



## Mount Thorley Warkworth

### Monthly Obtained Data Summary

**Environment Protection Licence 1376**

**Environment Protection Licence 1976**

**Environment Protection Licence 24**

April 2017

**Date Published: 18<sup>th</sup> May 2017**

EPA public register: <http://www.epa.nsw.gov.au/publicregister/>

EPL	Licensee		Premises
1376	<b>Warkworth Mining Ltd</b> PO Box 315 Singleton NSW 2330 Australia		<b>Warkworth Coal Mine</b> Putty Road, Mount Thorley NSW 2330 Australia
24	<b>Mount Thorley Coal Loading Ltd</b> PO Box 315 Singleton NSW 2330 Australia		<b>Mount Thorley Coal Loading Ltd</b> Mount Thorley Road, Mount Thorley VIA Singleton NSW 2330 Australia
1976	<b>Mount Thorley Operations Pty Limited</b> PO BOX 315 Singleton NSW 2330		<b>Mount Thorley Operations</b> Mount Thorley Road, Mount Thorley NSW 2330 Australia

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## 1.0 INTRODUCTION

This report has been compiled to provide a summary of environmental monitoring results for Mount Thorley Warkworth in accordance with Environment Protection Licences 1376, 1976 and 24. This report includes all monitoring data collected in accordance with the aforementioned licences for the period 1<sup>st</sup> April – 30<sup>th</sup> April 2017.

The Environmental Protection Licence 1376 may be found here:

<http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32988&SYSUID=1&LICID=1376>

The Environmental Protection Licence 1976 may be found here:

<http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=33198&SYSUID=1&LICID=1976>

The Environmental Protection Licence 24 may be found here:

<http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=32017&SYSUID=1&LICID=24>

Monitoring in this report includes:

- Air quality monitoring;
- Surface water monitoring including mine water discharge; and
- Blast monitoring.

## 2.0 AIR QUALITY

To monitor regional air quality, MTW operates and maintains a network of 5 Particulate Matter <10µm (PM10) Monitors (DustTrak II) on mine owned land surrounding the mining operations. The location of these monitors can be found in Appendix A – MTW Monitoring Location Plan.

### 2.1 Particulate Matter <10µm (PM10) Monitoring

#### 2.1.1 PM<sub>10</sub> Results

In accordance with the requirements of Condition M2.2 (WML 1376 and MTO 1976), Mount Thorley Warkworth maintains a network of five PM<sub>10</sub> monitors. The following monitoring locations (EPA Monitoring Points 9, 10, 11, 12 and 13) are listed on the licences for the purpose of monitoring:

- EPA Identification Number 9 (WML 1376) – **Warkworth North**
- EPA Identification Number 10 (WML 1376 & MTO 1976) – **Dragline Crossing**
- EPA Identification Number 11 (WML 1376 & MTO 1976) – **Heavy Vehicle Bridge**
- EPA Identification Number 12 (WML 1376 & MTO 1976) – **MTIE**
- EPA Identification Number 13 (MTO 1976) – **MTO Boundary**

Results of Particulates (PM<sub>10</sub>) monitoring (EPA Monitoring Points 9, 10, 11, 12 and 13) are shown in Table 1. Results reported represent the 24hr average PM10, derived from 10 minute PM10 values for the period midnight to midnight, for each calendar date during the reporting period. The last sampling date was 30<sup>th</sup> April 2017; the data was obtained on the 1<sup>st</sup> May 2017.

**Table 1: Particulate Matter <10µm Monitoring**

Date	Unit of Measure	Monitoring Frequency	Monitoring Point				
		Continuous	Warkworth North	MTO Boundary	Dragline Crossing	Heavy Vehicle Bridge	MTIE
1/04/2017	µg/m <sup>3</sup>		10.4	9.3	9.9	8.3	2.3
2/04/2017	µg/m <sup>3</sup>		22.4	12.4	14.0	9.6	3.7
3/04/2017	µg/m <sup>3</sup>		11.3	5.8	8.3	5.1	1.8

