



Votorantim Cimentos North America
Community Liaison Committee
Friday September 16h, 2022



Agenda

- ❖ Welcome and Introductions
- ❖ Review of June 10th Meeting and Minutes
- ❖ Complaints 2022 Year to Date
- ❖ SMC Odour Complaints
- ❖ Odour Mitigation Timeline
- ❖ Questions Brought Forward in Advance of Today's Meeting
- ❖ Round Table
- ❖ Closing Remarks

Welcome and Introductions



Community Liaison Committee

The next Community Liaison Committee Meeting is going to be held on **September 16th at 10am**. Members of the public who wish to observe as the members of the Committee discuss information with respect to St Marys Cement can watch the live meeting online. Please see the Town of St Marys Events Calendar for the link to the online meeting.

Please submit any questions and concerns for the meeting by September 14th to kara.terpstra@vcimentos.com.

- ❖ Thank you to the Town of St Marys for allowing us to use their Youtube Channel
- ❖ Round Table Introductions.
- ❖ Did anyone have any comments/concerns about the June 10th Meeting Minutes

Complaints 2022 Year to Date

Complaints 2022 Year to Date

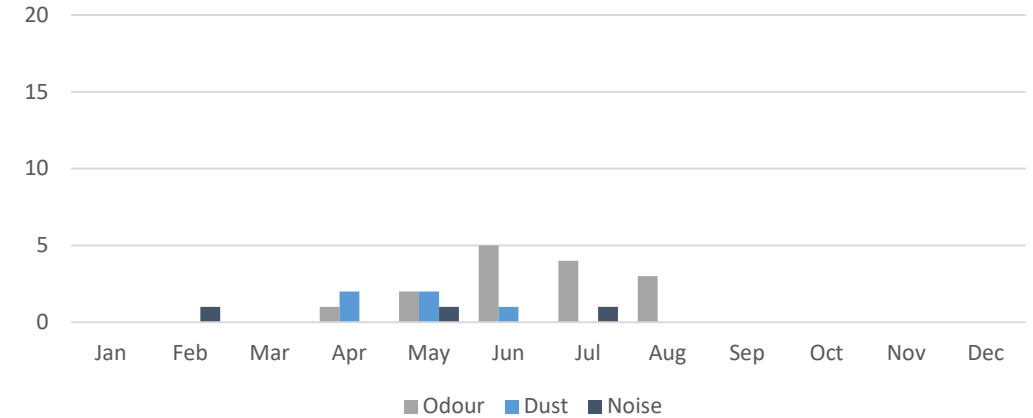
	Odour*	Mention Health**	Dust***	Noise
Total	16	6	3	3
January	0	0	0	1
February	0	0	0	0
March	0	0	0	0
April	1	0	2	0
May	2	0	0	1
June	5	2	1	0
July	5	2	0	1
August	3	2	0	1
September				
October				
November				
December				

* Odour complaints reviewed on the next slides

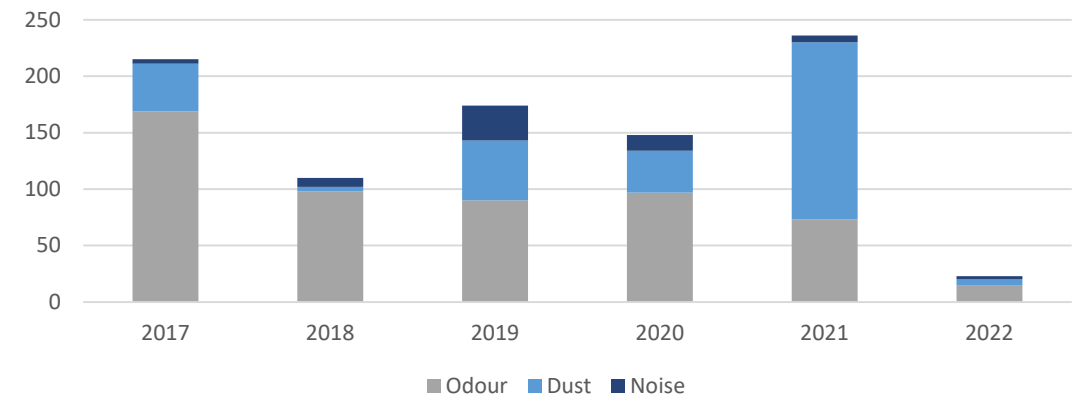
** Dust Complaints reviewed on next slides

*** Complaints which 'Mention Health' are counted when a resident calls with an odour complaint and highlights that they have health concerns. They are not separate complaints received by the plant.

