Nation	Aamjiwnaang First Nation	Aamjiwnaang First Nation Environment Committee	SMC; Golder, CX Environmental Consulting, HGC Engineering	Aamjiwnaang First Nation Environment Committee Meeting	The Natio Com ALC inclu
December 7, 2021	Email	N/A	Indigenous Communities	Norm Joseph	Environment Committee (Aamjiwnaang First Nation)	StMarys_ALCF@golder.c om	Meeting	Aam Aam

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ember of the public emailed SMC to inquire if the use of ALCFs will result decrease in the tonnes per day of burn than the Site's current daily burn. member of the public also inquired if there was a possibility to do more ing during nighttime and less during daytime hours. The member of the ic noted that as a person with respiratory disease and a love for the oors, they find the current fumes from the Site quite noxious. The nber of the public noted they would like assurance that the use of ALCFs be a definite improvement.

Suchovs (Golder, on behalf of SMC) emailed Chippewas of the Thames Nation to provide a spatial file (KMZ) of the property boundary for the St. y's Cement Plant, as previously requested.

ijiwnaang First Nation emailed the Project team to provide a reminder for Environment Committee on December 7, 2021. Aamjiwnaang First Nation lested that a copy of the presentation be provided no later than noon on ember 2, 2021.

Suchovs (Golder, on behalf of SMC) emailed Aamjiwnaang First Nation rovide a list of Project team meeting attendees and their email addresses. Suchovs noted that providing the presentation by December 2, 2021 Id not be feasible, since this requirement was not something that the ect team was made aware of. Kyla Suchovs noted that the presentation d be provided to Aamjiwnaang First Nation on December 6, 2021.

jiwnaang First Nation emailed the Project team to confirm that receiving a the presentation on December 6, 2021 was suitable.

Suchovs (Golder, on behalf of SMC) emailed Aamjiwnaang First Nation onfirm that a copy of the presentation would be provided on December 6, 1.

C met with the CLC virtually on December 3, 2021 as part of their regular ting schedule. At this meeting, SMC invited Project Team members from ler and BCX to attend the meeting to introduce the Project. The Project m presented the highlights of content from Public Meeting #1, including an view of ALCFs, an introduction to the proposed Project, and provided the brunnity for questions and discussion on the information presented.

Suchovs (Golder, on behalf of SMC) emailed Aamjiwnaang First Nation rovide a copy of the presentation to be given by the Project team to ijiwnaang Environment Committee on December 7, 2021.

Project Team presented an overview of the Project to Aamjiwnaang First on's Environment Committee and answered questions asked by the mittee. Topics discussed included what materials may be used as Fs; whether there will be a threshold for chlorine; air pollution control, iding sulphur dioxide; and sources of ALCFs.

jiwnaang First Nation emailed the Project team to provide a copy of the jiwnaang Consultation Protocol.

Communication Date	Communication Method	Communication	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
December 16, 2022	Email	N/A	Member of the Public	Member of the Public	Member of the Public	Kara Terpstra (SMC)	ALCF General Inquiry	A me spec emis cher inclu petc met odou
January 13, 2022	Meeting	Virtual	Agency	Shareen Han, Neryed Ragbar, Bob Slivar, Header Merza	MECP Permission and Program Services Unit	Ruben Plaza and Joe Frost (VCNA); Kara Terpstra (SMC); Sean Capstick, Kate Liubansky, Rhiannon Fisher, Cindy Costain (Golder WSP); Winnie Song and Bridget Mills (BCX); Petr Chocensky (HGC)	Pre-Submission Meeting	Proje mee prov next SMC the c air q Onta arch
January 13, 2022	Newspaper	N/A	Public	Public	Public	N/A	Notice of Public Meeting #2	The news prov infor
January 13, 2022	Canada Post Neighbourhood Mail ™ (unaddressed mail)	N/A	Public	Public	Public	N/A	Notice of Public Meeting #2	The own
January 13, 2022	Website	N/A	Public	Public	Public	N/A	Notice of Public Meeting #2	SMC
January 13, 2022	Email	N/A	Federal Government Agencies	Fisheries Protection Program; EA Program, Ontario Region; Jennifer Hughes; Rob Dobos; Cynthia Brown	Fisheries and Oceans Canada; Transport Canada; Environment Canada; Indigenous and Northern Affairs Canada	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Public Meeting #2	Kyla cont
January 13, 2022	Email	N/A	Provincial Government Agencies	Bob Silvar; Sushant Agarwal; Andrew Neill; Steven McAvoy; Shareen Han; Jeffrey McKerral; Rob Wrigley; Jessica Ceneviva; Dan Cromp; Kieu Van; David Grisbrook; Krystyn Ordyniec; Michelle Knieriem; David Stubbs; Derek Seim; Khatera Safi; Ken Cornelisse; Andrew Ogilvie; Darlene Dove; Jennifer Graham Harkness; James Hamilton; Hon. Sylvia Jones; Samantha Gomez; Office of the Auditor General; Jenna Allain; Imtiaz Shah	Ministry of the Environment, Conservation and Parks; Ministry of Indigenous Affairs; Ministry of Municipal Affairs and Housing; Ministry of Northern Development, Mines, Natural Resources and Forestry; Ministry of Transportation; Ministry of Heritage, Sport, Tourism and Culture Industries; Ministry of the Solicitor General; Ministry of Labour, Training and Skills Development; Office of the Auditor General; Upper Thames River Conservation Authority	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Public Meeting #2	Kyla cont

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ember of the public emailed SMC to request documentation of the cifics of emissions. The member of the public inquired about the chemical ssion composition of current operations, including percentage of each mical emitted; planned composition of emissions once ALCFs are utilized, uding percentage of each chemical emitted; amount of reduction of coke use once ALCFs are utilized; plan/procedure if emission limits are not once ALCFs are utilized; and, SMC's plan moving forward to deal with ur issues at the Site.

ect Team members from SMC and Golder attended a pre-submission sting with staff from MECP Permission and Program Services Unit to ride an overview of the Site, including the current approvals and confirm steps in obtaining permanent approval to use ALCFs.