4/04/2017	µg/m <sup>3</sup>
5/04/2017	µg/m <sup>3</sup>
6/04/2017	µg/m <sup>3</sup>
7/04/2017	µg/m <sup>3</sup>
8/04/2017	µg/m <sup>3</sup>
9/04/2017	µg/m <sup>3</sup>
10/04/2017	µg/m <sup>3</sup>
11/04/2017	µg/m <sup>3</sup>
12/04/2017	µg/m <sup>3</sup>
13/04/2017	µg/m <sup>3</sup>
14/04/2017	µg/m <sup>3</sup>
15/04/2017	µg/m <sup>3</sup>
16/04/2017	µg/m <sup>3</sup>
17/04/2017	µg/m <sup>3</sup>
18/04/2017	µg/m <sup>3</sup>
19/04/2017	µg/m <sup>3</sup>
20/04/2017	µg/m <sup>3</sup>
21/04/2017	µg/m <sup>3</sup>
22/04/2017	µg/m <sup>3</sup>
23/04/2017	µg/m <sup>3</sup>
24/04/2017	µg/m <sup>3</sup>
25/04/2017	µg/m <sup>3</sup>
26/04/2017	µg/m <sup>3</sup>
27/04/2017	µg/m <sup>3</sup>
28/04/2017	µg/m <sup>3</sup>
29/04/2017	µg/m <sup>3</sup>
30/04/2017	µg/m <sup>3</sup>

13.6	6.2	8.8	4.9	1.3
10.4	6.3	10.2	5.8	1.8
18.7	9.5	10.5	9.2	3.3
12.5	6.3	7.5	6.0	2.3
14.0	10.6	10.6	8.5	3.3
9.5	9.1	20.2	10.4	3.3
11.7	14.1	25.8	11.8	2.5
11.9	11.4	14.9	8.4	2.1
11.5	4.6	10.4	6.5	1.2
10.3	7.5	11.1	8.1	2.6
12.3	14.9	21.3	11.9	5.3
26.0	24.1	29.8	23.5	11.3
41.3	34.7	44.5	29.2	16.3
32.5	22.4	26.5	19.8	10.3
27.5	19.6	23.0	17.1	8.2
23.0	14.3	21.4	14.3	5.8
#	#	#	#	#
#	#	#	#	#
15.0	14.1	24.6	15.6	5.1
17.0	20.2	24.4	15.4	6.8
#	#	#	#	#
11.3	19.8	24.7	16.6	7.8
#	7.7	9.5	7.1	2.6
#	6.0	11.7	7.3	2.3
#	5.3	10.0	8.3	2.9
#	11.9	17.3	12.3	4.7
#	16.8	17.0	12.5	6.3

# Data unavailable due to equipment or communications issue

### 3.0 SURFACE WATER

#### Mine Water Discharge Monitoring

MTW participates in the Hunter River Salinity Trading Scheme (HRSTS), and maintains two monitoring locations associated with this scheme as follows:

- EPA Monitoring Point 1 (WML EPL 1376) – **Dam 1N Discharge Point**
- EPA Monitoring Point 4 (MTO EPL 1976) – **The end of the discharge pipe from Dam 9**

Mount Thorley Warkworth did not receive any discharge opportunities in the reporting period and no water was discharged. As such, no samples were collected at Monitoring Points 1 and 4 during the reporting period (shown in Table 2 below).

**Table 2: Mine Water Discharge Monitoring**

Discharge Point	Date	Pollutant	unit of measure	Licence Limits	No. of samples required by licence	No. of samples you collected and analysed
Dam 1N Discharge / EPL Point 1	N/A	Electrical Conductivity	microsiemens per centimetre	-	0	0
		pH	pH	6.5 - 9.0	0	0
		Total Suspended Solids	milligrams per litre	120	0	0
Dam 9S Discharge / EPL Point 4	N/A	Electrical Conductivity	microsiemens per centimetre	-	0	0
		pH	pH	6.5 - 9.0	0	0
		Total Suspended Solids	milligrams per litre	120	0	0

#### Hunter River Tributaries Monitoring

MTW undertakes routine monitoring in Loders Creek, in accordance with Condition M2.3, at the following location:

- EPA Monitoring Point 3 (MTO EPL 1976) – **In Loders Creek, at the coal preparation plant access road bridge**

The location of these sampling points can be found in Appendix A – MTW Monitoring Locations Plan

Result of monitoring undertaken from W5 – Loders Creek is detailed in Table 3. Monthly sampling occurred on 10<sup>th</sup> April 2017, the data was obtained on 8<sup>th</sup> May 2017.

