

# **APPENDIX 8**

## **Noise Assessment**

12 May 2011

Mr Phil Weir  
UMWELT (Australia) Pty Ltd  
2/20 The Boulevard  
Toronto NSW 2283

Dear Phil

**Re: Ulan Mine Concrete Batching Facility Noise Impact Assessment**

**Introduction**

Ulan Coal Mines Limited (UCML) proposes to install a concrete batching plant (CBP) as a part of a Section 75W modification to Part 3A Approval 08\_0184. This letter identifies and assesses the potential for noise impacts arising from the proposed installation.

**Project Description**

UCML proposes to install a single silo CBP in the Bobadeen area adjacent to the existing fire water storage tanks and solcenic storage area as shown in Figure 1. As illustrated in Figure 2, the CBP is situated approximately four kilometres to the west of the nearest private residence.

The CBP is to be a dry mix plant, where products are delivered to a concrete mixing truck for batching. The agitator/mixing truck then automatically combines liquid (water) and dry products (aggregate, coarse river sand, cement) to form concrete.

The CBP will operate on an as needs basis with a maximum production capacity of approximately 80 m<sup>3</sup> per 12 hours. Under general operating conditions the plant will be operated by one staff member between the hours of 7.00 am and 5.00 pm Monday to Friday. The plant may also be operated 24 hours per day when required.

Cement required for batching will be stored in the plant's approximately 11 metres high, approximately 65 tonne capacity silo. Storage of aggregate and sand will be provided in a bunded area to the rear of the batching facility (Figure 1). Raw materials utilised in concrete batching will be sourced from various locations.

Deliveries of raw materials to the site will be via truck and trailer units via Ulan and Bobadeen Roads. Batching of concrete on site will result in slightly reduced traffic movements, compared with current concrete supply arrangements.

Once concrete has been batched on site, it will be delivered to the underground mining area via an existing underground service borehole as illustrated on Figure 1 to be used in improving the stability of underground roadways and gateways.

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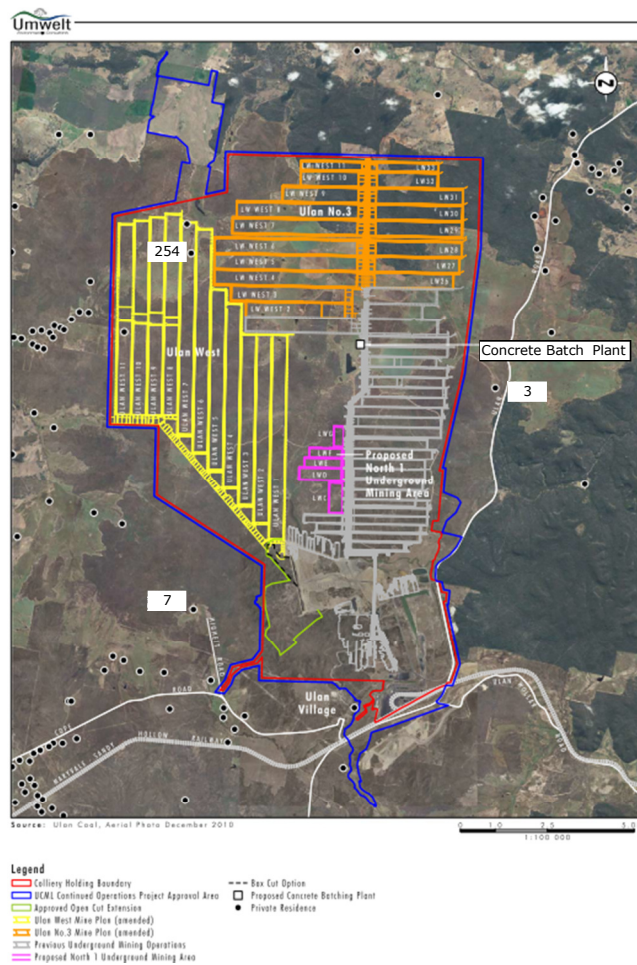
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The proposed CBP is a modular unit able of being transported to the site by truck and trailer and then erected on site with a mobile crane. Construction of the CBP will take five staff approximately one month. Construction works will include:

- extension to the existing hard stand area including an additional approximately 0.07 hectare of hardstand to that currently existing for the solcenic storage area;
- the erection of the batching facility (including loading hopper and cement silo);
- construction of bunded storage areas for aggregate and sand storage;
- development of environmental controls including:
  - installation of water spray systems for wetting stored aggregate and sand to reduce potential dust;
  - a run off control system including a primary and secondary run-off control storage areas (connected by a concrete junction pit) to control and direct flow; and
  - construction of a wash down area to clean batching equipment which drains to the run off control system.



