



Wollongong Coal Wongawilli Colliery

**Quarterly Air Quality and Noise
Monitoring Report (October to
December 2017)**

5 February 2019

Project No.: 0478793

Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
Document title	Wollongong Coal Wongawilli Colliery
Document subtitle	Quarterly Air Quality and Noise Monitoring Report (October to December 2017)
Project No.	0478793
Date	5 February 2019
Version	1.0
Author	Tajwar Dar, Russ Francis
Client Name	Wollongong Coal Ltd

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Tajwar Dar	Russ Francis Aaron McKenzie	Damon Roddie	20.12.2018	First draft
Report	01	Tajwar Dar	Aaron McKenzie	Damon Roddie	05.02.2019	

Signature Page

5 February 2019

Wollongong Coal Wongawilli Colliery Colliery

Quarterly Air Quality and Noise Monitoring Report (October to December 2017)

Aaron McKenzie
Principal Consultant

Damon Roddis
Partner

ERM Australia Pacific Pty Ltd
Level 15, 309 Kent Street
Sydney NSW 2000
Australia

© Copyright 2019 by ERM Worldwide Group Ltd and / or its affiliates ("ERM").
All rights reserved. No part of this work may be reproduced or transmitted in any form,
or by any means, without the prior written permission of ERM

CONTENTS

1	INTRODUCTION	5
2	PROJECT ENVIRONMENTAL CONDITIONS.....	6
2.1	Monitoring Requirements.....	6
2.2	Air Quality	7
2.3	Noise	8
3	METEOROLOGICAL MONITORING RESULTS	9
4	PM₁₀ MONITORING RESULTS.....	9
4.1	Continuous Air Quality Particulate Monitoring.....	9
5	NOISE MONITORING RESULTS	10

List of Tables

Table 1.1: Monitoring Network	5
Table 2-1: Monitoring Summary.....	7
Table 2-2: Project Air Quality Criteria	7
Table 2-3: Noise Criteria dB(A) – Medium term intrusive noise limits as defined in Table 4.3 of the Noise Management Plan.....	8
Table 2-4: Noise Criteria dB(A) – Amenity Noise Limits as defined in Table 4 of the Project Approval.	8
Table 4.1: Summary Statistics for 24 hour PM ₁₀ (µg/m ³)	9

List of Figures

Figure 1.1: Monitoring Locations.....	6
Figure 4.1: PM ₁₀ Monitoring Data	10

1 INTRODUCTION

Environmental Resource Management (ERM) provides air quality and noise monitoring at the Wollongong Coal (WCL) Wongawilli Colliery, Wongawilli, NSW using the EnviroSuite system.

The following report provides a summary of the data collected during the fourth quarter, October to December 2017. The monitoring network comprises one continuous ambient air quality particulate monitor, one continuous ambient noise monitor and one continuous automatic weather station.

The monitoring network is summarised in **Table 1.1** and presented in **Figure 1.1**.

Table 1.1: Monitoring Network

Description	Site	Address / Location	MGA 56 Easting (m)	MGA 56 Northing (m)
Continuous PM10 Monitor	BAM	Jersey Farm Road	294129	6182474
Meteorological Station	AWS	Near water tanks on ridge line	306297	6195791
Continuous Noise Monitor	NMT 3	Jersey Farm Road	294137	6182448