**Table 3: Hunter Water Tributaries Monitoring**

	<b>Pollutant</b>	<b>unit of measure</b>	<b>Monitoring frequency required by licence</b>	<b>No. of samples you collected and analysed</b>	<b>Value</b>
Loders Creek / EPL Point 3	Electrical Conductivity	microsiemens per centimetre	Once a month (min. of 4 weeks)	1	5830
	pH	pH units	Once a month (min. of 4 weeks)	1	7.4
	Total Suspended Solids	milligrams per litre	Once a month (min. of 4 weeks)	1	6

## 4.0 BLAST MONITORING

### Blast Monitoring

In accordance with the requirements of Conditions M7.1 (WML 1376) and M8.1 (MTO 1976), Mount Thorley Warkworth maintains a network of blast monitors to measure airblast overpressure and ground vibration for all blasts carried out at MTW. The following monitoring locations (EPA Monitoring Points 4/5, 5/6, 6/7, 7/8 and 8/9) are listed on the licences for the purpose of assessing compliance with the airblast overpressure and ground vibration criteria:

- EPA Identification Number 4 (WML 1376) and Number 5 (MTO 1976) respectively – **Warkworth**
- EPA Identification Number 5 (WML 1376) and Number 6 (MTO 1976) respectively – **Wambo Road**
- EPA Identification Number 6 (WML 1376) and Number 7 (MTO 1976) respectively – **Bulga Village**
- EPA Identification Number 7 (WML 1376) and Number 8 (MTO 1976) respectively – **Wollemi Peak Road**
- EPA Identification Number 8 (WML 1376) and Number 9 (MTO 1976) respectively – **Putty Road MTIE**

The location of these monitors can be found in Appendix A – Mount Thorley Warkworth Environmental Monitoring Locations.

The last date sampled was on 29<sup>th</sup> April 2017. The data was obtained on the 12<sup>th</sup> May.

During the reporting period no blasts exceeded the 115 dB(L) or the 5mm/s threshold for airblast overpressure and ground vibration respectively.

Blast monitoring results are detailed in Tables 4 (Airblast Overpressure) and 5 (Ground Vibration).



**Table 4: Blast Monitoring (Airblast Overpressure)**

Blast ID	Date and Time	Unit of Measure	Monitoring Frequency	EPL Limits		Monitoring Point				
			All blasts carried out in or on premises	Only 5% of blasts can exceed 115dB(L) during the reporting period	Blasts cannot exceed 120 dB(L)	Bulga Village	Wambo Road	Putty Rd MTIE	Warkworth	Wollemi Peak Road
n30-bfa-ps6	3/04/2017 11:24	dB(L)		115	120	79.6	94.9	103.8	93.5	102.1
w29-whe-ps1	4/04/2017 13:33	dB(L)		115	120	96.6	105.5	99.6	91.2	101.2
w29-whe-ps2	5/04/2017 16:05	dB(L)		115	120	84.2	98.7	111.4	91.4	92.7
w29-whe-ps3	6/04/2017 12:56	dB(L)		115	120	94.0	91.3	89.1	86.7	88.8
l46-gma-whc-co1	7/04/2017 14:48	dB(L)		115	120	94.4	95.2	101.7	84.5	103.1
s22-wwe-md4	11/04/2017 10:58	dB(L)		115	120	85.1	99.1	110.0	85.7	91.1
w32-wba-pr4	11/04/2017 13:12	dB(L)		115	120	93.7	95.2	96.2	92.7	93.8
w29-whe-ps3	12/04/2017 13:07	dB(L)		115	120	93.7	95.2	96.2	92.7	93.8
n37-ble-pr2	13/04/2017 11:12	dB(L)		115	120	91.8	96.6	93.0	97.3	88.2
l48-bla-ptg5 and l46-gma-ps7	13/04/2017 12:41	dB(L)		115	120	92.0	94.2	97.7	86.9	92.9
l45-whe-ptg2	19/04/2017 11:27	dB(L)		115	120	94.6	99.2	97.9	92.4	93.9
s22-wwe-md5	19/04/2017 12:26	dB(L)		115	120	90.4	90.3	100.9	89.4	90.4
l50-wba-pr1	21/04/2017 9:20	dB(L)		115	120	99.6	96.3	95.8	95.5	98.7
n30-bfa-md5 and n30-bfa-ps7 and n33-whh-ptg1	21/04/2017 12:41	dB(L)		115	120	94.0	83.4	94.8	104.6	91.6