C discussed an update on the public consultation, preliminary results of carbon dioxide emission intensity assessment, preliminary results of the juality and noise assessments, review of local air quality in St. Marys ario, and preliminary results of the supplementary studies (i.e., laeology and traffic).

Notice of Public Meeting #2 was published in the *St. Mary's Independent* spaper. The notice advised that the meeting would be held virtually and ided information regarding how to register and attend the virtual mation session.

Notice of Public Meeting #2 was delivered to 4,006 residents/property ers in the Town of St. Marys.

C uploaded the Notice of Public Meeting #2 to the Project website.

Suchovs (Golder, on behalf of SMC) emailed federal government acts the Notice of Public Meeting #2.

Suchovs (Golder, on behalf of SMC) emailed provincial government acts the Notice of Public Meeting #2.

Appendix E - Alternative Low Carbon Fuel Use at the St. Marys Cement Plant Record of Consultation: Updated to March 24, 2022

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
January 13, 2022	Email	N/A	Municipal Government	Al Strathdee; Fern Pridham; Jim Craigmile; Lynn Hainer; Marg Luna; Robert Edney; Tony Winter; Jenna McCartney; Brent Kittmer; Dave Blake; Jed Kelly; Richard Anderson; Lizet Scott; Adam Kozlowski; Lori Wolfe; Sally McMullen; David Gundrum	Town of St. Marys; Township of Perth South; Perth County	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Public Meeting #2	Kyla conta
January 13, 2022	Email	N/A	Elected Officials	Hon. John Nater; Hon. Randy Pettapiece	MP – Perth-Wellington; MPP – Perth-Wellington)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Public Meeting #2	Kyla Notic
January 13, 2022	Email	N/A	Community Liaison Committee (CLC)	CLC Members	CLC	Kara Terpstra (SMC)	Notice of Public Meeting #2	SMC
January 13, 2022	Email	N/A	Public	Public	Public	StMarys_ALCF@golder.c om	Notice of Public Meeting #2	Kyla requ Meet
January 18, 2021	Email	N/A	Municipal Government	Dave Blake	Environmental Services Supervisor (Town of St. Marys)	Kara Terpstra (SMC)	Meeting with Town of St Marys	SMC sche still i befor Febr
January 18, 2021	Email	N/A	Municipal Government	Dave Blake	Environmental Services Supervisor (Town of St. Marys)	Kara Terpstra (SMC)	Meeting with Town of St Marys	The intere prefe 2, 20
January 20, 2022	Email	N/A	Elected Officials	Hon. Randy Pettapiece	MPP – Perth-Wellington	StMarys_ALCF@golder.c om	Email	MPP Notic upda
January 26, 2022	Email	N/A	Member of the Public	Member of the Public	Member of the Public	StMarys_ALCF@golder.c om	Public Meeting #2	A me fortur noted detai mem them the p and c only the n allev were unde 19 re the c

mary of Communication

Suchovs (Golder, on behalf of SMC) emailed municipal government acts the Notice of Public Meeting #2.

Suchovs (Golder, on behalf of SMC) emailed the local MP and MPP the ce of Public Meeting #2.

Cemailed CLC members a copy of the Notice of Public Meeting #2.

Suchovs (Golder, on behalf of SMC) emailed local residents who had lested to be added to the Project contact list a copy of the Notice of Public ting #2.

C emailed the Town of St. Marys to advise the Public Meeting #2 is eduled for February 1, 2022. SMC inquired if the Town of St. Marys was nterested in the Project team providing a presentation to Town staff re the public meeting. SMC inquired about Town staff availability for ruary 1 or February 2, 2022.

Town of St Marys emailed SMC to confirm that Town staff are still rested in meeting with the Project team. The Town of St. Marys noted erence for meeting in the afternoon on February 1 or anytime on February 022.

P for Perth-Wellington emailed the Project team to thank them for the ce of Public Meeting #2 and requested to continue to receive Project ates.

ember of the public emailed the Project Team to note that they were inate enough to attend public meeting #1 held in November 2021 and d that they found the meeting to be very informative and covered many ils regarding the proposed ALCF use at the St. Marys Cement Plant. The obser of the public thanked the Project Team for taking the time to show in fuel samples on display on a table at public meeting #1. The member of public noted that the Project Team member showed them the fuel pellets explained the many ingredients contained in them, with plastics being just a part. Explaining the make-up of the fuel pellets is something that member of the public noted should be a focus of public meeting #2 to help riate some public concerns (particularly from members of the public that e not able to attend public meeting #1). The member of the public noted erstanding that public meeting #2 was being held virtually due to COVIDestrictions at the time and noted hope that the public takes advantage of public meeting format to learn facts behind using ALCFs.