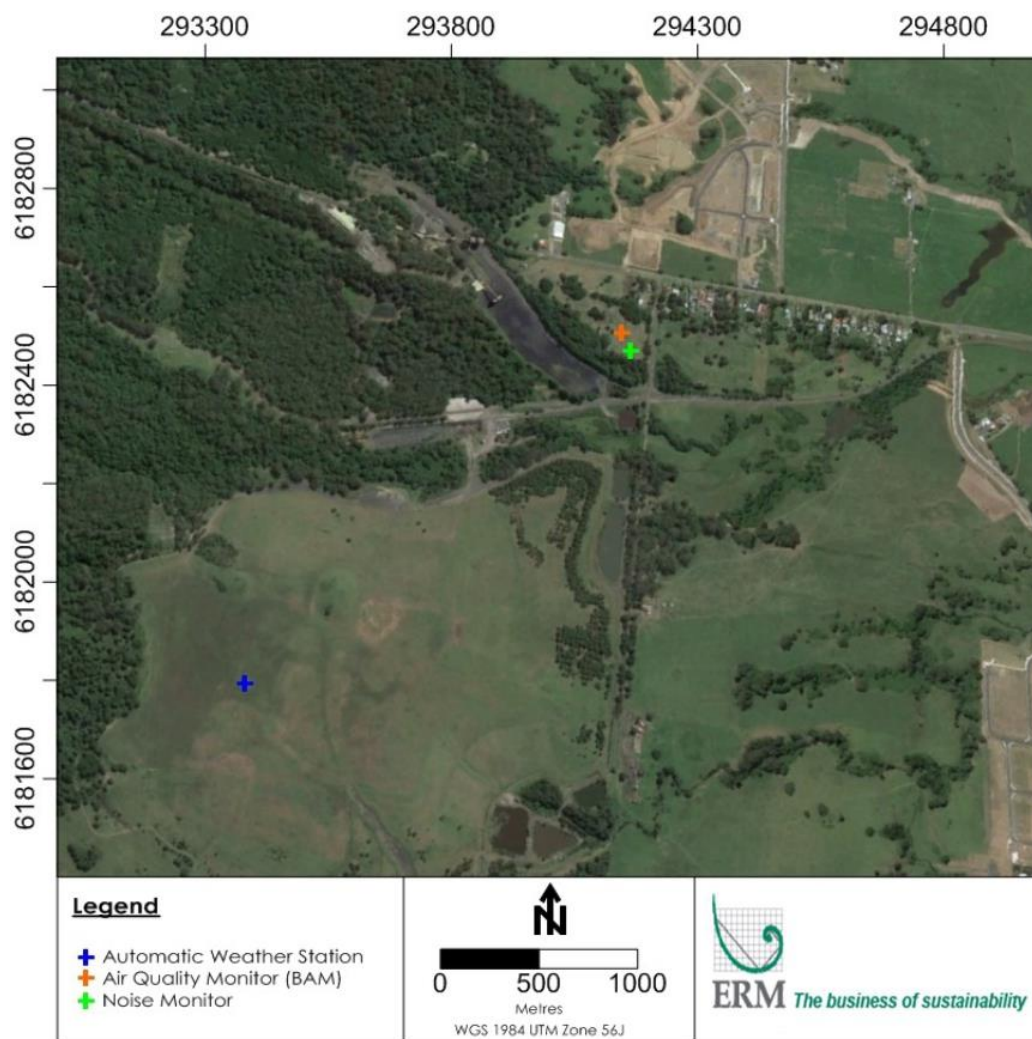


Figure 1.1: Monitoring Locations

2 PROJECT ENVIRONMENTAL CONDITIONS

2.1 Monitoring Requirements

In accordance with Project Approval (09_0161), air quality, meteorology and noise parameters are monitored as summarised in **Table 2-1**.

Table 2-1: Monitoring Summary

Item	Quantity Measured	Unit	Monitoring Frequency
Air Quality	Particulate Matter < 10 µm (PM ₁₀)	µg/m ³	24 h
Meteorology	Temperature at 10m	°C	Real Time
	Temperature at 2m	°C	
	Wind Speed at 10m	m/s	
	Wind Direction	°	
	Standard Deviation of Wind Speed (sigma theta)	-	
	Barometric Pressure	hPa	
	Rainfall	mm	
Noise	15 minute ambient continuous equivalent energy average noise level	LAeq,15min dB(A)	15 min
	1 minute LA1 noise level	LA1,1min dB(A)	1 min
	Period ambient continuous equivalent energy average noise level	LAeq, period dB(A)	Day, evening, night

2.2 Air Quality

The project is subject to environmental conditions as part of the Approval. For air quality these are summarised in **Table 2-2**.