**Figure 1 Proposed Concrete Batching Plant Site Layout**



**Figure 2 Location of Proposed Concrete Batching Plant**

The nearest sensitive receivers to the proposed CBP have been identified as:

- Receiver 254
- Receiver 3
- Receiver 7

Ulan Village has also been included as a sensitive receiver. The locations of the receivers are illustrated in Figure 2.

It is assumed that given compliance at the nearest receivers, the noise level at the other receivers will comply with the criteria.

### Criteria

The criteria for this proposal are set by the NSW Department of Planning Project Approval 08\_0184 'Ulan Continued Operations Project' (15 November 2010). The criteria that apply in this instance are detailed in Table 2: *Noise Criteria dB(A)*, page 7 of the Project Approval and are summarised in Table 1, below. Specific criteria exists for receivers 254 and 7. Where no specific criteria exist in the project approval, the criterion for private residences has been used. The proposal will be assessed against this level during the day and night time periods, given that the evening period has the same criteria as daytime.

**Table 1 Noise Emission Criteria**

Receiver Location	Criteria Noise Level $L_{Aeq, 15min}$ (dBA)		
	Day	Evening	Night
254	38	38	37
7	36	36	36
3	35	35	35
Ulan Village	35	35	35

### Noise Emission and Assessment

The concrete batching plant noise emission has been modelled in the CadnaA modelling environment. This implements the ISO 9613 and CONCAWE algorithms and takes into account attenuation and enhancement of noise due to physical effects such as geometrical spreading, topographical, ground, shielding and meteorological effects.

A worst case scenario has been modelled in order to provide the most conservative prediction of noise impact.

The scenario assumes that during the assessment the following activities take place during the day and night:

- The concrete batch plant is operational for the whole 15 minute period;
- A concrete mixing truck is operating;
- A delivery of aggregate is received; and
- A front end loader is operating, loading the batching plant.

The modelling was carried out using the sound power levels in Table 2. The sound power levels have been derived from the United States Federal Highway Construction Noise Database.

**Table 2 Sound Power Levels**

Item	SWL (dBA)	Usage during assessment period	$Lw_{Aeq, 15mins}$ (dBA)
Concrete Batching Plant	115	100%	115
Concrete Mixing Truck (whilst mixing)	117	40%	113
Front End Loader	112	40%	108
Aggregate Truck	116	40%	112

The meteorological effects used are based on a worst case scenario. As the plant has the potential to operate during the day and night, two sets of conditions are used for each scenario as follows:

- Daytime – Pasquil Stability Class D; and
- Night – Pasquil Stability Class F and 2m/s wind in the direction of each receiver.

The meteorological effects are derived from the default worst case conditions as detailed in the NSW Industrial Noise Policy Chapter 5.

The calculated noise levels are summarised in Table 3.

**Table 3 Calculated Noise Levels**

Receiver	Day $L_{Aeq\ 15mins}$ dBA			Night $L_{Aeq\ 15mins}$ dBA		
	Criteria	Predicted Level	Complies (Yes/No)	Criteria	Predicted Level	Complies (Yes/No)
254	38	<15	Yes	38	<15	Yes
7	36	<15	Yes	36	<15	Yes
3	35	15	Yes	35	21	Yes
Ulan Village	35	<15	Yes	35	<15	Yes

From the noise levels calculated, it can be seen that even in adverse conditions, the batching plant would be expected to significant lower than the criterion. A noise level that is less than 10 dB below the background noise level is typically inaudible. Where the noise level is greater than 10 dB below the background level as is the case for the proposed concrete batching plant, it would be inaudible at the nearest receivers in addition to being well below the criteria levels.

### Conclusion

The proposed CBP at UCML has been assessed for its potential to cause noise impacts at the surrounding residential receivers. The plant and its operations have been assessed and it was calculated that it would not be expected to cause a noise impact at the surrounding residents and is indeed well below the criteria prescribed in Project Approval 08\_0184 'Ulan Continued Operations Project' (November 2010).

I trust this information is sufficient. Please contact us if you have any further queries.

Yours sincerely



**John Wassermann**  
General Manager PAEHolmes (NSW)