2022 Complaints



Complaints Year to Year



Enviro-Suite Update



Likely Originated from SMC

The trajectory generated by Enviro-Suite aligns with the location of the stack.



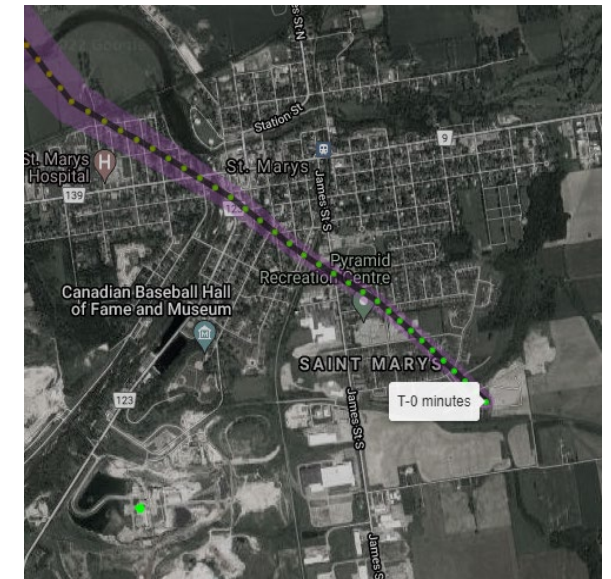
Possibly Originated from SMC

The trajectory generated by Enviro-Suite is close to aligning with the location of the stack.



Probably did not Originate from SMC

The trajectory generated by Enviro-Suite is not close to the stack but direction of the trajectory is towards SMC.



Did Not Originate from SMC

The trajectory generated by Enviro-Suite is clearly not in the direction of the stack.

Odour Complaints March to Present

Date	Enviro-Suite Results
Sunday, June 12, 2022	Probably not SMC
Saturday, June 25, 2022	Likely Originated from SMC
Monday, July 11, 2022	Possibly Originated from SMC
Monday, July 11, 2022	Possibly Originated from SMC
Thursday, July 21, 2022	Likely Originated from SMC
Thursday, July 28, 2022	Likely Originated from SMC
Monday, August 1, 2022	Likely Originated from SMC
Friday, August 19, 2022	Likely Originated from SMC
Wednesday, August 31, 2022	Likely Originated from SMC

Type	Count
Likely originated from SMC	6
Possibly originated from SMC	2
Probably Not SMC	1
Not SMC	0

YTD - Type	Count
Likely originated from SMC	11
Possibly originated from SMC	3
Probably Not SMC	1
Not SMC	0



St Marys Cement Plant

Odour Mitigation Timeline

Odour Mitigation Timeline

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022 and Ongoing
Lime Injection																
Preheating Raw Materials - Thermal Analysis																
Alternative Material Addition Location																
Kiln Stack Height and Flowrate Assessment																
Kiln Stack Height and Flowrate Feasibility																
Fuel Substitution																
Correlation of Stack Emissions and Odour within the Process																
Sulphur Dioxide Control																
Environmental Compliance Approval – Application and Approval																
Raw Material Odour Contributions																
Kiln Stack Height and Flowrate Assessment Using a Higher Resolution Dispersion Model																
Stack Height Extension																
Community Engagement																
Enviro-Suite Software																



Lime Injection

When	2007 to 2009
Consultant	AMEC
Investigation	Working on an assumption that the perceived odour is Sulphur Dioxide, St Marys Cement (SMC) trialed the injection of lime as a raw material at various locations into the process for Sulphur Dioxide reduction.
Results	During the trial no reduction was noted in SO2 emission levels or odour.
Next Steps	None.

Preheating Raw Materials (Thermal Analysis)

When	2009 to 2012
Consultant	Dr. MacGregor Miller; Cement Etc. Inc.
Investigation	Contribution of Raw Materials creating odour based off <u>chemical composition</u> .
Results	Based off thermal analysis some of the industrial byproduct materials used as raw materials contained high levels of organic carbon, which could react with Sulphur and could contribute to odour.
Next Steps	SMC performed stack testing of the organic carbon compounds identified, based off the results of the stack testing and dispersion modelling these compounds were a fraction of the MECP odour limits.

Alternative Material Addition Location

When	2011
Consultant	Dr. MacGregor Miller
Investigation	It was proposed that the fly ash used in the process as a raw material had a high organic content which could be contributing to the odour. Dr. Miller proposed segregating Fly Ash from other raw materials and introducing in a separate location in the preheat tower.
Results	Operations could not control the chemistry based off the new addition location.
Next Steps	None. SMC notes that odour complaints were still received during periods when the fly ash was not in use.

