VOTORANTIM cimentos

st marys cement

Nous reconnaissons que nous sommes en Gespe’gewa’gi, territoire ancestral et non cédé des Mi’gmaq. Leur lien avec ce territoire est vivant et continue de façonner son histoire et son avenir. Cette reconnaissance doit se traduire dans nos relations, par une écoute réelle et une place pour les Mi’gmaq dans les décisions qui concernent le territoire.

We acknowledge that we are in Gespe’gewa’gi, the ancestral and unceded territory of the Mi’gmaq. Their connection to this land is living and continues to shape its history and its future. This acknowledgment must be reflected in our relationships, through meaningful listening and a place for the Mi’gmaq in decisions that concern the territory.

Welcome

Alternative Low Carbon Fuels Project

Public Information Session

Ciment St. Marys - McInnis Plant

Port-Daniel-Gascons, Québec

September 18, 2026

Introduction

- Ciment St. Marys - McInnis Plant (CSM), a Votorantim Cimentos North America (VCNA) company, is a state-of-the-art facility that 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, and support the circular economy. The project would help divert materials from landfills and align the facility's operations with best practices implemented around the world.
- CSM is currently authorized to operate under a Ministerial Authorization (MA) that includes kiln operations using conventional fuels such as petcoke and coal.
- The CSM is preparing the information required to submit an application to amend the current MA for the use of ALCFs.
- We are here today to present the scope of the project and supporting studies.

Site Overview

- We are a leading provider of cement, concrete and aggregates in Eastern Canada, in the Northeast U.S. and in the Great Lakes region of Canada and the U.S.
- Ciment St. Marys - McInnis Plant (CSM) has been in operation since 2017.
- We are committed to combining economic performance and environmental responsibility for the well-being of the Gaspé region and its residents.
- In addition to complying with Canadian Standards, CSM is also committed to meeting the US National Emission Standards for Hazardous Air Pollutants (NESHAP).
- The transition to low-carbon fuels is an important step towards sustainable industrial practices that reduce carbon emissions.

Site Facts:
- Authorized capacity:
  6,900 tons per day of clinker
  9,600 tons per day of cement
- The largest cement plant in Québec
- Produces five types of cement

Cement Association of Canada

- The Cement Association of Canada (CAC) represents the Cement manufacturers of Canada including Ciment St. Marys - McInnis Plant (CSM).
- The Cement Industry is essential to Quebec's economy:
  - It supports nearly 17,000 direct and indirect jobs, provides approximately $1.2 billion in wages and hundreds of millions in tax revenue. Our operations (cement, concrete, and aggregates) contribute to the local and regional economy throughout Quebec by producing the materials required for major infrastructure projects and for the construction of buildings, roads, bridges, dams, and waterworks, and of course, our schools and hospitals.
- Concrete is the foundation of economic development and prosperity. It is **the world's most important building material**
  - Twice as much concrete is used than all other materials combined.
  - It is the second most consumed commodity in the world, **after water.**
- The CAC is a strong supporter of the use of ALCFs to reduce greenhouse gas emissions in the Cement Industry.

A Regional Partnership

The McInnis Alternative Fuels Project is being jointly developed by St. Marys Cement (SMC) and Mi'gmawei Mawiomi Business Corporation (MMBC), the joint economic development corporation of the Mi'gmaq communities of Gespeg, Gesgapegiag and Listuguj.

This partnership builds on several years of collaboration to advance the sustainable use of forest biomass and support the development of the bioeconomy in Gaspésie, with the involvement and support of regional forest-sector partners and stakeholders.

Together, SMC and MMBC are:

- *Developing and validating the technical, financial and environmental aspects of the project;*
- *Establishing a long-term partnership for its development and implementation;*
- *Working with regional forest-sector partners to develop a reliable and sustainable supply of forest biomass; and*
- *Seeking to maximize greenhouse gas reductions, regional economic activity, local business and employment opportunities, and long-term benefits for both mi'gmaq communities and the broader gaspésie region.*

Ciment St. Marys - McInnis Plant and the Community

- The Site provides local employment and contributes to the local economy:
  - Source of direct and indirect employment
  - Over 173 jobs created on-site
  - McInnis Plant works with numerous suppliers and contractors, creating indirect employment opportunities (e.g., truck drivers, electricians, millwrights, skilled professionals)

McInnis Plant supports local community organizations such as:

- Canadian Cancer Society -- Vélo tour de la Gaspésie
- PD Municipal Gym and Fitness Center
- Paspébiac National Historic Site
- Minor Hockey Association of Rocher – Desjardins Hockey Cup
- Chandler Figure Skating Club (Rocher-Percé)
- Hockey teams
- Gaspésie Sud Social Pediatrics Center (Accroche-Coeur)

Site Certifications

- **Environmental Management**
  ISO 14001 certified since 2019
- **Quality Management**
  ISO 9001 certified since 2017

Foloow-up Committee

- Beginning in 2013, a **Monitoring Committee** held meetings to discuss concerns during the cement plant's construction and commissioning period.

Environmental Committees

Ciment St Marys McInnis Plant has established two Environmental Committees to review environmental practices: one with the general community and one with the Mi'gmaq. The Committees meet on quarterly basis.

- Environmental Monitoring Committee Representatives include members from Comité ZIP Gaspésie, the Gaspésie South Water Council, the Regional Environmental Council of Gaspésie, and two citizen representatives.
- Environmental Committee with the Mi’gmawei Mawio’mi Secretariat.

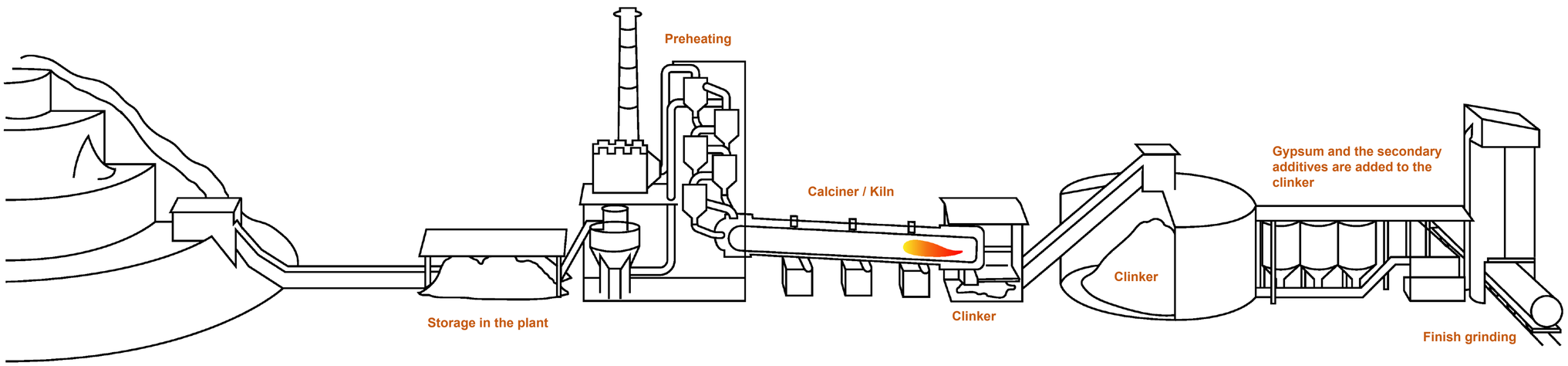
Cement Production Process

- Ciment St. Marys produces Portland Cement at the McInnis Plant:
  - Limestone that contains calcium carbonate is combined with other materials such as silica and iron oxides to achieve the right composition. The mixture is then heated to extremely high temperatures, up to 1,550°C, to produce clinker.
  - The clinker is then ground with finishing materials, such as gypsum and limestone, to produce cement.
- Portland cement is the binding ingredient that produces concrete when mixed with water and aggregates.
- Concrete is widely used as a building material for structures and pavement.

