

MEMORANDUM

To: Chris Barnett, Osler, Hoskin & Harcourt LLP

From: Dr. H. Andrew Gray, Gray Sky Solutions

Date: October 22, 2021

Re: Review of Nelson's Response to Comments Regarding BCX's Air Quality Study for Nelson Aggregate Co. Burlington Quarry Extension

I have reviewed the response to JART's comments on the Air Quality Study for the Burlington Quarry Extension prepared by MHBC (dated July 20, 2021). Most of their responses address the comments that I provided in a February 2, 2021 memo. My response to a couple of their points follows below:

Response to Comment 3

The US EPA AP-42 emissions factors may, in fact, be accepted by the Ontario Ministry of the Environment, Conservation and Parks (Ministry), however that doesn't mean that the emission factors are applicable to this quarry, or even marginally accurate. Within the documentation (appendices) provided in AP-42 is important information regarding the sources of the data that were used to develop the emissions factors, including ranges of values that were obtained from source tests at various sources. These data could be used to evaluate the potential range of emission factors that may be appropriate for the quarry and could therefore be used to develop an analysis of the uncertainty of the emissions factors and the resulting uncertainty of the modeling results (which may be considerable) that were obtained using the AP-42 emissions factors. An uncertainty analysis would provide a range of potential air quality concentration impacts, rather than a single estimate of the impacts.

AP-42 clearly states that those emissions factors that are rated as marginal in quality should only be used as a last resort, if no local or site-specific data are available. The quarry has been operating for a number of years, and site-specific source test data could have easily been obtained that would provide better emission factor estimates than those from AP-42.

The list of reasons that were provided that purportedly provide evidence that the estimated air quality impacts were “conservative” do not include any consideration of the emission factors that are the most important component of the emissions estimates.

Response to Comment 7

It is a fairly simple task to include a diurnal profile of emissions in the AERMOD model to address the non-uniform distributions of hourly truck traffic. Although (as the MHBC response states) dispersion is typically poor at night (resulting in higher concentration impacts per truck trip for those hours), dispersion is also often poor in the early morning hours which would potentially increase the impacts significantly during those hours when peak traffic densities are expected to occur. The modeling needs to be revised to account for the peak hourly truck traffic (111 trips per hour).