

September 16, 2021

Ms. Jane E. Gurney, RPP, MCIP, AICP
Principal Planner
Community Planning
Region of Waterloo

Project No.: 241.20013.00000

Dear Ms. Gurney,

RE: PEER REVIEW OF THE CUMULATIVE AIR ASSESSMENT PROPOSED HALLMAN PIT, JACKSON HARVEST FARMS – WILMOT TOWNSHIP

SLR Consulting (Canada) Ltd. was retained by the Region of Waterloo to conduct a peer review of the 'Cumulative Air Assessment (the "Assessment") of Hallman Pit, Jackson Harvest Farms located in Wilmot County' prepared by GHD, and dated August 4, 2021. The following application and supporting documents were also considered in the review:

- Planning Justification Report - Addendum, Proposed Hallman Pit, 1894 Witmer Road, Wilmot Twp., prepared by IBI group, dated October 21, 2020 (Planning Report);
- Best Management Practices Plan for Control of Fugitive Dust Emissions, Revision 2, dated October 2020 (BMPP);
- Township of Wilmot Official Plan, April 19, 2019;
- Aggregate Resources Act, R.S.O. 1990, Chapter A.8, Ministry of Natural Resources and Forestry;
- Technical Bulletin – Management Approaches for Industrial Fugitive Dust Sources, MECP, February 2017;
- Government of Canada Pits and Quarries Reporting Guide, 2017.

BACKGROUND

The proposed Hallman Pit is located in Wilmot Township in a rural area. Operations at the proposed pit include above water extraction, stockpiles, conveyor systems, front end loaders, heavy truck equipment, a central processing plant equipped with a portable crusher, screener, and wash plant, as well as a recycling area equipped with a portable crusher. There are existing residences located north of the site along Bleams Road and southwest/southeast of the site along Witmer Road.

A BMPP for fugitive dust was also developed by GHD to help control dust emissions at the property line and beyond to an acceptable level. The township of Wilmot Official Plan requires that new aggregate pit operations prepare "noise, dust, and vibration studies demonstrating that the proposed operation is appropriately designed, buffered and/or separated from any surrounding sensitive land uses to prevent any adverse effects", as per Section 7.2.4.1a). Our review of the BMPP prepared for the Hallman Pit concluded that an air quality assessment should be prepared to detail that the pit will maintain compliance at the property line and beyond in accordance with O.Reg. 419/05.

This review is to provide commentary on the newly added Cumulative Air Quality Assessment. The Assessment reviews the cumulative impact of the licensed pits in the area surrounding the Hallman Pit including: Cattleland Pit, Barnes Pit, Seibert Pit, Voisin Pit, Township Pit, Dino Pit, and Poll Pit.

COMMENTS

Our comments on the Assessment are outlined below. Sections of the Assessment are provided in italics, and our comment then follows.

1. Section 2.1 of the Assessment states:

“The silica content from the Site operations is currently unknown. Based on other operations in the area it is expected to be less than 10%. However, as a conservative estimate the silica emissions were assumed to be equivalent to 17% of PM10 emissions, based on “PM4 Crystalline Silica and PM10 Particulate Matter Emission Factors for Aggregate Producing Sources”, Richards, Brozell, Air Control Techniques, July 31, 2007.”

While referencing research data from Californian geological sites is not representative of southern Ontario geology, SLR agrees that 17% is reasonable.

2. Section 3.0 of the Assessment states:

“As part of the cumulative assessment the ambient air background concentrations were included. The MECP Station 28028 (Guelph, Ontario) was chosen as it was the closest station that was not in major city centre, such as Kitchener. This station is still located in a city but is expected to be more representative than a major city centre station would be. The ambient air stations located in cities are expected to have higher concentrations of all fractions of particulate matter due to the increase in traffic and industry. It should be noted that by completing the cumulative assessment by modelling the surrounding pits and using the background data it could be counted as double accounting, therefore being an overly conservative assessment.”

SLR agrees that the Guelph station would be representative of rural ambient air quality for the area. However, GHD then states that combining the background data with the emissions from the nearby Pits could be considered to be double counting. SLR disagrees with this statement. As GHD previously states the Guelph station was selected to be more representative of background levels outside of city centres. The monitoring station is located in a large public park in a medium density residential neighbourhood. There are no open pits or dust producing industrial sources near the Guelph station. Therefore, conducting modelling that accounts for fugitive dust from nearby Pits in combination with background levels is reasonable for downwind receptors.

3. Section 5.6 of the Assessment states:

“The Site and all adjacent pits were modelled using AERMOD’s Open Pit source. This source is a heavily modified area source designed to simulate pits where the majority of processes occur near the bottom of the pit, allow for containment and recirculation of pit derived emissions at the pit’s surface opening and lip edge, and emissions along its surface opening. Source parameters were based on the following assumptions:

- Volume of pit*
 - Maximum pit depth of 20 m*
 - Process release height of 4 m above pit floor*
- All pit sources were modelled individually.”*

It is our opinion that the use of the OPENPIT source type is inappropriate for aggregate extraction sites. The OPENPIT source is unique to deep pits and quarries where recirculation within deep walled quarries occurs and is not representative of the proposed operations. The OPENPIT source may also under-predict the impact from central processing plants where emissions come from a concentrated area. The OPENPIT source averages the total emission rate over the area of the source. GHD does not detail the area coverage of the source and how it is implemented in the model.

The MECP Guidance document A-11 should be followed for haul roads, and volume sources representing the processing equipment. This is also suggested in the Guidance document under the description for the OPENPIT source. It is also not clear how or why the sources were modelled individually for each site using

the OPENPIT source type and how the results were combined to determine the worst-case point of impingement. It is SLR's opinion that the modelling should be revised to confirm the modelling methodology reasonably represents the worst-case impacts to ensure compliance under O.Reg. 419/05 will be met.

4. Section 7.3 of the Assessment states:

"The ambient air quality data was taken from a nearby city (Guelph) where the road traffic and industry are expected to result in higher ambient air concentrations. As the surrounding sources of emission, neighbouring pits, are included in the assessment as well the addition of the ambient air quality data to the modelled emission rates may be equivalent to double counting an emissions source."

This statement is misleading. As GHD previously states, the Guelph station was chosen as it is not located in a city centre but is located in the middle of a public park surrounded by residential neighbourhoods. There is minimal traffic and limited industry in the vicinity of the monitoring station. As previously stated, it is representative of background levels excluding nearby sources of fugitive dust and is not a 'double counting' of emission sources.

5. Section 8 of the Assessment states:

"The cumulative dispersion modelling assessment of the Hallman Pit and the neighbouring pits, and with consideration of representative ambient air monitoring data, indicates compliance with the MECP POI limit for TSP and silica, the MECP AAQC for PM10, and the CCME CAAQS for PM2.5."

Table 4 of the Assessment only presents the results of the cumulative effects study and does not clarify that the Hallman Pit will operate in compliance with O.Reg. 419/05. An emission summary of the maximum point of impingements from the Hallman Pit operations should be presented to show that the Pit will operate in compliance of O.Reg. 419/05.

The Assessment for the proposed Hallman Pit should provide further clarification, as outlined above, to further illustrate that operations will be mitigated to an acceptable level as per the Township of Wilmot Official Plan Policy 7.2.4.1a and will operate in compliance with O.Reg. 419/05. The additional information will provide further evidence that that the proposed pit will not have a negative social impact on the surrounding area.

Yours sincerely,

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