Table 2-2: Project Air Quality Criteria

Pollutant	Averaging Period	Criterion ^a
Particulate Matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³ (b)
Particulate Matter < 10 µm (PM ₁₀)	24 hour	50µg/m ³ (b)

- a) Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with OEH.
- b) Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources)

2.3 Noise

The Project Approval states both an amenity and intrusive noise criteria. The intrusive criteria are assessed over a 15 minute period and the amenity criteria are assessed over the relevant period (day, evening and night).

The intrusive criteria are both lower and assessed over a shorter time period, they represent the most onerous criteria and are therefore the limiting criteria.

These criteria are reproduced in **Table 2-3** and **Table 2-4**.

Table 2-3: Noise Criteria dB(A) – Medium term intrusive noise limits as defined in Table 4.3 of the Noise Management Plan

Location		Day	Evening	Night	
Area	Receiver Number	L _{Aeq} (15mins)	L _{Aeq} (15mins)	L _{Aeq} (15mins)	L _{A1} (15mins)
Lot 2410 Smiths Lane	RA1	43	43	43	59
120/130 Smiths Lane					
18 Wongawilli Road	RA2	44	43	43	60
1 Wongawilli Road					
Jersey Farm road	RA3	40	40	38	48
Horsley (closest receiver)					
All other privately owned land		40	40	38	48

Note: Day is defined as 7.00am to 6.00pm, evening as 6.00pm to 10.00pm and night as 10.00pm to 7.00am

Table 2-4: Noise Criteria dB(A) – Amenity Noise Limits as defined in Table 4 of the Project Approval

Receiver Area	Day	Evening	Night
	L _{Aeq} (11hr)	L _{Aeq} (4hr)	L _{Aeq} (9hr)
All privately-owned land	60	50	45

3 METEOROLOGICAL MONITORING RESULTS

For the fourth quarter, valid data recovery was only 7% for all parameters. As the data recovery is so low, a summary of statistics for the data and representative figures have not been presented.

4 PM₁₀ MONITORING RESULTS

4.1 Continuous Air Quality Particulate Monitoring

Continuous air quality particulate monitoring is carried out at a BAM monitoring stations located on or near the site boundary (**Figure 1.1**). The monitors continuously measure airborne particulate matter from all sources.

The particle size ranges relevant to this report are described as PM₁₀ which refers to all particles with equivalent aerodynamic diameters of less than 10 µm, that is, all particles that behave aerodynamically in the same way as spherical particles with a unit density.

A statistical summary of the monitoring data collected during the fourth quarter of 2017 is provided in **Table 4.1**. The data recovery rate (for 24-hour average) was 90%. The 24-hour PM₁₀ concentrations are presented in **Figure 4.1** for the BAM.

Table 4.1: Summary Statistics for 24 hour PM₁₀ (µg/m³)

Statistical measure	October	November	December	Q4
Mean	16.2	10.3	18.5	14.9
Standard Deviation	5.5	3.3	7.3	6.4
Median	16.8	9.3	15.8	12.3
Minimum	6.6	0.7	5.2	0.7
Maximum	26.1	16.1	33.8	33.8
Days over the criteria	0	0	0	0