Portland-Limestone Cement

- Portland-Limestone Cement is a lower-carbon intensity cement that reduces embodied greenhouse gases in concrete by 10%
- Has the same strength, durability and performance as other cement

Cement Production Process



Quarrying	Raw Materials Preparation	Clinker Production	Cement Grinding and Distribution
• Limestone is extracted from the Quarry. • It is then mixed with small amounts of sand and iron to obtain the composition required for clinker production.	• Fuel and raw material are analyzed to verify that they meet quality production requirements. • They are then blended with additional mineral components depending on the type of limestone available and finely ground.	• The mixture of raw materials and combustion gases passes through the process in a counter-flow system. • This system improves energy efficiency and reduces certain air emissions through the “scrubbing effect” of the raw materials. • The materials are heated in a kiln reaching a temperature of 1,550°C. • The heat transforms the materials into a molten product, which is then rapidly cooled to form a clinker.	• The clinker is stored and then finely ground in grinding mills. • Gypsum and limestone are added to control setting time to obtain a fine powder called cement. • The McInnis Plant manufactures 5 different types of cement, each with different setting times and strengths. • The cement is shipped in bulk by truck, rail and boat to different market locations.

Alternative Low Carbon Fuels (ALCFs)

- ALCFs are energy sources that produce lower levels of greenhouse gas emissions than traditional fossil fuels like coal, petroleum coke, oil and natural gas.
- They are derived from renewable resources or waste materials and are designed to be more environmentally friendly.
- They offer several advantages, particularly in the context of reducing environmental impacts and promoting sustainable energy practices.

Key Benefits:

- Reduce Greenhouse Gas Emissions
- Improve Air Quality
- Promote Efficient Use of Resources
- Enhance Energy Security
- Provide Economic Opportunities
- Align on Sustainability Goals
- Stimulate Innovation
- Comply to Regulations

Proposed ALCFs for McInnis Plant

As part of its Alternative Low Carbon Fuels (ALCFs) Project, Ciment St. Marys - McInnis Plant (CSM) is proposing the following:

- Estimated thermal substitution rate of 20% by 2030;
- Long-term thermal substitution rate of 70%;
- Installation of new equipment at the Site to feed ALCFs;
- Installation of a shredder and a dryer;
- Construction of on-site ALCF storage facilities using enclosed containers and buildings.

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

Biomass Materials

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

Non-Recyclable Plastics

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

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)

Construction & Demolition By-Products

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

Rubber Materials

Conveyor belts or other non-tire derived materials

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
- Floor laminates

Non-Recyclable Paper Fiber/Wood Composites

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

Biomass Fuel

- Sawdust
- Wood chips
- Wood
- Bark

Other

- Treated wood
- Asphalt shingles
- Non-recyclable rubber

Examples of Materials That Are Not ALCFs

Organic waste from Food Processing Activities

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

Compost

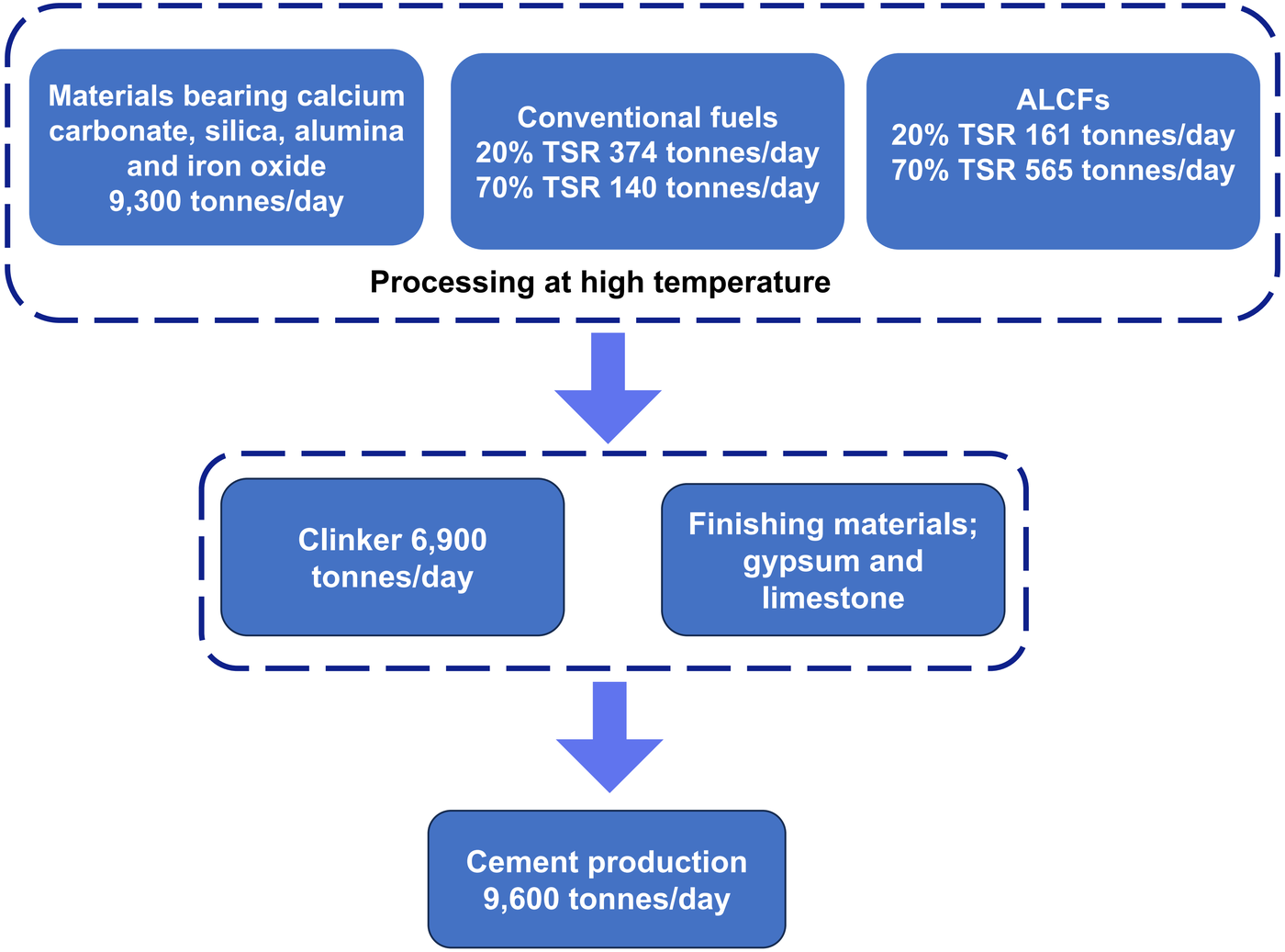
- Soil
- Leaf and yard waste collected or accepted by a leaf and yard waste collection system
- Compost produced through composting

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

How are ALCFs Used in the Production Process?

