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Central Otago District Council
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Attention: Emma Spalding
Consultant Planner

**Memorandum: Technical Review of an Application by Awa Koura Mining Ltd to
Discharge Contaminants to Air (Dust) from a Proposed Gold
Mining Operation near Luggate**

Preliminary

Awa Koura Mining Limited (**AKML**) has applied for consent to discharge to air from a proposed alluvial gold mining operation between Queensbury and Luggate. Mining is proposed to occur for up to three years on farmland adjacent to the Clutha River/Mata-Au.

In summary, key feature of the proposal include:

- Up to 2ha of active mining area at any time, including roading and areas being rehabilitated.
- 5500m² of operational mining areas that includes the screening pond, working bench, land stripped of topsoil and a tailings stockpile.
- Progressive movement of the mining area (approximately 13m per day) in a zigzag pattern from south to north.
- Operation for 10 hours per day, Monday to Friday.
- 200m³/hr screening throughput.
- Use of a 60T excavator primarily at the screen, with a 20T and a 30T excavator used for topsoil handling, tailings levelling and reclamation.

Central Otago District Council (**CODC**) has commissioned Specialist Environmental Services Limited (**SESL**) to undertake a technical review of the assessment of effects for the dust discharge. This memorandum report reviews the assessment prepared by WSP.

The technical review has been undertaken by the author, John Iseli, on behalf of SESL. I have over 31 years of experience in the field of air quality in New Zealand and have undertaken numerous assessments and reviews relating to discharges to air from mining, quarries and other dust sources. I confirm that the findings expressed are my own conclusions and I have not delegated review work to any other party.

I have reviewed submissions received following limited notification of the application, and taken the concerns expressed into consideration. I visited the proposed site and neighbouring areas on Tuesday 26th May 2026.

The Receiving Environment

WSP has identified lifestyle dwellings and a café within 600m of the mine as sensitive receptors. These receptors will have high sensitivity to the discharge. The screening assessment identified properties within 350m of the site boundary as having potential to be affected by dust emissions. I agree that this is an appropriate distance for screening purposes. If good practice dust controls are applied, significant adverse effects are not expected to occur beyond this distance.

The location of neighbouring sensitive receptors is shown in Figure 1.

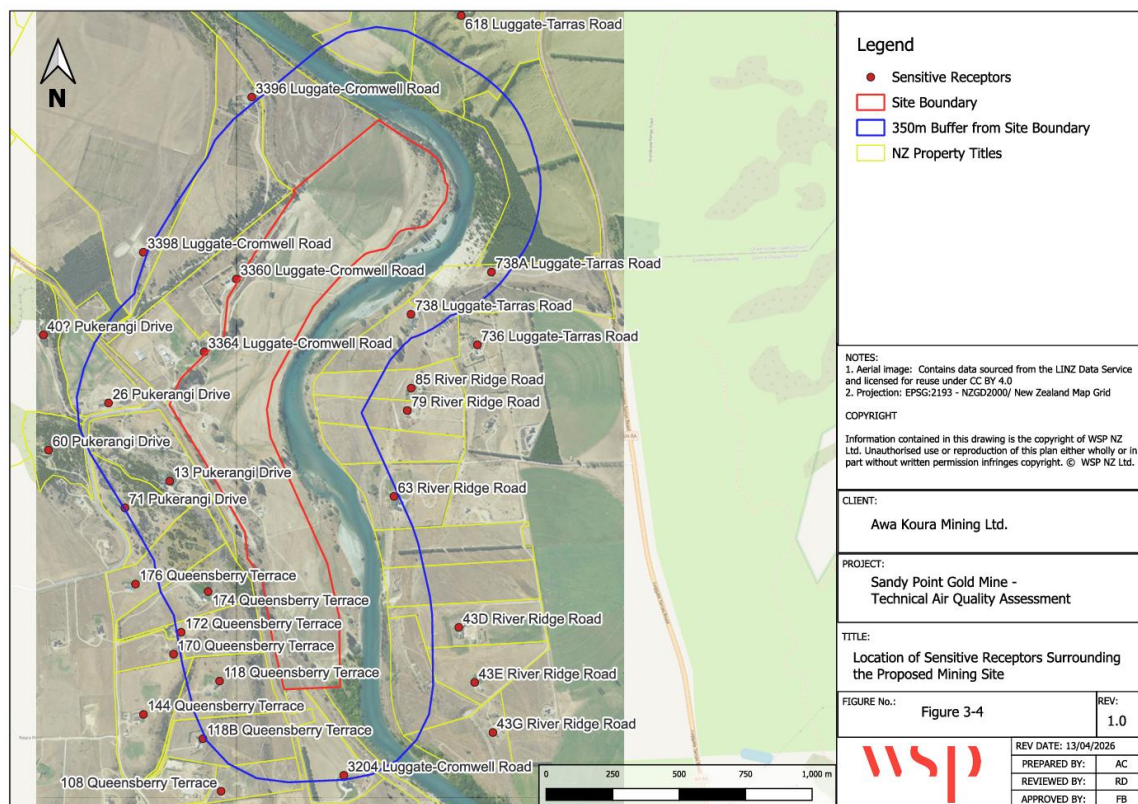


Figure 1. Location of sensitive receptors surrounding the site. *Reproduced from the WSP report.*



The dwellings at 3360 and 3364 Luggate-Cromwell Road are immediately adjacent to the site boundary. AKML has stated that the 3364 Luggate-Cromwell Road is owned by K Landreth who will undertake the subdivision of the site following mining and therefore considers that approval of the mining application is implicit. The owners of 3360 Luggate-Cromwell Road have not submitted on the application and have not provided written approval. The dwelling on this property is approximately 10m from the site boundary.

