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Mr Robert Francis

Hanson Construction Materials Pty Ltd
601 Doncaster Road
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REVIEW OF ANALYTICAL DATA FROM DUST DEPOSITION GAUGES – HANSON LYSTERFIELD QUARRY

Dear Robert,

Introduction

Golder Associates Pty Ltd (Golder) has been engaged by Hanson Construction Materials Pty Ltd (Hanson) to assist it in obtaining the relevant statutory approvals in support of its proposed extension to the Hanson Lysterfield Quarry. Hanson seeks advice with which to share with its Community Reference Group (CRG) regarding the potential composition of deposited dust in monitoring gauges installed around the Lysterfield Quarry. Specifically, Hanson seeks advice for it to share on how this data may be interpreted in demonstrating compliance with the *Protocol for Environmental Management – Mining and Extractive Industries* (the 'PEM') criterion for nuisance dust.

Review of Dust Deposition Data

The impacts of nuisance dust are usually related to the loss of amenity for an area. For example, impacts can include those relating to dust settling on residential and commercial properties and causing damage to buildings, vehicles and property. It can also affect people's ability to enjoy the outdoor environment, such as making sporting activities and other outdoor recreational activities unpleasant or impacting on their aesthetic enjoyment of outdoor spaces.

To assess the potential impact of nuisance dust, the PEM (published by the Environment Protection Authority Victoria, 2007), states that deposited dust monitoring should be undertaken. This type of monitoring involves the use of a dust deposition gauge, as shown in Picture 1 below. Dust that is deposited into the funnel is collected monthly and then analysed in the laboratory. The PEM sets a criterion of 4 g/m²/month, or 2 g/m²/month above background levels as a benchmark to protect the amenity of populations near mines and quarries for deposited dust.



Picture 1: Dust deposit gauge

To date Hanson has commissioned Eurofins to complete monthly dust gauge monitoring of the four (4) dust deposition gauges installed at its Lysterfield Quarry. This analysis is to support Hanson in monitoring its compliance with the PEM criterion of $4 \text{ g/m}^2/\text{month}$ for nuisance dust. In its laboratory analytical reports Eurofins reports the total mass of dust deposited in each gauge, as well as the insoluble and soluble mass fractions of this dust. These fractions are useful in differentiating between potential sources of dust and are important when considering compliance with the PEM criterion.

Soluble components of dust include salts emitted from natural and man-made sources as well as the soluble components of deposited organic material such as insect parts and bird droppings. Examples of other sources of soluble compounds in dust include: sea salt, sulfates, nitrates, and organic compounds. Soluble components of dust associated with these sources are not related to Hanson's quarrying activities.

The insoluble component of dust includes natural background mineral dust, dust from quarrying activities, and the insoluble component of deposited organic material. Examples of insoluble organic material include: pollen, fungal spores, plant material and insect parts. Natural, regional and local background sources of insoluble mineral dust include the cosmic dust flux, long range transport of dust from arid regions of Australia, and fugitive wind-blown dust generated regionally or locally by extractive industry, unpaved roads, agricultural or pastoral activities.

From a compliance monitoring perspective, measurements of insoluble dust deposition is the most appropriate quantity to compare to the PEM criterion of $4 \text{ g/m}^2/\text{month}$. This quantity represents a conservative estimate of dust deposition from quarrying activities at Hanson's Lysterfield Quarry because it can also include insoluble dust from natural, regional, or local background sources.

Closure

We trust this advice aids Hanson's ongoing engagement with the CRG. Should you or the CRG have any follow-up questions please contact Garrett Hall on 03 8862 3662, or 0417 565 411.

Thanks, and kind regards,

Golder Associates Pty Ltd



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Principal Air Quality Consultant

GCH/CM/gch



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<https://golderassociates.sharepoint.com/sites/28072g/deliverables/052-l dust composition letter/1544229-052-l-rev0.docx>