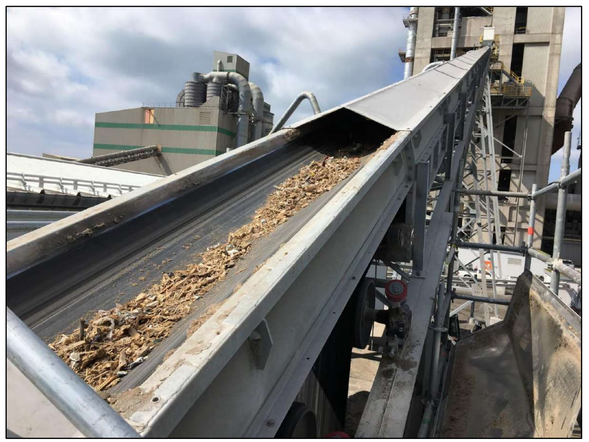
- Ciment St. Marys - McInnis Plant (CSM) currently uses petroleum coke as fuel at the Site in accordance with its Ministerial Authorization.
- The ALCF will be introduced into a solid fuel delivery system that would feed directly into the calciner at extremely high temperatures alongside conventional fuels.
- The fuel delivery system will be integrated with the plant control system. The operator will be able to adjust the ALCF feed rate based on the system's performance.
- The ALCF will not be used during the start-up and shut-down of the kiln.
- The expected ALCF Thermal Substitution Rate (TSR) is 20% by 2030.
- In the long term, the TSR is expected to reach 70%.



Environmental Benefits of ALCFs

- ALCFs typically produce fewer greenhouse gases than traditional fossil fuels, helping reduce carbon footprints and mitigate the effects of climate change.
- Many ALCFs are derived from waste materials or renewable resources, promoting the efficient use of available resources and reducing reliance on finite fossil fuel reserves.
- Diversifying energy sources through the use of ALCFs can enhance energy security by reducing dependence on imported fossil fuels and helping stabilize energy supply chains.
- The cement industry's strategy of incorporating ALCFs into the cement production process supports the principles of the circular economy by promoting solutions that are:
  - Designed to reduce resource use
  - Designed for longevity
  - Designed for reuse
  - Designed for material and energy recovery

Waste stops being waste when we can find a valuable use for it

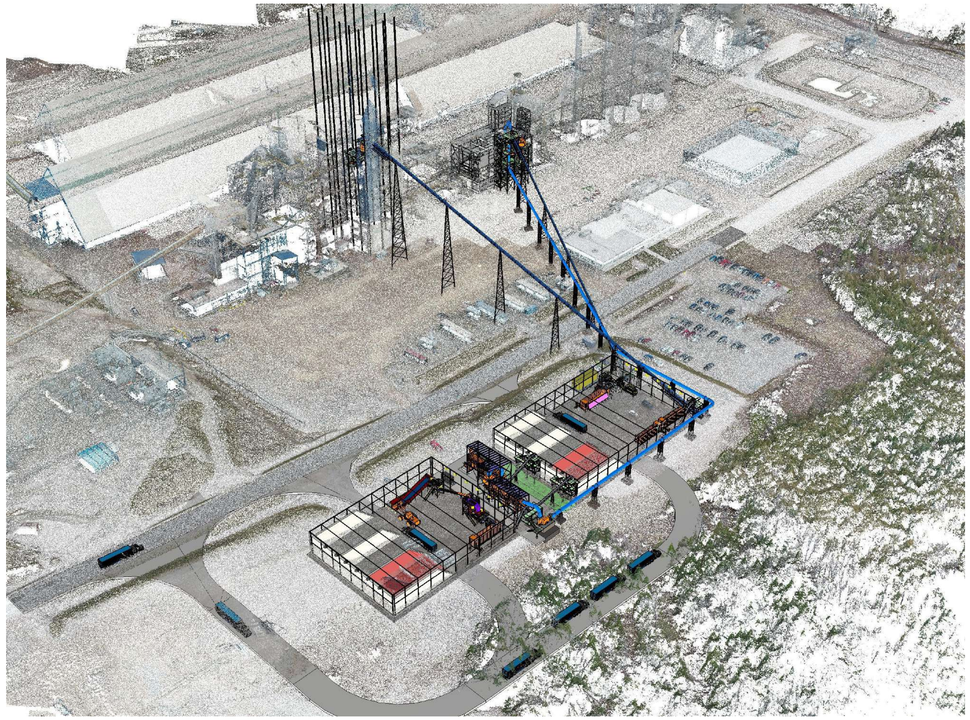


ALCF materials on conveyor belt

Enclosed ALCF Storage Container

ALCFs Project

- This Project involves constructing a facility to support the receipt, storage, and processing of ALCFs.
- The facility will be constructed in the area currently occupied by an existing parking lot.
- ALCFs will be processed in enclosed systems.
- The facility will have the capability to dry and reduce the size of ALCFs.
- ALCFs will be delivered to the site by truck and transported via an enclosed conveyor system to the kiln combustion system.
- An application to amend the plant's current authorization to permit the use of ALCFs will be submitted on the results of the supporting studies.



ALCFs Project

- Once ALCFs meet production requirements, they will be sent to the calciner by using an enclosed conveyor system.
- Process conditions and air emissions will be monitored continuously to ensure product quality and compliance with environmental standards.

ALCFs Project

- The cement industry is closely regulated and monitored by both federal and provincial authorities.
- The nature of the cement manufacturing process minimizes potential environmental impacts associated with the use of ALCFs, as extremely high temperatures are required to produce clinker.
- The Ministerial Authorization requires compliance with environmental standards that protects human health and the environment, as well as continuous emissions monitoring (CEM) and record-keeping.

ALCFs Project

Ciment St. Marys - McInnis Plant (CSM) submits annual air quality-related reports to the federal and provincial government, including:

- The Multi-Sector Air Pollutant Regulations require the CEM to measure SO_2 & Nox emissions and set an emission intensity for these compounds per tonne of clinker produced.
- The National Pollutant Release Inventory (NPRI) requires annual reporting of trace compounds and combustion products.
- Provincial GHG reporting programs require third-party verification of GHG emissions

ALCFs Authorization

- To support the authorization application, Ciment St. Marys - McInnis Plant (CSM) completed the following studies to assess the potential environmental effects of the ALCF project in the vicinity of the Plant:
    - Air Dispersion Modelling Study
    - GHG Reduction Assessment
    - Noise Impact Study
    - Traffic Impact Study
    - Archeology Assessment