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
January 27, 2022	Newspaper	N/A	Public	Public	Public	N/A	Notice of Public Meeting #2	The news provi
January 28, 2022	Email	N/A	Indigenous Communities	Norm Joseph Chief Charles Sampson; Dean Jacobs; Jason Henry; Jennifer Mills; Chief Adrian Chrisjohn; Kailey Thomson; Sandra Doxator; Chief Mark Peters; Lori Fisher; Mary Duckworth; Brianna Sands; Tammy Jolicoeur	Aamjiwnaang First Nation; Walpole Island First Nation; Kettle and Stony Point First Nation; Chippewas of the Thames First Nation; Oneida of the Thames First Nation; Munsee Delaware Nation; Caldwell First Nation	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Public Meeting #2	Kyla conta studi repo woul to pr
February 1, 2022	Meeting	Virtual	Municipal Government	Dave Blake; Brent Kittmer	Town of St Marys	SMC; Golder, CX Environmental Consulting, HGC Engineering	ALCF Meeting	Proje St. M that meel Tear publi aske emis from Mary gas e
February 1, 2022	Email	N/A	Agency	Shareen Han	Senior Program Support Coordinator (MECP)	Kate Liubansky (Golder)	Pre-Submission Meeting Follow-up	MEC Proj€
February 3, 2022	Email	N/A	Agency	Shareen Han	Senior Program Support Coordinator (MECP)	Kate Liubansky (Golder)	Pre-Submission Meeting Follow-up Response	The
February 3, 2022	Website	N/A	Public	Public	Public	N/A	Public Meeting #2	SMC
February 3, 2022	GoToWebinar	GoToWebinar	Public	Public	Public	SMC, Golder, BCX, HGC Engineering	Public Meeting #2	Publi 6:00 mem (36) Twer (5) q mem
February 3, 2022	Email	N/A	Public	Public	St. Mary Independent (newspaper)	Ruben Plaza (SMC)	Public Meeting #2 follow-up	The follow not u gree site; rubb rega
February 7, 2022	Email	N/A	Municipal Government	Dave Blake	Environmental Services Supervisor (Town of St. Marys)	Kara Terpstra (SMC)	Meeting with Town of St Marys	SMC resid St. N

mary of Communication

Notice of Public Meeting #2 was published in the *St. Mary's Independent* spaper. The notice advised that the meeting would be held virtually and ided information regarding how to register and attend the virtual mation session.

Suchovs (Golder, on behalf of SMC) emailed Indigenous community acts the Notice of Public Meeting #2. An update regarding the technical ies being completed was also provided, including a list of technical rts being prepared. Kyla Suchovs noted that the results of the studies ld be presented at Public Meeting #2; however, the Project team is happy rovide the full reports to Indigenous communities if interested.

ect Team members from SMC and Golder met with staff from the Town of Marys to provide municipal staff an opportunity to preview the materials were being made available at Public Meeting #2 in February. The ting provided opportunity for questions and discussion and for the Project m to take into consideration municipal comments prior to finalizing the ic meeting presentation. During the meeting, the Town of St. Marys ed questions about weather conditions included as part of the air ssions assessment that has been completed, greenhouse gas emissions the transportation of fuels, and the types of ALCFs. The Town of St. ys noted support for SMC's plan for using ALCFs to reduce greenhouse emissions and divert materials from landfills.

CP forwarded comments and questions to the Project Team regarding the ect.

Project Team submitted responses to the MECP.

Cuploaded the Public Meeting #2 presentation to the Project website.

ic Meeting #2 was held as a virtual information session (webinar) from p.m. to 8:00 p.m. The meeting consisted of a presentation given by abers of the Project team and a question-and-answer period. Thirty-six individuals registered to attend the virtual information session. nty-seven (27) individuals attended the virtual information session. Five questions were asked during the meeting and were answered live by abers of the Project team. These questions are presented in Appendix G.

St. Marys Independent emailed SMC following public meeting #2 to ask w-up questions. Questions asked included topics such as why ALCFs are used during set-up or shut down of the kiln; amount of reduction of enhouse emissions by mixing ALCFs with regular fuels; ALCF storage onhow ALCFs are tested to ensure they are suitable for use; types of er that can and can't be included; and whether SMC has an update rding the potential use of hydrogen fuel.

C emailed the Town of St. Marys to advise that approximately twenty dents attended virtual public meeting #2. SMC also provided the Town of Marys with a copy of the presentation from public meeting #2.

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
February 9, 2022	Email	N/A	Member of the Public	Member of the Public	Member of the Public	StMarys_ALCF@golder.c om	Public Meeting #2	A me atter of th
February 14, 2022	Email	N/A	Agency	Mike Fabro	City of London (Environment & Infrastructure)	StMarys_ALCF@golder.c om	St Marys Cement ALCF study	City Tear City avai use
February 15, 2022	Email	N/A	Member of the Public	Member of the Public	Member of the Public	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Public Meeting #2	Kyla abou the p the r cont
March 11, 2022	Meeting	Virtual	Community Liaison Committee (CLC)	CLC Members	CLC	SMC, Golder	CLC Meeting	SMC prov of th
March 24, 2022	Email	N/A	Indigenous Communities	Jennifer Mills	Energy Sector Consultation Coordinator (Chippewas of the Thames First Nation)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Intent to Apply, and Notice of Completion of Consultation Report	Kyla First Such for th Natio
March 24, 2022	Newspaper	N/A	Public	Public	Public	N/A	Notice of Completion of Consultation Report	The Inde
March 24, 2022	Canada Post Neighbourhood Mail ™ (unaddressed mail)	N/A	Public	Public	Public	N/A	Notice of Completion of Consultation Report	Notio resid
March 24, 2022	Email	N/A	Indigenous Communities	Norm Joseph Chief Charles Sampson; Dean Jacobs; Jason Henry; Jennifer Mills; Chief Adrian Chrisjohn; Kailey Thomson; Sandra Doxator; Chief Mark Peters; Lori Fisher; Mary Duckworth; Brianna Sands; Tammy Jolicoeur	Aamjiwnaang First Nation; Walpole Island First Nation; Kettle and Stony Point First Nation; Chippewas of the Thames First Nation; Oneida of the Thames First Nation; Munsee Delaware Nation; Caldwell First Nation	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Completion of Consultation Report	Kyla cont
March 24, 2022	Email	N/A	Federal Government Agencies	Fisheries Protection Program; EA Program, Ontario Region; Jennifer Hughes; Rob Dobos; Cynthia Brown	Fisheries and Oceans Canada; Transport Canada; Environment Canada; Indigenous and Northern Affairs Canada	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Completion of Consultation Report	Kyla conta

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ember of the public emailed the Project Team to note they were unable to nd public meeting #2 held on February 3, 2022, and asked if a recording the meeting was available.

of London's Manager of Climate Change Planning emailed the Project m to inquire about St. Marys offerings in the low-carbon cement market. of London asked the Project Team to share information, if possible, on lable low-carbon cement products readily available locally for municipal in southwestern Ontario.

