

April 14, 2022

**Kara Terpstra**  
**Votorantim Cimentos, St. Marys Cement Inc.**  
585 Water Street South  
St. Marys, Ontario  
N4X 1B6

**Re: Noise Emissions from Alternative Low Carbon Fuel Operations**  
**St. Marys Cement Plant, St. Marys, Ontario**

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Dear Kara,

As requested, we have assessed the potential noise impact from the proposed Alternative Low Carbon Fuel (“ALCF”) project at the cement plant in St. Marys, Ontario.

The results of our acoustic analysis indicate that sound emissions from the proposed ALCF operations will be negligible relative to those of the existing operation. The ALCF system will not materially contribute to the sound levels of the existing operations of the facility. Further details are included below.

## **CONTEXT**

The St. Marys Cement (“SMC”) plant currently operates under Environmental Compliance Approval (“ECA”) number 4546-AQ9GMB, issued by the Ministry of the Environment, Conservation and Parks (“MECP”) on August 31, 2017. The ECA application was supported by an Acoustic Assessment Report (“AAR”) prepared by HGC Engineering in 2015, which has been subsequently updated to reflect modifications at the facility (as permitted by the ECA). The most recent AAR, prepared in March 2022, includes consideration of the proposed ALCF system, and will support an application to the MECP to amend the current ECA to approve operation of the proposed ALCF system. The AAR provides assessment details of the existing SMC operations, which have included extensive acoustical measurements both on and off the site and comprehensive acoustical modelling that represent the foundation on which the proposed ALCF system has been assessed, as summarized in this letter.

## **POINTS OF RECEPTION**

The nearest noise-sensitive points of reception are homes to the northeast, northwest and southwest of the cement plant. Four key assessment locations that represent the nearest receptors and are labelled as locations R1 through R4 in the attached figure.



ACOUSTICS



NOISE



VIBRATION

## ACOUSTICAL ANALYSIS

From the information provided, we understand that SMC intends to install the ALCF system as part of the long-term goal to reduce greenhouse gas emissions, by offsetting a portion of the traditional carbon-rich fuels with low-carbon waste materials. The materials will be delivered to the site by trucks. Unloading will take place inside a new building on the east side of the kiln. This area is located at substantial distances from the nearest points of reception, ranging between 550 and 850 metres. It is also at the lowest topographical elevations of the SMC site, with intervening terrain and buildings providing generous acoustical shielding. Transfer of the materials between the unloading terminal and the kiln will be achieved via a tube system equipped with pneumatic blowers. Any mechanical equipment with a potential to emit noise will be located indoors or equipped with acoustical enclosures. Given the many sound-attenuating features and the distance to the points of reception, the sound emissions from any mechanical systems will be negligible. The only aspect of the operation with a potential to emit non-negligible noise to the outdoors will be truck deliveries, which will consist of up to nine truck deliveries per day.

In order to assess the potential noise impact of the ALCF system, HGC Engineering updated the acoustical model of the facility to include sound emissions from the additional trucking activities to deliver low-carbon fuel materials to the site. Specifically, it was conservatively assumed that up to two ALCF deliveries could be made to the facility during a predictable worst-case hour of operation of both daytime/evening (7:00 – 23:00) and night-time periods (23:00 – 7:00).

The model was developed using Cadna/A software, a computer implementation of ISO standard 9613-2<sup>1</sup>, which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures (or by topography and/or foliage, where applicable).

## RESULTS & DISCUSSION

The initial noise measurements and analysis completed for the previous AARs determined that sound levels from the SMC operations could exceed the MECP limits at the four assessment locations. In order for the SMC site to meet the limits, the AARs include a detailed plan for implementation of noise control measures at the facility, which are currently planned to be completed by 2027.

For the reasons above, the following table shows the results of the assessment for two principal scenarios: sound levels representative of the current conditions as of spring 2022 and sound levels representative of 2027, following implementation of the proposed noise control measures.

<sup>1</sup> International Organization for Standardization, Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation, ISO-9613-2, Switzerland, 1996.



**Table 1: Predicted Sound Levels at Assessment Locations,  $L_{EQ}$  1-hr [dBA]**


Location	Current Sound Levels (2022)		Mitigated Sound Levels (2027)	
	7 – 23 h	23 – 7 h	7 – 23 h	23 – 7 h
<b>Without ALCF</b>				
R1 – Town of St. Marys	57	56	50	45
R2 – Site Entrance	60	58	53	44
R3 – Site Entrance	61	60	53	45
R4 – Home to Southwest	57	57	46	44
<b>With ALCF</b>				
R1 – Town of St. Marys	57	56	50	45
R2 – Site Entrance	60	58	53	44
R3 – Site Entrance	61	60	53	45
R4 – Home to Southwest	57	57	46	44

As can be seen from the table above, the sound levels from the facility before and after the implementation of the ALCF system are identical. The sound level contribution of the operations associated with the ALCF project will be well below the existing and future sound levels of the facility. The results indicate that the sound levels from the ALCF system will be acoustically insignificant.

