

22 October 2019

Julie Thomas  
Environmental Superintendent  
Muswellbrook Coal Company Ltd

Dear Julie,

## **Ambient Air Monitoring - Muscle Creek Rd - September 2019**

### **1.0 Introduction**

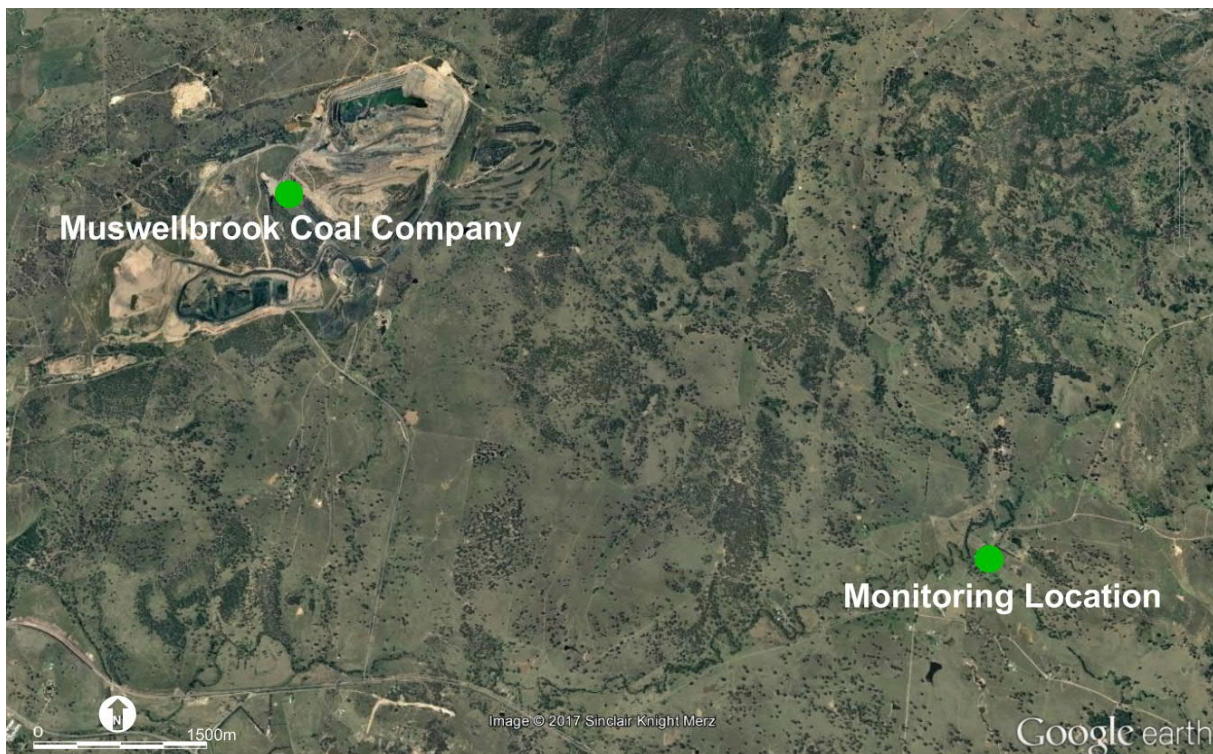
AECOM Australia Pty Ltd (AECOM) was appointed by Muswellbrook Coal Company Ltd (MCC) to provide static real time atmospheric monitoring for Hydrogen Sulfide (H<sub>2</sub>S) and Sulfur Dioxide (SO<sub>2</sub>) at one location on Muscle Creek Road, Muswellbrook.

Monitoring is conducted using a GrayWolf Advanced Sense II Probe with Hydrogen Sulfide and Sulfur Dioxide sensors capable of reading in the parts per billion range. Data is recorded as 5 minute average concentrations on a tablet computer with live data then transmitted to an online account at regular intervals where it can be viewed and downloaded for further analysis by MCC and AECOM staff.

Meteorology data is obtained from the onsite MCC weather station, located approximately 6km to the northwest of the monitoring location. Wind data will be analysed each month with the aim of identifying any trends or relationships between the wind data and monitoring results. Results are reported on a monthly basis with this report presenting results for the period 1 September to 30 September 2019.

### **2.0 Site Location**

The monitoring location on Muscle Creek Rd was chosen due to it being downwind of the mine site during the prevailing north westerly winds. Siting was performed in accordance with AS 3580.1.1 2016.



**Figure 1 Muscle Creek Rd Monitoring Location**

### 3.0 Assessment Criteria

The gaseous ambient air quality criteria in **Table 1** and **Table 2** are reproduced from the MCC Development Consent (DA 205/2002, Condition 28).

**Table 1 H<sub>2</sub>S Assessment Criteria**

Analyte Averaging Period	Criteria	Unit
H <sub>2</sub> S 1 Hour Average	500	ppb
H <sub>2</sub> S 24 Hour Average	100	ppb

**Table 2 SO<sub>2</sub> Assessment Criteria**

Analyte Averaging Period	Criteria	Unit
SO <sub>2</sub> 1 Hour Average	200	ppb
SO <sub>2</sub> 24 Hour Average	80	ppb

### 4.0 Methodology

Monitoring is performed by a GrayWolf Advanced Sense II Probe fitted with H<sub>2</sub>S and SO<sub>2</sub> sensors. The unit is enclosed in a weatherproof case with the sensor at a height of approximately 1.8m above the ground. While the sensor is designed as a passive sampler, a small fan has been installed to generate airflow past the sensor ensuring adequate air movement to provide a representative atmosphere for gas analysis.

The GrayWolf monitor measures gasses in parts per million (ppm) with the following limits of detection (LOD).

- H<sub>2</sub>S: 0.01 ppm; and
- SO<sub>2</sub>: 0.01 ppm.

Readings are logged in parts per million (ppm) and are converted to parts per billion (ppb) for reporting purposes, with the LOD's being 10 ppb for both H<sub>2</sub>S and SO<sub>2</sub>. For the calculation of 1hr and 24hr averages, where the instrument returns a zero reading, half the instrument LOD value is used (5 ppb).

### 5.0 Results

Following the GrayWolf Advanced Sense probe failing on the evening of 29 August 2019, the unit was removed from site and sent away for repairs. No replacement unit has been installed due to a nationwide shortage of the required equipment. As a result, no H<sub>2</sub>S or SO<sub>2</sub> data was recorded between 1 September and 30 September 2019.

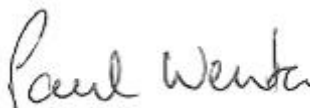
## 6.0 Conclusion

AECOM commenced ambient air quality monitoring on Muscle Creek Rd on 26 July 2017. No monitoring results were returned for the period 1 to 30 September 2019 after the unit failed and was sent away for repairs.

Yours faithfully,



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