Suchovs responded to the member of the public who emailed inquiring ut a recording of public meeting #2 and provided a link to where a copy of presentation could be found on the Project website. Kyla Suchovs invited member of the public to reach out if they had any questions regarding the tent in the presentation.

C invited Project Team members from Golder to attend the meeting to ride an update on the Project. The Project Team presented an overview ne materials presented during Public Meeting #2.

Suchovs (Golder, on behalf of SMC) emailed Chippewas of the Thames t Nation in response to their email and letter from February 24, 2022. Kyla hovs provided a copy of the Archaeological Assessment report completed he Project and provided response to Chippewas of the Thames First on's question regarding potential biomass sources used as ALCFs.

Notice of Completion of Consultation Report published in the *St. Mary's* pendent newspaper.

ce of Completion of Consultation Report was delivered to 4,014 dents/property owners in the Town of St. Marys.

Suchovs (Golder, on behalf of SMC) emailed Indigenous community acts the Notice of Completion of Consultation Report.

Suchovs (Golder, on behalf of SMC) emailed federal government acts the Notice of Completion of Consultation Report.

Appendix E - Alternative Low Carbon Fuel Use at the St. Marys Cement Plant Record of Consultation: Updated to March 24, 2022

Communication Date	Communication Method	Communication Location	Stakeholder Group	Individual Stakeholder Contact(s)	Stakeholder Position	Team Members Involved	Category	Sum
March 24, 2022	Email	N/A	Provincial Government Agencies	Bob Silvar; Sushant Agarwal; Andrew Neill; Steven McAvoy; Shareen Han; Jeffrey McKerral; Rob Wrigley; Jessica Ceneviva; Dan Cromp; Kieu Van; David Grisbrook; Krystyn Ordyniec; Michelle Knieriem; David Stubbs; Derek Seim; Khatera Safi; Ken Cornelisse; Andrew Ogilvie; Darlene Dove; Jennifer Graham Harkness; James Hamilton; Hon. Sylvia Jones; Samantha Gomez; Office of the Auditor General; Jenna Allain; Imtiaz Shah	Ministry of the Environment, Conservation and Parks; Ministry of Indigenous Affairs; Ministry of Municipal Affairs and Housing; Ministry of Northern Development, Mines, Natural Resources and Forestry; Ministry of Transportation; Ministry of Heritage, Sport, Tourism and Culture Industries; Ministry of the Solicitor General; Ministry of Labour, Training and Skills Development; Office of the Auditor General; Upper Thames River Conservation Authority	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Completion of Consultation Report	Kyla conta
March 24, 2022	Email	N/A	Municipal Government	Al Strathdee; Fern Pridham; Jim Craigmile; Lynn Hainer; Marg Luna; Robert Edney; Tony Winter; Jenna McCartney; Brent Kittmer; Dave Blake; Jed Kelly; Richard Anderson; Lizet Scott; Adam Kozlowski; Lori Wolfe; Sally McMullen; David Gundrum	Town of St. Marys; Township of Perth South; Perth County	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Completion of Consultation Report	Kyla conta
March 24, 2022	Email	N/A	Elected Officials	Hon. John Nater; Hon. Randy Pettapiece	MP – Perth-Wellington; MPP – Perth-Wellington)	StMarys_ALCF@golder.c om (Kyla Suchovs, Golder)	Notice of Completion of Consultation Report	Kyla Notic
March 24, 2022	Email	N/A	Community Liaison Committee (CLC)	CLC Members	CLC	Kara Terpstra (SMC)	Notice of Completion of Consultation Report	SMC
March 24, 2022	Website	N/A	Public	Public	Public	N/A	Notice of Completion of Consultation Report	SMC webs

https://golderassociates.sharepoint.com/sites/147511/project files/6 deliverables/3000 - public consultation/3040 - consultation report/app e - summary tables/appendix e alcf correspondence summary table 23mar2022.docx

Project No. 21468526 March 2022

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Suchovs (Golder, on behalf of SMC) emailed provincial government acts the Notice of Completion of Consultation Report.

Suchovs (Golder, on behalf of SMC) emailed municipal government acts the Notice of Completion of Consultation Report.

Suchovs (Golder, on behalf of SMC) emailed the local MP and MPP the ce of Completion of Consultation Report.

cemailed CLC members the Notice of Completion of Consultation Report.

C uploaded the Notice of Completion of Consultation Report to the Project site.

APPENDIX F

Local Air Quality Study

NS GOLDER

1.0 INTRODUCTION

The local air quality in St. Marys was one of the main topics of interest to the public during the public consultation meetings. This appendix provides details on the local air quality study undertaken by Golder as part of the public consultation process.

2.0 LOCAL AIR QUALITY STUDY METHODOLOGY

2.1 Air Quality - Compounds of Concern

The Local Air Quality study focused on compounds of concern that are typically present in areas near sources of transportation and industrial activities such as cement manufacturing for which relevant air quality criteria exist. These compounds are generally indicative of changing air quality. The compounds of concern for the Local Air Quality Study are:

- particulate matter, including suspended particulate matter (SPM), particles nominally smaller than 10 μm in diameter (PM₁₀), and particles nominally smaller than 2.5 μm in diameter (PM_{2.5});
- combustion gases, including nitrogen dioxide (NO₂) and sulphur dioxide (SO₂); and
- volatile organic compounds (VOC), represented by benzene.