b30-bfa-ps8	21/04/2017 14:29	dB(L)		115	120	85.1	83.0	85.4	90.1	83.0
l46-gma-ps8 and l48-gma-ptg2	24/04/2017 12:04	dB(L)		115	120	86.8	95.4	92.1	94.1	87.1
n33-whh-ptg2	24/04/2017 16:10	dB(L)		115	120	91.1	91.5	89.4	82.8	82.1
n33-whh-ptg3	26/04/2017 15:46	dB(L)		115	120	100.3	107.2	104.5	93.4	98.9
w29-whe-ps4 and w29-whe-pr1	27/04/2017 12:51	dB(L)		115	120	92.0	94.2	98.7	89.8	98.2
n33-whh-ptg4 and n33-whf-pr4	28/04/2017 12:11	dB(L)		115	120	89.2	95.0	98.9	98.2	88.1
n30-bfa-co1	29/04/2017 11:24	dB(L)		115	120	88.3	105.6	112.8	93.1	102.5

**Table 5: Blast Monitoring (Ground Vibration)**

Blast ID	Date and Time	Unit of Measure	Monitoring Frequency	EPL Limits		Monitoring Point				
			All blasts carried out in or on premises	Only 5% of blasts can exceed 115dB(L) during the reporting period	Blasts cannot exceed 120 dB(L)	Bulga Village	Wambo Road	Putty Rd MTIE	Warkworth	Wollemi Peak Road
n30-bfa-ps6	3/04/2017 11:24	mm/s		5	10	1.16	0.68	0.26	0.69	0.90
w29-whe-ps1	4/04/2017 13:33	mm/s		5	10	0.58	0.42	0.10	0.32	0.60
w29-whe-ps2	5/04/2017 16:05	mm/s		5	10	0.50	0.33	0.09	0.29	0.50
w29-whe-ps3	6/04/2017 12:56	mm/s		5	10	0.55	0.28	0.08	0.22	0.50
l46-gma-whc-co1	7/04/2017 14:48	mm/s		5	10	0.11	0.05	0.04	0.04	0.10
s22-wwe-md4	11/04/2017 10:58	mm/s		5	10	0.50	0.20	0.48	0.12	0.40
w32-wba-pr4	11/04/2017 13:12	mm/s		5	10	0.34	0.27	0.08	0.14	0.20
w29-whe-ps3	12/04/2017 13:07	mm/s		5	10	0.34	0.27	0.08	0.14	0.20
n37-ble-pr2	13/04/2017 11:12	mm/s		5	10	0.30	0.44	0.10	0.51	0.20
l48-bla-ptg5 and l46-gma-ps7	13/04/2017 12:41	mm/s		5	10	0.73	0.71	0.11	0.27	0.70
l45-whe-ptg2	19/04/2017 11:27	mm/s		5	10	0.09	0.04	0.04	0.10	0.10

s22-wwe-md5	19/04/2017 12:26	mm/s		5	10	0.63	0.57	0.64	0.23	0.50
l50-wba-pr1	21/04/2017 9:20	mm/s		5	10	2.62	0.86	0.13	0.27	2.00
n30-bfa-md5 and n30-bfa-ps7 and n33- whh-ptg1	21/04/2017 12:41	mm/s		5	10	1.81	1.85	0.26	3.40	1.70
b30-bfa-ps8	21/04/2017 14:29	mm/s		5	10	0.07	0.06	0.05	0.21	0.10
l46-gma-ps8 and l48- gma-ptg2	24/04/2017 12:04	mm/s		5	10	0.61	0.45	0.11	0.62	0.70
n33-whh-ptg2	24/04/2017 16:10	mm/s		5	10	0.04	0.02	0.04	0.07	0.00
n33-whh-ptg3	26/04/2017 15:46	mm/s		5	10	0.03	0.03	0.03	0.10	0.00
w29-whe-ps4 and w29-whe-pr1	27/04/2017 12:51	mm/s		5	10	1.50	1.50	0.40	0.54	1.70
n33-whh-ptg4 and n33-whf-pr4	28/04/2017 12:11	mm/s		5	10	0.13	0.11	0.10	0.18	0.10
n30-bfa-co1	29/04/2017 11:24	mm/s		5	10	0.09	0.10	0.05	0.09	0.10

## **Appendix A: Mount Thorley Warkworth Monitoring Location Plans**



# Mount Thorley Warkworth

## Environmental Monitoring Locations

Date: 161116  
Plan By: DF  
Version: 3.0

### Legend

- ★ Blast Monitoring Point
- Discharge Release/Sampling Point
- ▲ Dust Trak - PM10
- ▭ EPL Boundary



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Figure 1 : Mount Thorley Warkworth Environmental Monitoring Locations