Other sensitive receptors are described by WSP as being at least 150m from the site boundary. It is accepted practice to include a 20m curtilage around a dwelling when assessing separation distances. It is unclear if this curtilage has been taken into account by WSP.

Meteorological information for the local area is limited, with the nearest monitoring stations being located in Wanaka and Cromwell. Local wind conditions will be affected by channelling in the Clutha River valley. Wanaka data indicate the prevalence of strong winds from the northwestern quadrant and a significant southeasterly component. It is expected that local wind flows follow a similar pattern due to influence of the valley system. The applicant has proposed to install an on-site meteorological station.

I agree with WSP that background air quality is expected to be good in the local area, with PM₁₀ concentrations predicted to be well within the National Environmental Standard for Air Quality (**NESAQ**). River sediment deposits and exposed escarpments near the site will contribute to dust concentrations during strong winds, particularly for properties accessed from Luggate-Tarras Road that are downwind of the prevailing northwesterly winds. These local dust sources will contribute to cumulative effects of the discharge.

Dust Assessment and Dust Management Plan

WSP has undertaken a qualitative assessment of dust effects, based on analysis of **FIDOL** (frequency, intensity, duration, offensiveness and location) factors. This is a commonly used methodology for this type of activity. It should be noted that the assessment relies heavily on the diligent application of dust controls detailed in a Dust Management Plan (**DMP**). A draft DMP has been provided with the application.

The WSP assessment has identified key dust emission sources as:

- Topsoil and overburden stripping, loading and transport
- Vehicle movements on unsealed roads
- Handling of tailings material, particularly when dry
- Wind erosion of exposed surfaces and stockpiles.

I agree that these are the key dust emission sources from the site. The screening process at the pond involves wet material and therefore is not typically a significant dust source. As submitters have identified, heavy vehicle movements on unsealed surfaces can be a significant source of dust during dry conditions, particularly if water is not regularly applied to the road surface.

AKML has not identified any specific mitigation measures to be applied in relation to dust impacts at 3360 Luggate-Cromwell Road. While it was stated by the applicant that the owners of this property do not oppose the application, written approval has not been provided. Given that there is negligible separation between the mine site boundary and the curtilage of this



dwelling, dust effects at this property would be significant at times during winds from the southeastern quarter. To reduce effects at this property to an acceptable level, I consider that a setback distance of at least 100m should be applied from the mining area to the dwelling curtilage, with real-time PM₁₀ monitoring used to assess the effectiveness of dust management.

Guidance from the Victoria EPA¹ recommends a setback distance to sensitive receptors of 250m for mining of minerals other than coal. I recognise that separation distance guidelines, such as those published by the Victoria EPA, are not intended to be used as a pass/fail test, rather as a trigger for more detailed assessment. The Victoria EPA guidelines have been commonly used for screening purposes in New Zealand. The EPA guidelines state that for rural areas the activity boundary of the sensitive land use is the area (within a convex polygon) that includes all current or proposed sensitive uses (including residences, garages and carports, barbecue areas, clotheslines and swimming pools). This effectively encompasses the curtilage of a property.

Diligent dust control using best practice methods is generally necessary to mitigate dust effects on sensitive receptors within 250m of mining and quarrying activities. That is particularly the case when the receptor is downwind of the source during prevailing winds.

The proposed dust control measures are generally consistent with good practice, although there is a lack of detail in the draft DMP. An “adaptive management” approach is advocated. In my opinion this does not provide sufficient certainty, given the sensitivity of the receiving environment. I consider that key mitigation measures should be included in conditions of consent, if granted.

The proposed mitigation includes:

- Limiting the active mining and rehabilitation areas to 2ha
- A maximum stockpile height of 3m above ground level
- Applying water to surfaces using sprinklers and an on-site water cart
- Setting wind speed triggers to pause work/implement additional controls, supported by on-site meteorological monitoring
- An on-site vehicle speed limit of 10-15kph
- Establishing grass on rehabilitated areas.

Water for dust control will be taken from the mine pit. The applicant’s response to a request for further information indicates that sufficient water will be available for dust control purposes. It is proposed that a water cart will be used and held on site during active quarrying. AKML also confirmed that water sprinklers will be used on all rehabilitated areas until grass becomes established.

Discharges from activities at the site will include some fine particulate matter (**PM₁₀**) and respirable crystalline silica (**RCS**). Given that heavy vehicle movements are limited and gravel crushing is not proposed, I agree with WSP that adverse health effects caused by these

¹ Environment Protection Authority (EPA) Victoria (2024). Separation distance guideline Publication 1949. Available online at: <https://engage.vic.gov.au/separation-distances-and-landfill-buffers>



discharges are likely to be less than minor. This conclusion is subject to the imposition of the recommended conditions detailed below.