2.2 Applicable Guidelines

The relevant air quality criteria used for assessing the local air quality in St. Marys include the Ontario criteria and federal standards and objectives where provincial guidelines are not available. The Ontario Ministry of the Environment, Conservation and Parks (MECP) has set guidelines related to ambient air concentrations which are summarized in Ontario's Ambient Air Quality Criteria (AAQC) document (MECP 2020). The Ontario AAQC are characterized as desirable ambient air concentrations. They are not regulatory limits and measured concentrations are frequently reported at various locations across Ontario due to weather conditions and long-range transportation. The Ontario AAQC are used for screening the air quality effects in environmental assessments, studies using ambient air monitoring data, and assessment of general air quality in a community or across the province (MECP 2017).

There are two sets of federal objectives and criteria – the National Ambient Air Quality Objectives (NAAQOs) and the Canadian Ambient Air Quality Standards (CAAQSs) (formerly National Ambient Air Quality Standards (NAAQS). The CAAQSs have been developed under the Canadian Environmental Protection Act (CEPA) and include standards for PM_{2.5}, ozone, NO₂ and SO₂ to be implemented by 2025. Like the Ontario AAQCs, the CAAQSs are not regulatory limits and are used as national targets for PM_{2.5} and ozone, excluding Quebec (CCME 2014). The CAAQSs are based on the long-term averages of measurement data not a short-term measurement value.

A summary of the applicable Ontario and federal criteria are listed in Table 1.

Compound	Averaging Period	Ontario Ambient Air Quality Guidelines ^(a) (μg/m³)	Canadian Ambient Air Quality Standards ^(b) (µg/m³)
SPM ^(c)	24-Hour	120	_
	Annual	60 ^(d)	—
PM10	24-Hour	50 ^(e)	—
PM _{2.5}	24-Hour	30 ^(f)	27 ^(f)
	Annual	—	8.8 ^(g)
NO ₂	1-Hour	400 ^(h)	79 (42 ppb) ⁽ⁱ⁾
	24-Hour	200 ^(h)	
	Annual	_	22.6 (12 ppb) ⁽ⁱ⁾
SO ₂	1-Hour	105 (40 ppb) ^(j)	173 (65 ppb) ^(k)
	Annual	10.5 (4 ppb) ^(j)	10.7 (4 ppb) ^(k)
Benzene	24-hour	2.3	_
	Annual	0.45	—

Table 1: Ontario and Canadian Regulatory Air Quality Criteria

(a) MECP (2020)

(b) CAAQS published in the Canada Gazette Volume 147, No. 21 - May 25, 2013. Final standard phase in date of 2025 used, except where noted.

(c) SPM in Ontario is defined as Suspended Particulate Matter (<44 µm diameter)

(d) Geometric mean

(e) Interim AAQC and is provided as a guide for decision making (MECP 2020)

(f) Compliance is based on the 98th percentile of the daily monitored data averaged over three years of measurements

(g) Compliance is based on the annual average of monitored data averaged over three years of measurements

(h) Standard is for nitrogen oxides (NO_x) but is based on the health effects of NO₂

(i) Canadian ambient air quality standard for NO₂ is effective from 2025. Standards provided as parts per billion (ppb) were converted to µg/m3 using a reference temperature of 25°C and pressure of 1 atmosphere. The 1-hour standard is based on the three-year average of the annual 98th percentile of the daily maximum 1-hour average concentration.

(j) Temperature used for conversion of the SO₂ AAQS ppb to μ g/m³ = 20°C and 1 atmosphere, (MECP 2020)

(k) The 4-ppb standard for SO₂ is effective from 2025, the current standard is 5 ppb. The new 1-hour standard is based on the three-year average of the annual 99th percentile of the daily maximum 1-hour average concentration. Temperature used for conversion of the SO₂ CAAQS ppb to µg/m³ = 25°C.

2.3 Sources of Monitoring Data

2.3.1 Mobile Monitoring

The MECP has been conducting mobile air monitoring near the perimeter of the St Marys Cement Plant and other nearby industrial facilities within the Town of St. Marys since 2016.

Location	Mobile monitoring upwind and downwind of the St Marys Cement Plant			
Monitoring Periods	2016 - 2020 (Local Air Quality Study assessed 2017-2020 data) ²			
Monitoring results presented as	Upwind: Ten minutes averaged data			
	Downwind: Half-hour averaged data			
Monitored Compounds	Different compounds were monitored each year ¹			
Monitoring conducted by	MECP - Environmental Monitoring and Reporting Branch (EMRB)			

Notes:

1 Further details on the 2016 to 2020 Mobile TAGA Survey Technical Memorandums are available at: https://www.townofstmarys.com/en/living-here/air-quality.aspx.

2 2016 mobile monitoring data was not included in this study since the methodology was not consistent with the mobile monitoring conducted during other years (2017 to 2020) – sampling during 2016 had variable sample time lengths while sampling during 2017 to 2020 years had consistent 10-min (upwind) and 30-min (downwind) sampling time lengths.

Figure 1 shows the MECP's route of the mobile monitoring (teal) and the St Marys Cement Plant's property boundary (purple).



Figure 1: MECP Mobile Monitoring Route

2.3.2 Stationary Monitoring

The MECP conducted an air monitoring survey in St. Marys between July 5, 2017 and December 20, 2018 to measure the concentrations of compounds of concern in the ambient air in the vicinity of the St Marys Cement Plant.