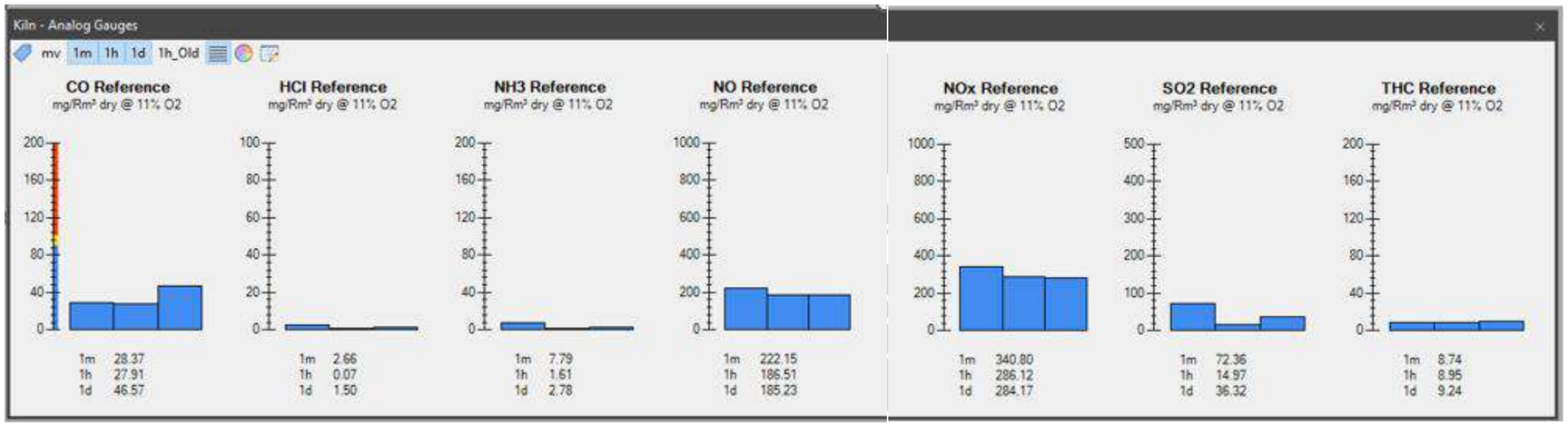
- The use of ALCFs will help meet increasingly stringent environmental regulations aimed at reducing emissions. This proactive approach is one of the key initiatives in our road map to reduce carbon emissions. As part of the ALCF project, McInnis Plant will build on its existing monitoring program to continue demonstrating on-going compliance with applicable environmental regulations.

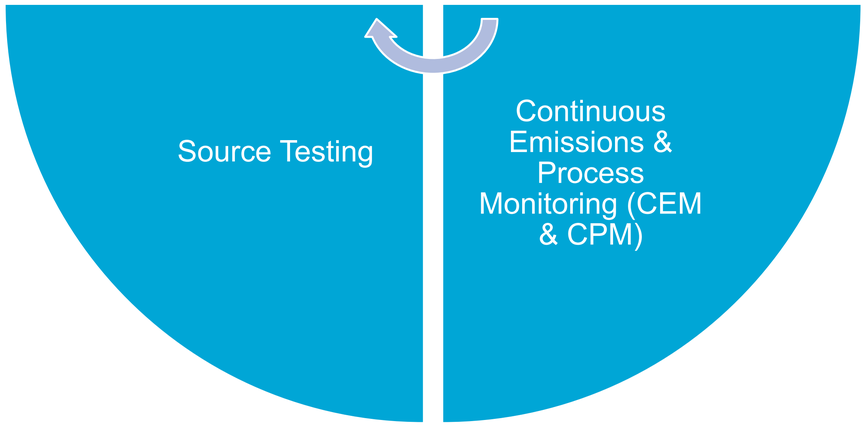
- The Plant already has extensive monitoring requirements and analytical monitoring instruments in place to support environmental monitoring and compliance.

Air Quality Monitoring

Two on-site air quality monitoring components:

- Continuous Emissions & Process Monitoring (CEM & CPM) – real-time monitoring of emissions and process conditions.
- Annual third-party source testing and sampling of emissions from the plant's three stacks, including the kiln stack.

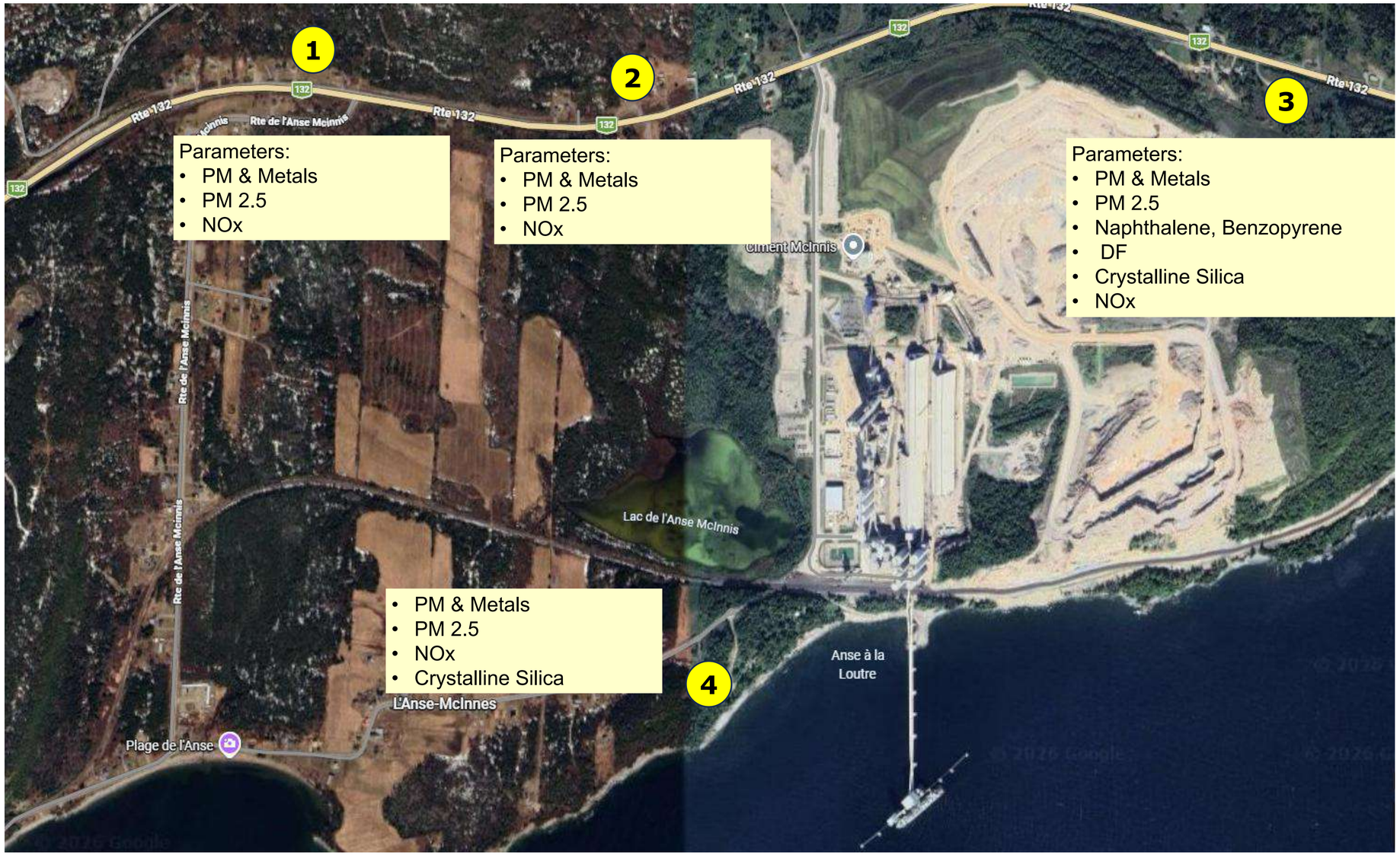




Air Ambient Monitoring

Ciment St. Marys - McInnis Plant has four ambient air stations that measure:

- PM: Total Particulate Matter
- PM 2.5: Particulate Mater 2.5 microns or less in diameter
- Metals
- NOx: Nitrogen Oxides
- DF: Dioxins and Furans
- Naphthalene
- Benzopyrene
- Crystalline Silica



Environmental Monitoring Programs

Multiple environmental monitoring programs have been undertaken, including:

- Ambient **air quality monitoring** every 6 days and/or monthly (Total Particulate Matter, PM2.5, Metals, NOx, Naphthalene, Benzopyrene, Dioxins and Furans, Crystalline Silica)
- Continuous **air emission monitoring** (NOx, SO2, PM, HCl, CO, THC)
- **Annual source testing**
- **Revegetation and invasive plant species monitoring** conducted annually during the plant growing season
- **Hydrogeological and geotechnical** monitoring conducted two to three times per year
- **Wetland and waterbody monitoring** conducted every five years
- **Blast monitoring**, including ground vibration, flyrock, and air overpressure measurements for every blast.

Sustainability and Climate Change

- Emissions from cement production account for approximately 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 in concrete
- The Canadian cement industry is dedicated to reduce GHG emissions through:
  - Replacing conventional fuels with low carbon fuels
  - Implementing transformative technologies such as carbon capture, carbon utilization, and other manufacturing innovations
- VCNA is committed to supporting the commitments of both the global and Canadian cement industries.

Sustainability and Climate Change

ALCFs will

Reduce the use of non-renewable fossil fuels

- Ciment St. Marys - McInnis Plant (CSM) can replace conventional fuels with ALCFs, thereby reducing the amount of petroleum coke used in the production of cement.
- Where possible, will focus on using locally sourced ALCFs.

Divert non-recyclable materials with significant heat value from landfills

- ALCFs will contribute to the following objectives:
  - Reduce the amount of materials with fuel value that are sent to landfills.
  - Increase opportunities to use technologies such as thermal treatment to recover valuable resources from residual waste.

Reduce Greenhouse Gas Emissions in Quebec

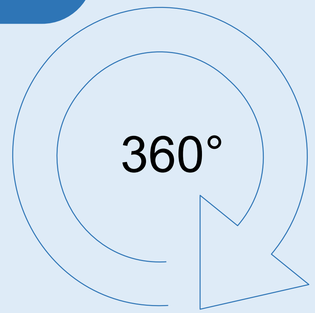
Direct reduction in GHG emissions is due to:

- the lower CO_2 emission intensity of ALCFs
- replacing geological-cycle (long-cycle) carbon with biological-cycle (short-cycle) carbon from plants

Indirect reduction in GHG emissions is achieved by diverting organic materials from landfills, thus avoiding the decomposition of these organic materials, and the resulting release of methane into the environment.

Support the Circular Economy model

- The cement industry's strategy of using ALCFs (e.g., non-recyclable materials) in the cement production process supports the Circular Economy model



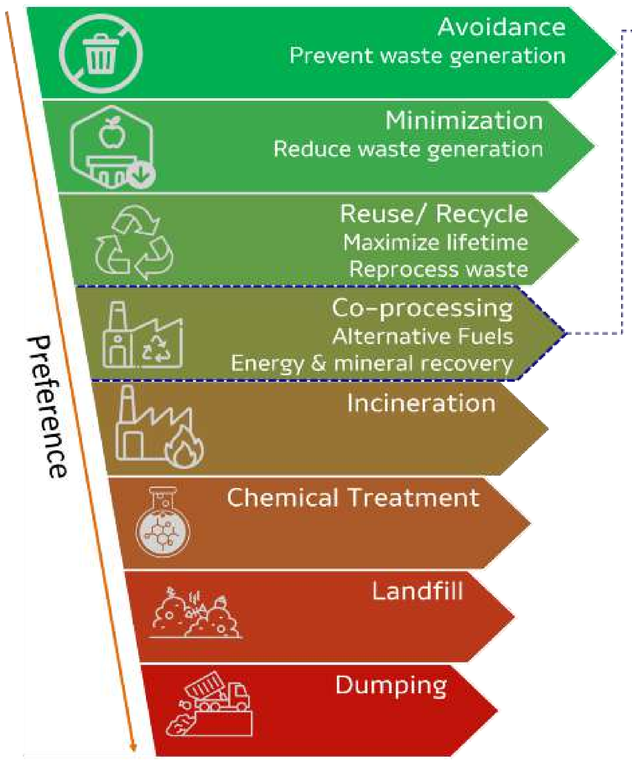
Focus on design for:

Longevity

Reuse

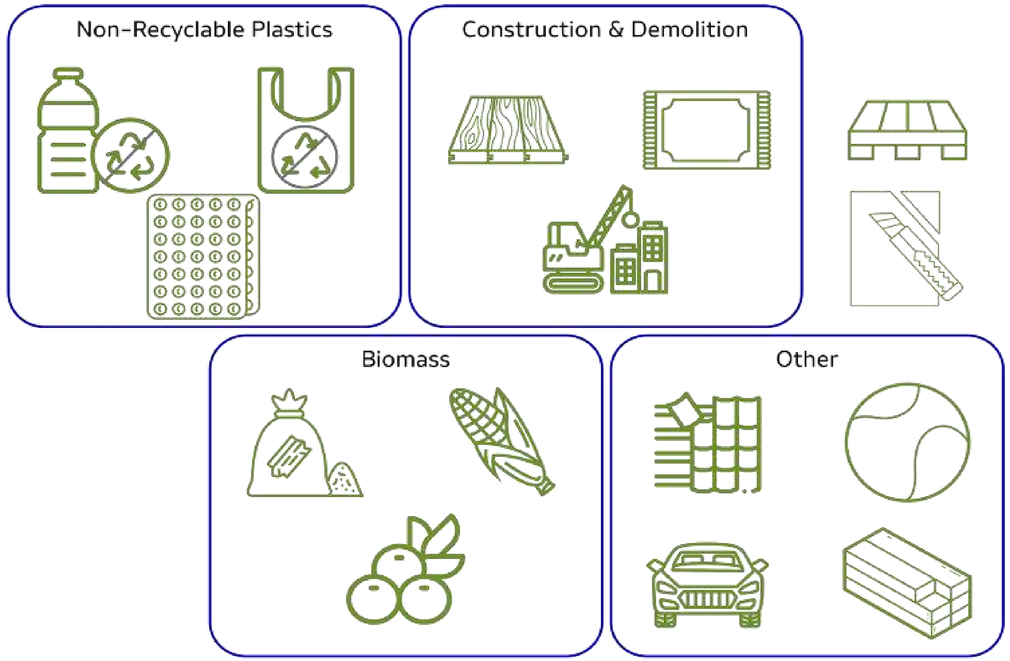
Material/Energy Recovery

Aligning Co-Processing to Circular Economy



Alternative fuels are fuels that can be used instead of conventional fuels such as coal, oil and natural gas

Types of AFs



Connections to the circular economy and landfill diversion:

- Contributes to the development of circular supply chains, creating local employment opportunities and supporting regional economic activity
- Supports the local community

ALCF Use Around the World

- **Long history of ALCF use in cement production around the world**
- In 2023, European cement producers achieved an average thermal substitution rate (TSR) of 57% through the use of ALCFs, with rates reaching 85% in Austria and 76% in Germany.
- The North American cement industry lags behind Europe in the use of ALCFs:
  - The average TSR in the US was 16% in 2023.
  - The average TSR in Canada was 13% in 2023.
  - Quebec has the most experience with the use of ALCFs in cement production, with over 25 years of experience.