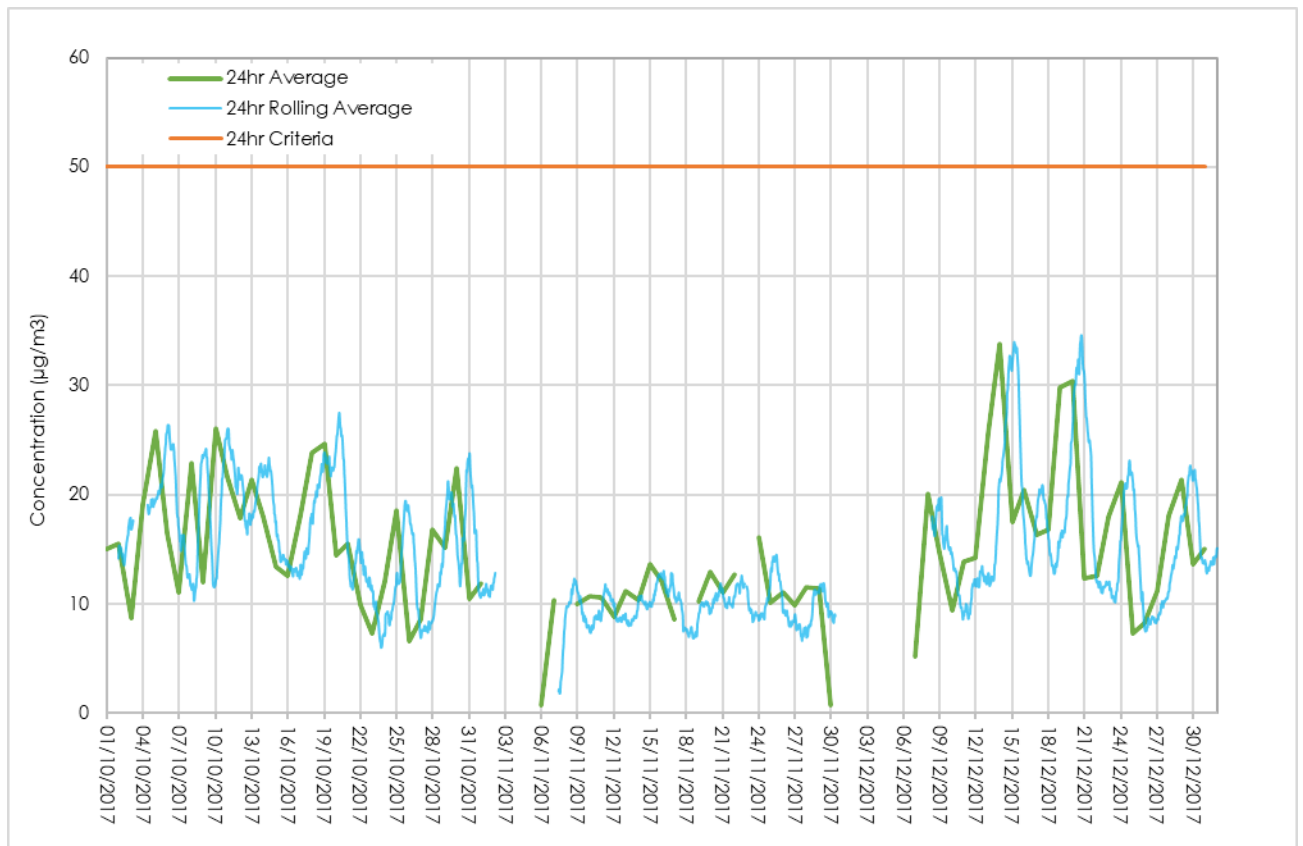


Figure 4.1: PM₁₀ Monitoring Data

5 NOISE MONITORING RESULTS

During the fourth quarter of 2017 due to instrument down time, no noise data was collected.

**ERM has over 160 offices across the following
countries and territories worldwide**

Argentina	New Zealand
Australia	Panama
Belgium	Peru
Brazil	Poland
Canada	Portugal
China	Puerto Rico
Colombia	Romania
France	Russia
Germany	Singapore
Hong Kong	South Africa
Hungary	South Korea
India	Spain
Indonesia	Sweden
Ireland	Taiwan
Italy	Thailand
Japan	UAE
Kazakhstan	UK
Kenya	US
Malaysia	Vietnam
Mexico	
The Netherlands	

ERM Sydney

Level 15
309 Kent Street
Sydney 2000

T: 02 8584 8888

www.erm.com