Kiln Stack Height and Flowrate Assessment

When	2010
Consultant	PGL
Investigation	Stack Height Extension and/or Flow Increase for increased odour dispersion
Results	Modelling showed a 20m height extension and/or a 150% flow increase could increase odour dispersion and could decrease complaints.
Next Steps	SMC investigated whether it was feasible to add a 20m height extension to the existing preheat tower structure, see next slide.

Kiln Stack Height and Flowrate Feasibility

When	2010
Consultant	Consultec
Investigation	Feasibility of Stack Height Extension and/or Flow Increase
Results	Civil engineering studies noted that a 15m would be feasible without major structural changes for reinforcement.
Next Steps	<p>The odour dispersion modelling done in 2010 noted that a 20m extension or more could increase odour dispersion however because the civil engineering studies only allowed for a 15m extension it was not completed in 2010.</p> <p>Dispersion modelling noted that an increase in flow would only be effective for odour dispersion if done in combination with the stack height extension.</p> <p>No modifications were made at this time.</p>

Fuel Substitution

When	2011
Consultant	BCX Environmental Consulting and HDR
Investigation	Fuels Substitution – Alternative Low Carbon Fuels Trial
Results	The facility uses petroleum coke and natural gas as fuels on site. In 2011 the facility performed an alternative low carbon fuels trial as an initiative to decrease overall greenhouse gas emissions.
Next Steps	There was no increase or decrease in odour complaints received during the 2011 trial.

Correlation of Stack Emissions and Odour within the Process

When	2015
Consultant	AMEC
Investigation	SMC conducted odour testing at various points within the process (separate from the main stack) to determine where odours were being formed within the process, potentially due to varying temperatures at different points within the process.
Results	No conclusive correlations were found from the AMEC study.
Next Steps	None

When	2017 and Ongoing
Consultant	SMC
Investigation	<p>The facility is required to maintain emission levels within Multi Sector Air Pollutant Registry (MSAPR) limits and the Ambient Air Quality Control (AAQC) limits at all times.</p> <p>As the Ministry of Environment updates the AAQC, SMC will continue to examine emission levels to confirm the facility is still within compliance (ie. In 2018 the 1-hour AAQC for SO2 decreased to 40ppb).</p> <p>While SMC is within the MSAPR and AAQC limits, the facility also continuous to adjusts process variables seeking to minimize emission levels even further.</p> <p>https://www.ontario.ca/page/ontarios-ambient-air-quality-criteria</p>
Results	Some odour complaints are received during this process while the facility is within MSAPR and AAQC compliance levels.
Next Steps	Ongoing

Environmental Compliance Approval – Application and Approval

When	2015 to 2017
Consultant	SMC and MECP
Investigation	SMC worked with the Ministry of Environment, Conservation and Parks on a new Environmental Compliance Approval which included the requirement for Odour Mitigation and an Odour Abatement Plan.
Results	Environmental Compliance Approval #4546-AQ9GMB issued on August 17 th , 2017.
Next Steps	<p>Complete Condition 12: Source Testing and Condition 13: Odour Abatement Plan of the ECA.</p> <p>The Source Testing measured the emission of nitrogen oxides, odour, and odour compounds including Sulphur dioxide, total reduced sulphur (TRS) compounds, carbon disulfide, carbonylsulfide and ammonia from the stack.</p> <p>The Odour Abatement Plan outlined the facility's plan to prevent or mitigate odourous emissions from the Facility. The mitigation actions taken as part of this odour abatement plan are outlined on the following slides.</p>

Raw Material Odour Contributions

When	2017 to 2018
Consultant	Zorix Consultants Inc.
Investigation	<p>SMC developed a testing methodology to determine the <u>odour contribution</u> of each raw material by purchasing an Ac'scent olfactometer.</p> <p>Raw material samples were heated up using an oven to simulate the temperatures of the kiln. The resulting gases emitted from the raw material samples were analyzed for odour to determine which raw materials contribute to odour.</p>
Results	Using the results of the olfactometer SMC was able to determine that limestone is the primary contributor to odour.
Next Steps	Limestone makes up more than 80% of the raw material feed and cannot be removed from the process.