VCNA Charlevoix plant's alternative low carbon fuel facility

Sustainability and Climate Change

St. Marys Cement Decarbonization Strategy

Reduce greenhouse gases and create long-term value

Emission target: Net Zero CO_2 concrete by 2050

--- Think globally, but act locally ---

Levers	Development	Operating Model
Clinker substitution	SCM Contracts, new sources & suppliers	Own development & partnership with suppliers
Alternative fuels	ALCFs 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, ALCFs market development, concrete life cycle

Air Dispersion Modelling

- Air emission calculations were completed using maximum emission scenarios for all facility equipment and fugitive sources. These maximum emissions were incorporated into the dispersion model to predict worst case impacts in the surrounding area and at all the sensitive receptor locations.
- Dispersion was completed with five years of real meteorological data to determine the modelled maximum concentrations, which were then compared to Quebec's published ambient air quality criteria.
- Even under this very conservative modeling approach, all predicted concentrations were below their respective criteria.
- The ALCF Air Dispersion Modelling Study considered airborne emissions at maximum operating capacity and compared with Ministry-published risk-based thresholds as well as baseline operating conditions permitted under the current authorization.
- The ALCF modelling study demonstrated that the use of ALCFs to offset conventional fuels would not result in any increase in impacts to the community.
- The modelling domain covered an area of 10 km by 10 km.
- Within this domain, modelled contaminant concentrations were evaluated at sensitive receptors located both on and off CSM property, including residences and vacant land parcels.
- The modelled maximum operating scenario includes all facility air emission sources operating at their maximum capacities, while 70% of required conventional fuel is replaced by ALCF.
- Property boundaries are defined by the red line.

Emissions Sources Assessed

The site-wide air emission inventory includes:

- Cement Plant Emission Sources
  - Kiln Stack
  - Finish Mills
  - Clinker Cooler
  - Product Loading
  - Material Processing & Handling
- Quarry Emission Sources
  - Material Extraction
  - Material Processing & Handling
  - Wind Erosion
- ALCF Handling Sources
  - Drying & Baghouses
- Dock Area Emission Sources
  - Material Handling
- Road Emission Sources
  - Road Dust
    - Tailpipe

Dispersion Modelling Approach

ALCF Assumptions

- The Thermal Substitution Rate (TSR) is 70 %, meaning that 70 % of the petroleum coke energy will be replaced by ALCFs.
- ALCF feedstocks are expected to vary and may include, biomass, plastics, non-tire rubber, construction and demolition materials, amongst other sources.
- Considering a thermal energy basis, wet biomass at approximately 20% moisture content is expected to have the lowest calorific value.

Energy Data

- Maximum annual consumption of petroleum coke: 200,000 tonnes/year
- Maximum daily consumption of petroleum coke: 548 tonnes/day
- 70 % of total petroleum coke : 384 tonnes/day
- ALCF with 70 %TSR from wet biomass: 770 tonnes/day
- ALCF with 70 %TSR from dry biomass: 625 tonnes/day
- ALCF scenario annual dry biomass with 70 % TSR: 228,229 tonnes/year

Modelling Assumptions

- Other similar Facilities completed an ALCF demonstration project evaluating residual materials derived from industrial and/or post-consumer sources including plastic polymers, paper fibres and woody materials as alternative fuels.
- Emission factors for over 90 contaminants were derived from stack testing.
- ALCFs consisted of shredded wood material provided by a third-party supplier and residual plastics from an industrial source, primarily consisting of film plastics recovered during manufacturing but unsuitable for recycling.
- The Baseline scenario is the maximum emissions scenario model developed as part of SMC's application for the Facility's Certificate of Authorization which was submitted and reviewed by the Ministry.

Dispersion Modelling Results - Baseline

- ALCF usage is not expected to impact particulate matter (incl. PM2.5), nitrogen dioxide, sulphur dioxide, or carbon monoxide – these contaminants depend on the kiln system and air pollution control equipment
- Only contaminants that could potentially result in an increase in facility-wide emission rates as a result of ALCF use were evaluated

				Background		Baseline		
Contaminant	CAS #	Threshold Averaging Period	Threshold Value (ug/m^3)	Background Concentration (BG) (ug/m^3)	BG % of Threshold (%)	Maximum Baseline POI Concentration (ug/m^3)	Baseline % of Threshold (%)	BG and Baseline % of Threshold (%)
Total Particulate Matter	TPM	24 hours	1.20E+02	4.72E+01	39.3%	6.33E+01	52.7%	92.0%
PM2,5	PM2.5	24 hours	3.00E+01	1.06E+01	35.5%	1.75E+01	58.2%	93.7%
Crystalline Silica	14808-60-7	1 hour	2.30E+01	6.00E+00	26.1%	3.33E-01	1.4%	27.5%
Crystalline Silica	14808-60-7	Annual	7.00E-02	4.00E-02	57.1%	2.55E-03	3.6%	60.8%
Nitrogen Dioxide	10102-44-0	1 hour	4.14E+02	1.50E+02	36.2%	1.13E+02	27.4%	63.6%
Nitrogen Dioxide	10102-44-0	24 hours	2.07E+02	1.00E+02	48.3%	2.00E+01	9.7%	58.0%
Nitrogen Dioxide	10102-44-0	Annual	1.03E+02	3.00E+01	29.1%	8.51E-01	0.8%	30.0%
Sulphur Dioxide	7446-09-5	4 minutes	1.05E+03	1.50E+02	14.3%	3.13E+02	29.8%	44.1%
Sulphur Dioxide	7446-09-5	24 hours	2.88E+02	5.00E+01	17.4%	2.80E+01	9.7%	27.1%
Sulphur Dioxide	7446-09-5	Annual	5.20E+01	2.00E+01	38.5%	1.17E+00	2.3%	40.7%
Carbon Monoxide	630-08-0	1 hour	3.40E+04	2.65E+03	7.8%	2.38E+02	0.7%	8.5%
Carbon Monoxide	630-08-0	8 hours	1.27E+04	1.75E+03	13.8%	6.18E+01	0.5%	14.3%
Hydrogen Chloride (HCl)	7647-01-0	4 minutes	1.15E+03	0.00E+00	0.0%	1.91E-01	0.0%	0.0%
Hydrogen Chloride (HCl)	7647-01-0	Annual	2.00E+01	0.00E+00	0.0%	2.89E-03	0.0%	0.0%
Manganese	7439-96-5	Annual	2.50E-02	2.00E-02	80.0%	1.39E-03	5.6%	85.6%
Benzene	71-43-2	24 hours	1.00E+01	3.00E+00	30.0%	2.24E-05	0.0%	30.0%
Chloroethane	75-00-3	4 minutes	1.09E+04	0.00E+00	0.0%	6.81E-04	0.0%	0.0%
Chloroethane	75-00-3	Annual	5.00E+02	0.00E+00	0.0%	1.03E-05	0.0%	0.0%
Chloromethane	74-87-3	Annual	4.50E+00	1.10E+00	24.4%	1.11E-04	0.0%	24.4%
Ethylbenzene	100-41-4	4 minutes	7.40E+02	1.40E+02	18.9%	3.97E-03	0.0%	18.9%
Ethylbenzene	100-41-4	Annual	2.00E+02	3.00E+00	1.5%	6.01E-05	0.0%	1.5%
Toluene	108-88-3	4 minutes	6.00E+02	2.60E+02	43.3%	2.91E-02	0.0%	43.3%
Xylene (o,m,p)	1330-20-7	4 minutes	3.50E+02	1.50E+02	42.9%	1.73E-02	0.0%	42.9%
Xylene (o,m,p)	1330-20-7	Annual	2.00E+01	8.00E+00	40.0%	2.62E-04	0.0%	40.0%
1-methylnaphtalene	90-12-0	1 hour	3.00E+01	0.00E+00	0.0%	3.68E-03	0.0%	0.0%
1-methylnaphtalene	90-12-0	Annual	4.00E+00	0.00E+00	0.0%	1.06E-04	0.0%	0.0%
Naphtalene	91-20-3	4 minutes	2.00E+02	5.00E+00	2.5%	3.41E-03	0.0%	2.5%
Naphtalene	91-20-3	Annual	3.00E+00	0.00E+00	0.0%	5.15E-05	0.0%	0.0%
Tetralin	119-64-2	1 hour	1.22E+01	0.00E+00	0.0%	-	-	0.0%
Tetralin	119-64-2	Annual	4.00E-01	0.00E+00	0.0%	-	-	0.0%
Pentachlorobenzene	608-93-5	Annual	3.40E-01	0.00E+00	0.0%	1.48E-07	0.0%	0.0%