Location	St. Marys Fire Department, northeast of St Marys Cement Plant, considered predominantly downwind from the St Marys Cement Plant.			
Monitoring Periods	Jul 5, 2017 to December 20, 2018 ²			
Monitoring results presented as	Hourly data			
Monitored Compounds	SO ₂ , NO ₂ , and PM ₁₀			
Monitoring conducted by	MECP - Environmental Monitoring and Reporting Branch (EMRB)			

MECP Stationary Monitor in Community (2017-2018)¹

Notes:

1 Further details on the 2017-2018 Airpointer Survey of St. Marys Cement: Final Report (MECP memo) are available at: https://www.townofstmarys.com/en/living-here/air-quality.aspx

2 Stationary monitoring was done between July 5, 2017 to December 20, 2018. PM2.5 was monitored between July 7 and August 23. On August 24, the MECP began monitoring PM10 instead of PM2.5. For a complete annual assessment of PM10 and to have a complete year of data, a full year monitoring data (September 1, 2017 – August 31, 2018) was used for this Local Air Quality Study.

Figure 2 shows the location of the MECP stationary air monitor (orange) and the St Marys Cement Plant's property boundary (purple).



Figure 2: Location of MECP Stationary Air Monitoring Station and the SMC Plant.

2.3.3 National Air Pollution Surveillance Network (NAPS)

Publicly available monitoring data is collected by the Environment and Climate Change Canada (ECCC) National Air Pollution Surveillance Network (NAPS) air quality monitoring stations (ECCC 2019).

Monitoring stations are typically sited in locations where there are potential concerns about local air quality or in population centres. There are no NAPS monitoring stations in St. Marys or in its vicinity.

To support the Local Air Quality Study's local MECP monitoring, long-term monitoring data from two of the closest NAPS monitoring stations were used to assess air quality in similar types of areas to St. Marys. The closest air quality monitoring stations are in London and Grand Bend. The London area is more industrial and surrounded by more roads and highways; the Grand Bend area is near a large body of water and considered more rural. The locations of the NAPS air quality monitoring stations are summarized in Table 2 and presented on Figure 3 - Ambient Air Quality Monitoring Stations.



Figure 3: Locations of the Grand Bend and London NAPS Monitoring Stations

Station	Address	NAPS Station ID	Latitude and Longitude	Distance to the Site (km)	Monitoring Data Used
London	42 St. Julien Street, London	60904	42.97 - 81.20	28	PM _{2.5} , NO ₂ , Benzene
Grand Bend	Point Blake Conservation Area, Grand Bend	63701	43.33 - 81.74	49	PM _{2.5} , NO ₂ , Benzene

Table 2: Location of NAPS Air Monitoring Stations

3.0 RESULTS

This section summarizes monitoring data that were considered for this Local Air Quality Study.

Annual, daily, and hourly assessments were completed for compounds with the respective AAQC or CAAQS. Please note, there are compounds that do not have AAQC or CAAQS for each averaging period. If a compound of concern is not listed in any assessment summary table, it either was not measured or does not have an applicable AAQC or CAAQC. This information is presented in Table 3.

Monitoring Station	Annual	Daily	Hourly
MECP Stationary Monitoring	Yes	Yes	Yes
MECP Mobile Monitoring	No	No	Yes
NAPS	Yes	Yes	Yes

Table 3: Summary of Available Data at Each Monitoring Station Based on Averaging Period.

For analysing monitoring data to represent the daily and hourly ambient concentrations, the 90th percentile of the available monitoring data is typically considered an appropriate estimate of background air quality (AESRD, 2013). As a result, the 90th percentile of the measured concentrations have been used to represent local air quality for parameters with shorter averaging periods (i.e., 1-hour and 24-hour).

MECP Mobile Monitoring was conducted over different number of days per monitoring event and different number of measurements per day of monitoring. The number of data points from the MECP Mobile Monitoring are not sufficient to extrapolate the mobile monitoring results for daily and annual averaging periods. Therefore, mobile monitoring data was only considered for hourly ambient concentrations.

There are no NAPS monitoring data available for SPM and PM_{10} , however, an estimate of the SPM and PM_{10} concentrations can be calculated from the available $PM_{2.5}$ monitoring data. The mean levels of $PM_{2.5}$ in Canadian locations are found to be about 54% of the PM_{10} concentrations and about 30% of the SPM concentrations (Lall et. al., 2004). By applying this ratio, it was possible to estimate the SPM and PM_{10} concentrations for the monitoring stations. Data measured in parts per billion (ppb) or parts per million (ppm), were converted to $\mu g/m^3$ assuming standard temperature and pressure (one atmosphere of pressure).

3.1 Annual Ambient Concentrations

Annual ambient concentrations were calculated based on the annual mean of the available data. The annual ambient concentrations are presented in Table 4.

Compound	AAQC	CAAQS ^a [uɑ/m³]	MECP Stationary Monitor 1-year average	NAPS Monito 5-year averaç	oring Stations ge (2014-2018)
	LM-9/ 1	1	(Sep 1, 2017 - Aug 31, 2018)	London	Grand Bend
Benzene	0.45	—	Not Measured	0.4	Not Measured
SPM	60	—	25.7	25.6	21.8
PM _{2.5}	_	8.8	7.7	7.7	6.5
NO ₂	_	22.6	10.0	11.4	5.9
SO ₂	10.5	10.7 ^b	2.2	Not Measured	Not Measured

Table 4: Summary of Annual Monitored Ambient Concentrations

Notes: Data in bold are actual measured values while the remaining data are values calculated using measured values for the respective monitoring station.

a) Temperature used for conversion of CAAQS ppb to μ g/m³ = 25°C.

b) Temperature used for conversion of the SO₂ CAAQS ppb to μ g/m³ = 20°C.

All monitored compounds of concern were below their applicable Ontario AAQC at all monitoring stations.

3.2 Daily Ambient Concentrations

Daily ambient concentrations were calculated based on the 90th percentile of all 24-hour averages of the available data. The daily ambient concentrations are presented in Table 5.