Having regard to the local wind conditions, the dry conditions experienced in this area during summer/autumn and the location and sensitivity of receptors, I consider that careful application of best practice dust controls would be required to prevent significant adverse effects at neighbouring properties. Real-time PM₁₀ monitoring should be undertaken when mining occurs nearby sensitive receptors to inform the effectiveness of dust controls.

It is important to recognise that the effectiveness of mitigation will be strongly dependent on the site management practices of AKML. The environmental compliance record of AKML is a relevant factor when assessing the ability to comply with suggested conditions of consent.

Consent Conditions

I recommend that the following matters be included in conditions of consent, if granted. Some conditions, such as dust monitoring, may be more appropriately imposed on any discharge permit granted by the Otago Regional Council.

- The active mining area, including unsealed haul roads and unrehabilitated areas, must not exceed 2ha.
- Mining must not occur within 100m of the curtilage of the dwelling at 3360 Luggate-Cromwell Road.
- A water cart with spray bar must be used on unsealed haul roads and other dust generating areas as required for dust control. This water cart must be available on site at all times that mining and associated activities are undertaken.
- Water sprinklers must be used to apply water to surfaces not accessed by the water cart. Sprinklers must be used on all rehabilitated areas until grass becomes established.
- The height of material stockpiles must not exceed 3m above ground level.
- The speed of vehicles on the site must be limited to not more than 15kph.
- The site entrance and adjacent sealed highway must be regularly swept or cleaned to remove accumulated debris.
- Inactive and rehabilitated areas must be revegetated promptly.
- Stripping, handling and deposition of overburden material and soil, and handling of dry tailings material, must not occur during wind speeds of more than 5m/s (10 minute average), as measured on site, when the wind is blowing towards neighbouring sensitive receptors within 350m of the activity. Water must be applied to this material when dry to minimise dust emissions from these activities.
- Prior to commencement of works, the consent holder must install a weather station within the site which has the capability of measuring and logging wind speed and direction at a minimum of 1 minute intervals. Wind speed and direction must be



continuously monitored on the site at 6m minimum height, with real-time data sent to the site manager. The weather station must be mounted on a mast located at a site representative of wind flows across the working area. The weather station must have the ability to record the data and send automated alarms to site staff when wind speed and direction triggers are exceeded.

- An updated DMP, with reference to the conditions of consent, must be provided to the CODC for certification prior to commencement of works.
- Real-time PM₁₀ monitoring at the site boundary between the 2ha active area and any sensitive receptor must occur at all times when the mining area is:
 - (a) Within 350m of receptors potentially affected by discharges from the active area during winds from the northwestern quadrant; and
 - (b) Within 250m of all other receptors.

If there is more than one sensitive receptor within the specified distance, the monitor must be located between the active area and the closest receptor. PM₁₀ trigger levels for remedial action must be set in the DMP with electronic alerts sent to the site manager when trigger levels are exceeded.

- A record of any dust complaints received and actions taken in response must be kept and provided to the CODC on request.
- The discharge must not cause objectionable or offensive particulate matter beyond the boundary of the site.

Conclusion

A qualitative dust assessment has been undertaken by WSP. The assessment relies on good practice dust management practices to mitigate adverse effects on neighbouring sensitive receptors in close proximity to the proposed mine. A draft DMP has been produced. This management plan includes subjective measures and relies on an adaptive management approach when adverse effects arise. I consider that a more appropriate approach, given the sensitivity of the receiving environment, is to detail specific dust controls in conditions of consent, if granted. The DMP should be updated to include these requirements and be certified by CODC.

Several sensitive receptors are located nearby the mining site. The dwelling at 3360 Luggate-Cromwell Road has negligible separation from the mine boundary and would be significantly adversely affected without additional controls. I recommend a minimum 100m separation from the curtilage of this dwelling to the mine boundary.

Real-time particulate matter monitoring should be undertaken when mining occurs in close proximity to sensitive receptors, if consent is granted. This monitoring is preferred to the 30-day dust deposition monitoring suggested by WSP. Current good practice is to use such PM₁₀ monitoring with action triggers to inform the effectiveness of dust management.

Having considered local meteorology, the dry conditions experienced in this area during summer/autumn and the location and sensitivity of receptors, my opinion is that careful



application of best practice dust controls would be required to prevent significant adverse effects at neighbouring properties. Real-time PM₁₀ monitoring should be undertaken when mining occurs within 350m of sensitive receptors to the southeast of the 2ha mining area, and within 250m of receptors in other directions, to inform the effectiveness of dust controls.

It is important to recognise that the effectiveness of mitigation will be dependent on the site management practices of AKML. A diligent approach to dust control would be required in this case, given the sensitivity of the receiving environment.

Please contact me if you require any clarification of the above matters.

Regards

A handwritten signature in black ink, appearing to read 'John Iseli', with a stylized, cursive script.

John Iseli
Director, Principal Air Quality Consultant