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Dispersion Modelling Results - ALCF

- Most offsite points of impact (POIs) are primarily influenced by background conditions.
- The most significant contaminant impact relates to crystalline silica, which increases due to expected ALCF deliveries via the paved road onsite.
- The overall increase at offsite POIs is negligible compared to the applicable threshold values.

				Background		ALCF			
Contaminant	CAS #	Threshold Averaging Period	Threshold Value (ug/m^3)	Background Concentration (BG) (ug/m^3)	BG % of Threshold (%)	Maximum ALCF POI Concentration (ug/m^3)	ALCF % of Threshold (%)	BG and ALCF % of Threshold (%)	BG+ALCF vs BG+Baseline Difference of % of Threshold (%)
Total Particulate Matter	TPM	24 hours	1.20E+02	4.72E+01	39.3%	6.33E+01	52.7%	92.0%	0.0%**
PM2,5	PM2.5	24 hours	3.00E+01	1.06E+01	35.5%	1.75E+01	58.2%	93.7%	0.0%**
Crystalline Silica	14808-60-7	1 hour	2.30E+01	6.00E+00	26.1%	5.13E-01	2.2%	28.3%	0.8%
Crystalline Silica	14808-60-7	Annual	7.00E-02	4.00E-02	57.1%	3.16E-03	4.5%	61.7%	0.9%
Nitrogen Dioxide	10102-44-0	1 hour	4.14E+02	1.50E+02	36.2%	1.13E+02	27.4%	63.6%	0.0%**
Nitrogen Dioxide	10102-44-0	24 hours	2.07E+02	1.00E+02	48.3%	2.00E+01	9.7%	58.0%	0.0%**
Nitrogen Dioxide	10102-44-0	Annual	1.03E+02	3.00E+01	29.1%	8.51E-01	0.8%	30.0%	0.0%**
Sulphur Dioxide	7446-09-5	4 minutes	1.05E+03	1.50E+02	14.3%	3.13E+02	29.8%	44.1%	0.0%**
Sulphur Dioxide	7446-09-5	24 hours	2.88E+02	5.00E+01	17.4%	2.80E+01	9.7%	27.1%	0.0%**
Sulphur Dioxide	7446-09-5	Annual	5.20E+01	2.00E+01	38.5%	1.17E+00	2.3%	40.7%	0.0%**
Carbon Monoxide	630-08-0	1 hour	3.40E+04	2.65E+03	7.8%	2.38E+02	0.7%	8.5%	0.0%**
Carbon Monoxide	630-08-0	8 hours	1.27E+04	1.75E+03	13.8%	6.18E+01	0.5%	14.3%	0.0%
Hydrogen Chloride (HCl)	7647-01-0	4 minutes	1.15E+03	0.00E+00	0.0%	2.86E-01	0.0%	0.0%	0.01%
Hydrogen Chloride (HCl)	7647-01-0	Annual	2.00E+01	0.00E+00	0.0%	4.13E-03	0.0%	0.0%	0.01%
Manganese	7439-96-5	Annual	2.50E-02	2.00E-02	80.0%	1.47E-03	5.9%	85.9%	0.3%
Benzene	71-43-2	24 hours	1.00E+01	3.00E+00	30.0%	1.53E-02	0.2%	30.2%	0.2%
Chloroethane	75-00-3	4 minutes	1.09E+04	0.00E+00	0.0%	1.10E-02	0.0%	0.0%	0.00009%
Chloroethane	75-00-3	Annual	5.00E+02	0.00E+00	0.0%	1.59E-04	0.0%	0.0%	0.00003%
Chloromethane	74-87-3	Annual	4.50E+00	1.10E+00	24.4%	1.64E-03	0.0%	24.5%	0.03%
Ethylbenzene	100-41-4	4 minutes	7.40E+02	1.40E+02	18.9%	4.57E-02	0.0%	18.9%	0.01%
Ethylbenzene	100-41-4	Annual	2.00E+02	3.00E+00	1.5%	6.59E-04	0.0%	1.5%	0.0003%
Toluene	108-88-3	4 minutes	6.00E+02	2.60E+02	43.3%	1.21E-01	0.0%	43.4%	0.02%
Xylene (o,m,p)	1330-20-7	4 minutes	3.50E+02	1.50E+02	42.9%	2.39E-01	0.1%	42.9%	0.1%
Xylene (o,m,p)	1330-20-7	Annual	2.00E+01	8.00E+00	40.0%	3.45E-03	0.0%	40.0%	0.02%
1-methylnaphtalene	90-12-0	1 hour	3.00E+01	0.00E+00	0.0%	1.21E-02	0.0%	0.0%	0.03%
1-methylnaphtalene	90-12-0	Annual	4.00E+00	0.00E+00	0.0%	3.34E-04	0.0%	0.0%	0.01%
Naphtalene	91-20-3	4 minutes	2.00E+02	5.00E+00	2.5%	4.61E-02	0.0%	2.5%	0.02%
Naphtalene	91-20-3	Annual	3.00E+00	0.00E+00	0.0%	6.65E-04	0.0%	0.0%	0.02%
Tetralin	119-64-2	1 hour	1.22E+01	0.00E+00	0.0%	8.22E-03	0.1%	0.1%	0.1%
Tetralin	119-64-2	Annual	4.00E-01	0.00E+00	0.0%	2.26E-04	0.1%	0.1%	0.1%
Pentachlorobenzene	608-93-5	Annual	3.40E-01	0.00E+00	0.0%	3.62E-07	0.0%	0.0%	0.0001%

Noise Impact and Mitigation

- The addition of the ALCF project will not increase the overall noise levels of the facility. Noise modelling demonstrates that the ALCF project could result in an increase of between 0.0 dBA and 0.2 dBA at the most exposed off-site receptor, a change that is inaudible and imperceptible to the human ear. The applicable noise criterion ranges from 40 to 61 dBA.
- ALCF-related operations will be conducted within an enclosed building, ensuring that noise remains contained indoors.
- Quarrying operations occur below ground level with site terrain providing natural acoustic shielding.