 Table 5: Summary of Daily Monitored Ambient Concentrations

			90th Percentile of 24-hour Concentrations			
Compound	AAQC [µg/m³]	CAAQS [µg/m³]	MECP Stationary Monitor	NAPS Monitoring Stations (2014 – 2018)		
			(Sep 1, 2017 - Aug 31, 2018)	London	Grand Bend	
Benzene	2.3	—	Not Measured	0.6	Not Measured	
SPM	120	—	44.10	44.3	41.0	
PM ₁₀	50	—	24.50	24.6	22.8	
PM _{2.5}	30	27	13.23	13.3	12.3	
NO ₂	200	_	16.76	19.8	11.2	

Note: Data in bold are actual measured values while the rest are values calculated using these measured values for the respective monitoring station.

All monitored compounds of concern were below their applicable Ontario AAQC at all monitoring stations.

3.3 Hourly Assessment

Hourly ambient concentrations were calculated based on the 90th percentile of all 1-hour measurements from the available data. The hourly ambient concentrations are presented in Table 6.

0	AAQC	CAAQS ^a MECP Stationary MECP Mobile		NAPS Monitoring Stations (2014 – 2018)		
Compound	[µg/m³]	[µg/m³]	(2017 – 2018)	(2017 – 2020)	London	Grand Bend
NO ₂	400	79	18.80	24.4	22.6	13.2
SO ₂	105	173⊳	5.86	0.2	Not Measured	Not Measured

Table 6: Summar	y of Hourly	Monitored	Ambient	Concentrations

Notes: All are actual measured values in the hourly assessment.

a) Temperature used for conversion of CAAQS ppb to μ g/m³ = 25°C.

b) Temperature used for conversion of the SO₂ CAAQS ppb to μ g/m³ = 20°C.

SO₂, which was only monitored at the MECP Stationary Monitor and Mobile Monitoring, was below the Ontario AAQC.

The monitoring data assessed shows the 1-hour measured NO₂ concentrations (Figure 4) were well below the Ontario AAQC at all monitoring stations.



Figure 4: Measured 1-hour NO2 Concentrations at the NAPS Stations and at MECP St. Marys monitoring stations
4.0 DISCUSSION

The results of the MECP local air quality monitoring show that the ambient concentrations of compounds of concern are below the applicable Ontario and federal criteria and are comparable to the NAPS monitored concentrations in London and Grand Bend. The results of the MECP local air quality monitoring in the Town of St. Marys is indicative of good air quality.

The St Marys Cement Plant is currently approved to operate under an Environmental Compliance Approval (ECA) that includes kiln operations using conventional fuels. The St Marys Cement Plant is located in a suburban area surrounded by agricultural fields. In addition to the St Marys Cement Plant, there are other industrial facilities within 3 km that reported to the National Pollutant Release Inventory (NPRI) in 2019 (ECCC 2021) and are also in close vicinity to the MECP Stationary Monitor in St. Marys and within the MECP mobile monitoring route. These facilities are summarized in Table 7.

Company Name	Distance and Direction from MECP Stationary Monitor	Is Facility within Mobile Monitoring Route?
St Marys Cement Plant	0.9 km southwest of monitor	Yes
St Marys Cement Company, Thomas Street Quarry	1.7 km; west southwest of monitor	Yes
Nutreco Canada Inc., Shur-Gain St. Marys	1.8 km; south of monitor	Yes
Caledon Tubing	1.8 km; south of monitor	Yes
Inoac Interior Systems LP	1.4 km; south of monitor	Yes

Table 7: Summary of Industrial Facilities reporting to NPRI in St. Marys.

Other sources contributing to the local air quality in St. Marys may include other smaller industrial sources, roadways and long-range transboundary air pollution.

The ESDM Report completed as part of the Amendment ECA Application for the use of ALCFS showed no change in predicted concentrations; therefore, the local air quality is will not be impacted by the use of ALCF in the cement kiln.

5.0 CONCLUSION AND NEXT STEPS

The monitoring conducted in St. Marys shows that the compounds of concern are below their applicable Ambient Air Quality Criteria. The results of the MECP local air quality monitoring in the Town of St. Marys is indicative of good air quality and is comparable to the NAPS London and Grand Bend monitoring.

It is anticipated that MECP will continue conducting annual mobile monitoring surveys in the Town of St. Marys. The local community has also expressed interest in ongoing monitoring in St. Marys. It is not known if the MECP will repeat the monitoring using a stationary monitor. Continued monitoring of local air quality once St Marys Cement begins using ALCFs would confirm there are no changes to the local air quality.

6.0 **REFERENCES**

- Alberta Environment and Sustainable Resource Development (AESRD). 2013. Air Quality Model Guideline Effective October 1st, 2014. ISBN: 978-1-4601-0599-3, Edmonton, Alberta
- Environment and Climate Change Canada (ECCC) (2019). National Air Pollution Surveillance Program (NAPS). http://www.ec.gc.ca/rnspa-naps/Default.asp?lang=En&n=5C0D33CF-1
- Environment and Climate Change Canada (2021). NPRI Online Data Search. Available at https://open.canada.ca/data/en/dataset/d9be6bec-47e5-4835-8d01-d2875a8d67ff. Retrieved March 2022
- Ministry of the Environment, Conservation and Parks (MECP) (2017). Air Dispersion Modelling Guideline for Ontario, Version 3.0. PIBS: 5165e03, Toronto, Ontario, MECP (Ontario Ministry of the Environment and Climate Change). 2008. Methodology for Modelling Assessments of Contaminants with 10-Minute Average Standards and Guidelines under O.Reg. 419/05. Technical Bulletin.
- Ministry of the Environment, Conservation and Parks (MECP) (2020). Ontario Ambient Air Quality Criteria. Standards Development Branch, Ontario Ministry of the Environment, Conservation and Parks. ISBN 978-1-4868-4498-2