Kiln Stack Height and Flowrate Assessment Using a Higher Resolution Dispersion Model

When	2017 to 2018
Consultant	BCX Environmental Consulting
Investigation	Stack Height Extension and/or Flow Increase for increased odour dispersion using CALPUFF
Results	<p>BCX updated the CALPUFF model which predicted that a stack extension of <u>20m or more</u> would provide optimal dispersion for the facility. The modelling also showed that any additional air flow would only optimize the effectiveness of the stack extension i.e. increasing the flowrate on its own would not result in sufficient dispersion without a stack height extension of 20m or more.</p> <p>It is noteworthy that both models used for the emission dispersion modelling (AERMOD and CALPUFF) of the facility predicted odour levels within the MECP guideline of 1 OU/m³ not more than 0.5% of the time.</p> <p>Both the AERMOD model and the CALPUFF model showed that weather conditions are the predominant factor in emission dispersion and under some circumstances odour would likely still be perceived.</p> <p>Refer to the presentation on the CLC website – Air Emissions and Dispersion Modelling.</p>
Next Steps	Civil Engineering studies completed for the feasibility of the stack extension.

Stack Height Extension

When	2018
Consultant	Unitec
Investigation	Stack Height Extension Feasibility
Results	New civil engineering studies were initiated on the feasibility of a stack height extension. As a result major structural modifications were made to reinforce the preheat tower allowing for a 30m stack height extension (as per the 20m or more recommendation from the CALPUFF modelling).
Next Steps	30m stack height extension was completed in May 2020.

Enviro-Suite Monitoring

When	2020 to Present
Consultant	Enviro-Suite
Investigation	<p>Odour Dispersion modelling and complaint validation.</p> <p>SMC installed ambient air monitors in tied to the Enviro-Suite software which allows the facility to correlate the likelihood of an odour originating from SMC, or whether or not the odour could have originated from another odourous source in St Marys.</p>
Results	Ongoing.
Next Steps	Continue optimizing the Enviro-Suite monitoring program including upgrading the ambient air sensors in town to be more sensitive to the facility's emissions.

Community Engagement

When	Ongoing
Consultant	St Marys Cement Eco-Strategy
What	The facility formed a Community Liaison Committee with St Marys residents, the Ministry of Environment, and Town of St Marys Council members. The Committee is a platform for ongoing discussions about St Marys Cement plant operations and concerns brought forward about the facility.
Results	<p>As a result of the ongoing work with residents, various studies have been completed. The results of these studies are available on the CLC Website: https://www.stmaryscement.com/Pages/Sustainability/Community-Liaison-Committee.aspx</p> <ul style="list-style-type: none">- Perth District Health Unit completed studies on health trends in St Marys including cardio diseases. The PDHU did not note increased rates in St Marys or Perth County.- The MECP has performed both stationary and ambient air monitoring testing in St Marys. Monitoring found the SMC facility within compliance of MECP standards. <p>The facility works with residents on an ongoing basis to answer any questions and concerns they have about the facility. Presentations on information relevant to these topics (and others) are available on the website listed above.</p> <ul style="list-style-type: none">- Process of Cement Manufacturing including Facility Tours- Weather conditions and air dispersion- Sensitivity and perception of odour- Compliance Reporting- Emissions Monitoring- Petroleum Coke in the Fuel Industry- Shutdown at the plant
Next Steps	Ongoing community engagement through the Community Liaison Committee and tours of the facility.

Ongoing Odour Abatement Plan

St Marys Cement has invested extensive resources seeking to understanding the odour from the facility and reducing its perceived impact.

St Marys Cement continues to work with the Corporate Environmental Team and Third Party Consultants on understanding and mitigating odour, including the Enviro-Suite software.

St Marys Cement continues to monitor the emissions from the facility and report all emissions to the Ministry of Environment, Conservation and Parks as required by Provincial and Federal legislation.

St Marys Cement odour mitigation efforts have developed over time and will continue as the facility moves towards adopting Alternative Low Carbon Fuels and as legislation changes with updates to Ambient Air Quality Criteria limits. Each day over 70,000 monitoring data points are collected and utilized to best manage the plant and ensure regulatory compliance.

St Marys Cement continues to encourage residents to bring all concerns, questions, and ideas forward to the Community Liaison Committee. The concerns of residents are crucial to furthering the facility's understanding of the impact of the odour. Together we can continue to maintain the open dialogue that has been established around the plant's operations.

Questions Brought Forward in Advance

None

Round Table



ROAD SAFETY TIPS

- 1 Don't use mobile phone while driving
- 2 Belt up in the back
- 3 Slow down
- 4 Watch out for your kids
- 5 Take frequent breaks (especially in long travels)
- 6 Observe other road users (use your mirrors regularly)
- 7 Keep proper distance

Round Table & Closing Remarks

For any Questions or Concerns related to St Marys Cement Plant Operations
please contact

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