Location of each noise source

GHG Reduction

- GHG reduction was evaluated according to four ALCF scenarios with a Thermal Substitution Rate (TSR) of up to 70%. This means that 70% of the energy used in the calciner will be provided by ALCFs and 30% from conventional fuels such as petroleum coke.
- The assessment was conducted using carbon dioxide emission factors and emission intensity values. Biomass is considered carbon neutral due to its biogenic carbon content.

		TSR 70 % Results as a function of plastic waste and biomass content – tm CO_2e			TSR at 20 % in 2030 Results as a function of plastic waste and biomass content – tm CO_2e		
GHG emissions in tm CO2e	Baseline 2023	Biomass 70 % Plastic waste 30 %	100 % Plastic Waste	100 % Biomass	Biomass 70 % Plastic waste 30 %	100 % Plastic Waste	100 % Biomass
Petroleum coke	520,037	156 011	156 011	156 011	416 029	416 029	416 029
Biomass	N/A	5 384	N/A	7691	1 538	N/A	2 198
Plastic Waste	N/A	68 170	227 233	N/A	19 477	64 924	N/A
Total Emissions	520,037	229 165	383 244	163 702	437 045	480 953	418 227
Total GHG Reduction		290 472	136 793	356 335	82 992	39 084	101 810

Traffic Study and Trucking

Assumptions

- The objective of the traffic study was to estimate existing traffic volumes, and anticipated future traffic generated by the ALCF facility.
- During the morning peak hour, existing traffic volumes on Route 132 were 331 vehicles. During the afternoon peak hour, existing traffic volumes were 343 vehicles. These volumes are representative of a typical summer weekday.
- Based on current cement delivery operations, the maximum monthly demand is 901 trucks per month, equivalent to approximately 36 trucks per day.
- The peak employee-generated traffic occurs on weekday mornings, with approximately 90 employees arriving at the site in the hour beginning at 6:45 a.m. This represents the highest employee-related traffic volume of the day.

Results

- Average daily ALCF consumption at a 70 % TSR is equivalent to 27 trucks per day, concentrated within a 3-hour period, or approximately nine trucks per hour during peak periods.
- The new rail infrastructure will reduce this volume from 27 to 17 trucks per day (or a maximum of 8 trucks during the peak hour), resulting in a total of 53 trucks per day (36 existing cement delivery trucks and 17 new ALCF delivery trucks)
- During the peak hour, the project is expected to generate two additional employee vehicles and one delivery vehicle.
- Based on anticipated low volume of site-generated traffic from the new ALCF facility (less than 11 vehicles per hour), no significant traffic impact are anticipated.

Archeology Assessment

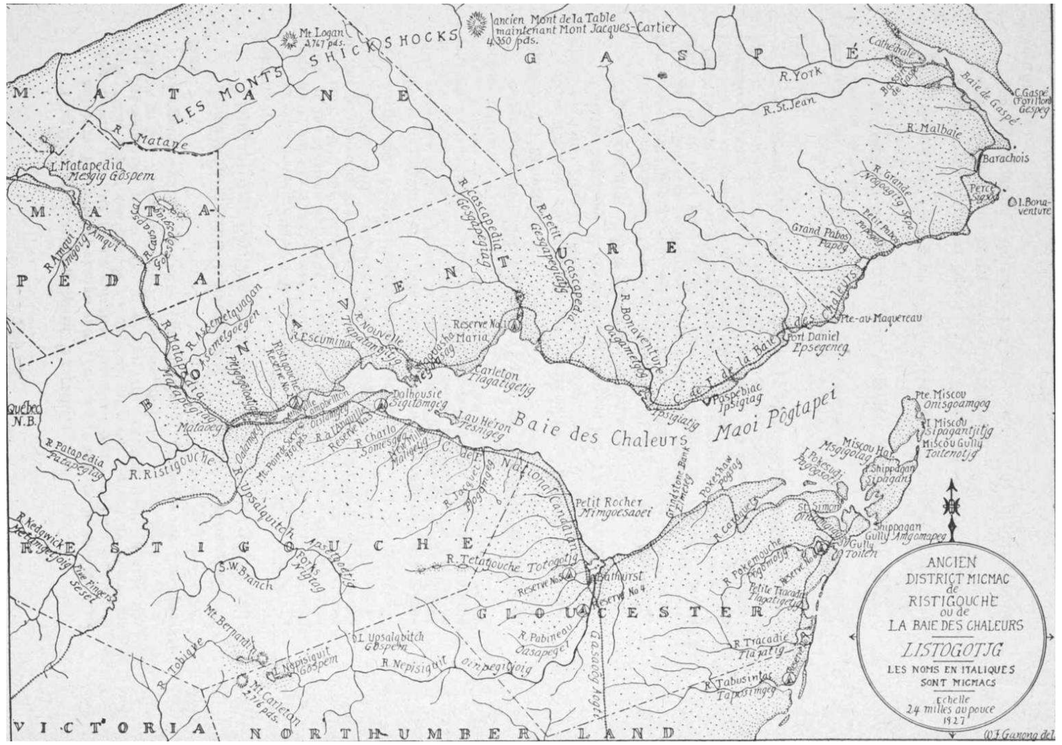
Objective

The objective of the assessment was to determine the level of archaeological potential and the risk of impacts to archaeological heritage within the study area. The study area covered approximately 152,200 m^2 and included the project area and a buffer zone around the planned infrastructure.

Results

The study area was subdivided into eight areas of archaeological potential: seven with low potential and one with no archaeological potential. This assessment was based primarily on the impact of current developments and on the small number of favorable attributes to ancient human occupation, whether Indigenous or non-Indigenous.

Although archaeological sites are generally located very close to the ground surface, the intensity of site developments and the overall low archaeological potential of the area allow us to estimate that the risk of impact to archaeological heritage is negligible.



Next Steps

How to be involved in the process?

- Talk to our team members today and fill out a comment form. We will review them and respond to your feedback.
- We kindly ask that completed comment forms be submitted by September 30, 2026.
- Visit our website: https://www.stmaryscement.com/alternative-low-carbon-fuels-project/ All notices and presentation materials will be posted on the project website.
- Contact our project team by phone or email:

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