We trust that this information satisfies your current requirements. Should you have any questions or require any additional information, please don't hesitate to give me a call.

Best regards,

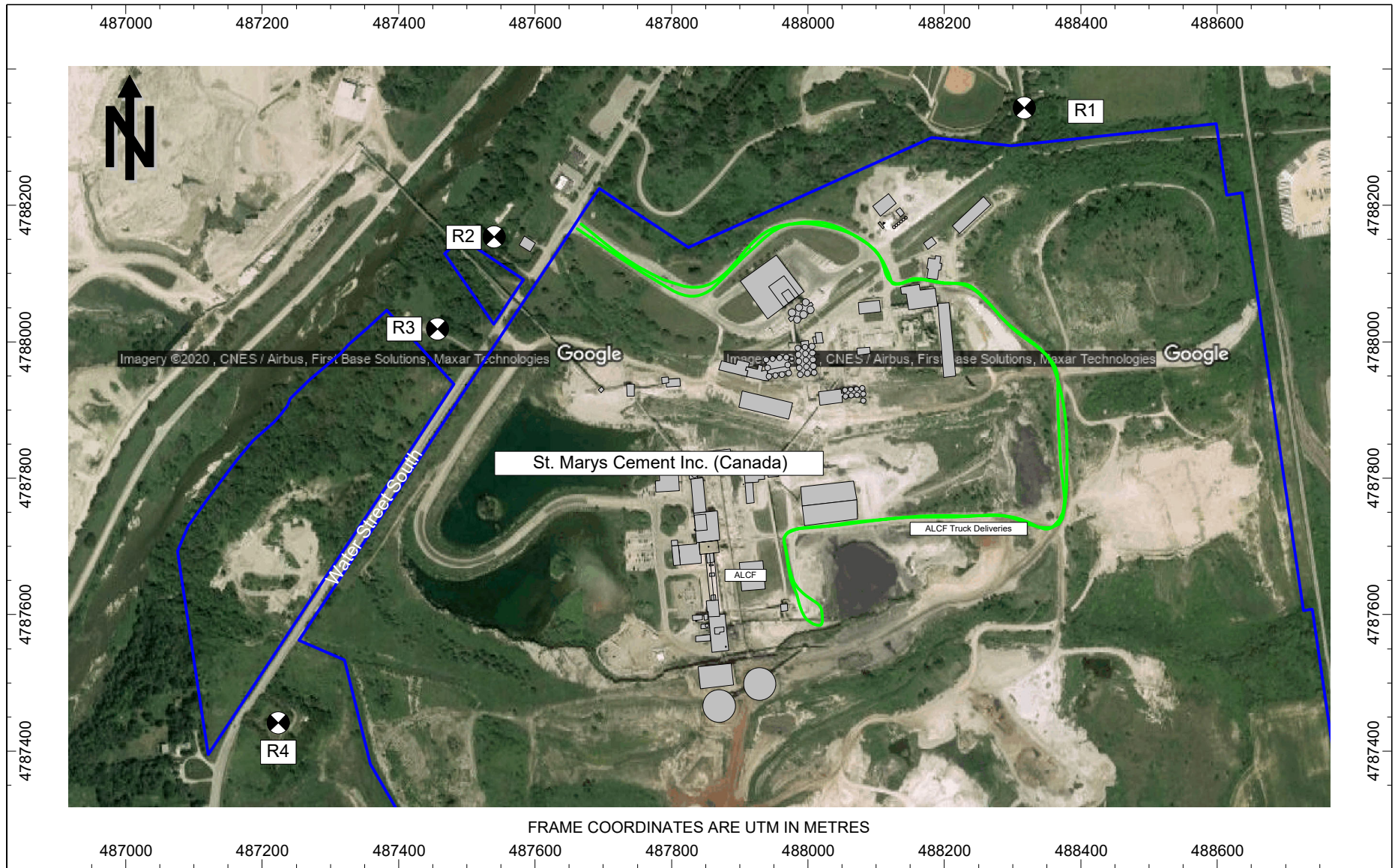
**Howe Gastmeier Chapman Limited**



Petr Chocensky, PhD, P.Eng







St. Marys Cement Site and ALCF System