APPENDIX G

Public Meetings Questions and Topics

Alternative Low Carbon Fuel Use at the St. Marys Cement Plant – Public Meeting #1 – Oral Questions or Topics

General Topic	Recorded Question or Topic	How Question or Topic Was Addressed
Current Operations – Air Quality & Odour	Emission profile of the plant	Public Meeting #2 Presentation
	Existence of current emission control including baghouses and bypass precipitator	Public Meeting #2 Presentation
	Did the flow rate decrease after the stack extension?	Public Meeting #2 Question
	SM stack testing / ambient monitoring data and will it be presented	Public Meeting #2 Presentation
	Emissions monitoring in town by the MECP	Public Meeting #2 Presentation
	Some people were aware of the Envirosuite monitors and were asking what they were doing	Public Meeting #2 Presentation
	What testing has been done and will be done - what reports are currently available	Public Meeting #2 Presentation
	Are we testing for 'everything' in the air – what are we testing for	Public Meeting #2 Presentation
	What is the source of odour at the plant currently?	Public Meeting #2 Presentation
	interested in how SMC was going to solve the odour problem than the use of ALCF	Public Meeting #2 Presentation
Current Operations - Noise	Noise/vibration impacts from the existing cement plant	Public Meeting #2 Presentation
	What are current noise/vibration levels coming from the plant?	Public Meeting #2 Presentation
	What are the existing sound levels from the plant?	Public Meeting #2 Presentation
	When and how will noise from the main stack be addressed? Noise from the main stack	Public Meeting #2 Presentation
Current Operations – Health Impacts	Health impacts of the cement plant in general, not specific to ALCF	Public Meeting #2 Presentation
ALCFs – General	How many plants in Ontario are using ALCF?	Public Meeting #2 Presentation
	How long is the cement industry has been using ALCF?	Public Meeting #2 Presentation
	Is the technology used in cement plants for burning ALCF the same as Europe?	Public Meeting #2 Presentation
	Several people did not realize that ALCF is not a new technology – many people were not aware that SMC is using LCF and ALCF in Bowmanville.	Public Meeting #2 Presentation
ALCFs – Future Operations	What are the types of ALCFs being considered at the St. Marys plant? Some specific examples of ALCF (what type of plastics)	Public Meeting #2 Presentation
	Procedure for ALCF acceptance? How frequently do you run test? What happens if the load does not pass the test?	Public Meeting #2 Presentation
	Exact source of the ALCF	Public Meeting #2 Question
	How big (area) is the ALCF building going to be? Where is it going to be located?	Public Meeting #2 Presentation
	storage – figuring it might be substantial based on the difference in density of the ALCF vs pet coke	Public Meeting #2 Presentation
	Ratio of ALCF to conventional fuels starting and future	Public Meeting #2 Presentation
	Financial impact of ALCF for both operations and Carbon Tax	Public Meeting #2 Question
ALCF – Future Operations – Environment	Is burning plastic going to be bad for our health? Is burning plastics safe for the environment?	Public Meeting #2 Question
	Has more testing been done after the 2011 demonstration (FAQ)?	Public Meeting #2 Question
	older reports and data (2011 demonstration test and Bowmanville testing data)	Public Meeting #2 Presentation
	What air testing are we going to do when using ALCF?	Public Meeting #2 Presentation
	Ambient air testing – will there be any?	Public Meeting #2 Presentation
ALCFs – Future Operations – Air Quality & Odour	Are dioxins and furans going to increase with ALCF?	Public Meeting #2 Presentation
	Will trace metal emissions increase or decrease with the use of ALCF (Hg, Se)?	Public Meeting #2 Presentation
	Bowmanville ALCF stack testing data / ambient monitoring data compared to baseline and will it be presented	Public Meeting #2 Presentation
	Impacts of ALCF to emissions	Public Meeting #2 Presentation
	Is the project going to increase odour?	Public Meeting #2 Presentation
	Will this project improve the odour situation in town?	Public Meeting #2 Presentation
ALCFs – Future Operations – Noise	Is the project going to increase noise, vibration?	Public Meeting #2 Presentation
	Did the assessment look at vibrations from the facility?	Public Meeting #2 Presentation
ALCFs – Future Operations – Traffic	One person asked about the increase in truck traffic.	Public Meeting #2 Presentation
	Are the ALCF trucks going through downtown (FAQ)?	Public Meeting #2 Presentation
Other	What is the plan for using hydrogen as a fuel? How does it work?	Public Meeting #2 Question



Alternative Low Carbon Fuel Use at the St. Marys Cement Plant – Public Meeting #2 – GoToWebinar Questions

General Topic	Recorded Question or Topic	How Question or Topic Was Addressed
ALCFs – Future Operations – Air Quality & Odour	To meet particulate and odour standards, is the Project team looking at the requirements as they exist now or what they are expected to be in the future?	Question answered during Public Meeting #2
ALCFs – General	Plastic seems to be a concern for many residents. If there a percentage allocated to each material in the ALCF material?	Question answered during Public Meeting #2
General	Thank you for an excellent presentation.	N/A
ALCFs – General	For facilities that currently use ALCFs, when the Plant(s) started using it, were there complaints/concerns from the public regarding odours after using ALCFs?	Question answered during Public Meeting #2
	Why are ALCFs not used during start-up or shut down of the kiln?	Question answered during Public Meeting #2
	How much waste or fuel will be stored in the new storage building?	Question answered during Public Meeting #2

https://golderassociates.sharepoint.com/sites/147511/project files/6 deliverables/3000 - public consultation/3040 - consultation report/app g - public meetings questions and topics/appendix g - questions and topics.docx



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