



# Mount Thorley Warkworth

## Monthly Obtained Data Summary

**Environment Protection Licence 1376**

**Environment Protection Licence 1976**

**Environment Protection Licence 24**

August 2017

**Date Published: 20<sup>th</sup> September 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> August – 31<sup>st</sup> August 2017.

The Environmental Protection Licence 1376 may be found here:

<http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=121545&SYSUID=1&LICID=1376>

The Environmental Protection Licence 1976 may be found here:

<http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=121533&SYSUID=1&LICID=1976>

The Environmental Protection Licence 24 may be found here:

<http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=89660&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 PM<sub>10</sub>, derived from 10 minute PM<sub>10</sub> values for the period midnight to midnight, for each calendar date during the reporting period. The last sampling date was 31<sup>st</sup> August 2017; the data was obtained on the 2<sup>nd</sup> September 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
1/08/2017	µg/m <sup>3</sup>		5.7	11.1	17.1	10.1	5.5
2/08/2017	µg/m <sup>3</sup>		28.0	10.9	36.2	27.1	28.3
3/08/2017	µg/m <sup>3</sup>		27.2	#	14.0	13.3	10.7
4/08/2017	µg/m <sup>3</sup>		2.2	5.8	9.5	6.1	2.4
5/08/2017	µg/m <sup>3</sup>		3.8	7.9	20.8	12.2	4.1
6/08/2017	µg/m <sup>3</sup>		4.9	#	32.7	13.6	4.8
7/08/2017	µg/m <sup>3</sup>		#	12.4	27.6	16.7	5.0
8/08/2017	µg/m <sup>3</sup>		2.4	14.3	15.6	11.2	3.9

9/08/2017	µg/m <sup>3</sup>	#	12.4	21.3	13.7	6.0
10/08/2017	µg/m <sup>3</sup>	5.1	21.0	31.2	17.2	7.9
11/08/2017	µg/m <sup>3</sup>	6.5	44.5	37.1	21.7	8.1
12/08/2017	µg/m <sup>3</sup>	4.5	9.3	28.7	14.8	6.5
13/08/2017	µg/m <sup>3</sup>	7.8	12.1	22.8	15.5	8.2
14/08/2017	µg/m <sup>3</sup>	8.0	17.5	29.8	21.8	14.3
15/08/2017	µg/m <sup>3</sup>	13.0	22.8	45.8	36.0	18.3
16/08/2017	µg/m <sup>3</sup>	8.6	16.0	17.9	16.5	8.2
17/08/2017	µg/m <sup>3</sup>	4.8	14.7	23.2	9.4	4.0
18/08/2017	µg/m <sup>3</sup>	4.3	7.0	19.3	10.5	3.5
19/08/2017	µg/m <sup>3</sup>	5.5	4.2	14.0	8.6	4.5
20/08/2017	µg/m <sup>3</sup>	15.7	11.6	26.2	24.9	16.1
21/08/2017	µg/m <sup>3</sup>	18.5	25.0	46.6	31.5	22.6
22/08/2017	µg/m <sup>3</sup>	21.6	14.9	19.8	22.7	16.3
23/08/2017	µg/m <sup>3</sup>	26.8	31.8	41.1	38.7	31.8
24/08/2017	µg/m <sup>3</sup>	18.6	20.6	36.5	27.4	20.3
25/08/2017	µg/m <sup>3</sup>	14.5	7.2	12.0	9.8	6.5
26/08/2017	µg/m <sup>3</sup>	13.0	14.8	30.1	21.3	14.0
27/08/2017	µg/m <sup>3</sup>	8.8	11.8	40.2	18.3	11.2
28/08/2017	µg/m <sup>3</sup>	9.4	6.7	12.3	9.4	8.3
29/08/2017	µg/m <sup>3</sup>	12.7	16.6	26.9	21.8	15.2
30/08/2017	µg/m <sup>3</sup>	10.5	14.4	21.7	17.3	14.2
31/08/2017	µg/m <sup>3</sup>	14.8	10.9	13.9	12.0	8.5

# 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 15<sup>th</sup> August 2017, the data was obtained on 8<sup>th</sup> September 2017.

**Table 3: Hunter Water Tributaries Monitoring**

	Pollutant	unit of measure	Monitoring frequency required by licence	No. of samples you collected and analysed	Value

Loders Creek / EPL Point 3	Electrical Conductivity	microsiemens per centimetre	Once a month (min. of 4 weeks)	1	11990
	pH	pH units	Once a month (min. of 4 weeks)	1	8.2
	Total Suspended Solids	milligrams per litre	Once a month (min. of 4 weeks)	1	3

## 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 31<sup>st</sup> August 2017. The data was obtained on the 8<sup>th</sup> September.

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
w32-wba-ptg1	4/08/2017 10:30	dB(L)		115	120	102.1	103.8	116.6	109.7	110.8
w36-wyc-pr4	7/08/2017 10:42	dB(L)		115	120	90.5	109.0	113.5	109.8	101.6
n30-wwa-ptg2	8/08/2017 13:15	dB(L)		115	120	89.7	89.6	103.3	101.3	92.4
n43-wba-ps5	9/08/2017 12:22	dB(L)		115	120	113.8	108.2	108.1	99.0	102.0
l46-whe-ptg1	9/08/2017 12:22	dB(L)		115	120	113.8	108.2	108.1	99.0	102.0
l50-bla-pr2	10/08/2017 10:46	dB(L)		115	120	101.0	89.3	107.9	96.2	103.9
n41-wba-pr5	10/08/2017 13:37	dB(L)		115	120	101.6	99.2	100.4	94.2	98.0
n37-ble-ptg8	11/08/2017 9:47	dB(L)		115	120	89.7	93.5	106.6	98.2	104.9
n30-wwa-ptg3 n35-whac-co10	12/08/2017 11:07	dB(L)		115	120	107.1	99.6	114.6	93.1	108.9
n41-wna-ps2	14/08/2017 13:23	dB(L)		115	120	105.5	97.1	99.0	98.7	99.3
n41-wna-ps3	15/08/2017 12:15	dB(L)		115	120	110.5	92.5	100.2	86.7	110.4
w27-bfa-ps2	16/08/2017 12:52	dB(L)		115	120	108.0	105.5	108.2	95.7	110.4
n43-wba-pr6 w31-wnb-ps1	17/08/2017 16:31	dB(L)		115	120	100.6	96.7	114.2	93.1	101.6
s22-wwek-co4	19/08/2017 11:16	dB(L)		115	120	90.0	109.0	100.4	96.9	99.2
l50-bla-pr3 l52-bla-ps1	21/08/2017 13:10	dB(L)		115	120	92.4	93.5	106.1	97.3	94.5

s22-maaj-co1	22/08/2017 12:07	dB(L)		115	120	88.9	90.9	95.0	92.2	98.5
n35-wha-ptg1	23/08/2017 12:47	dB(L)		115	120	96.6	87.6	92.4	94.2	87.2
l46-whe-ptg2 l52-bla-ps2	23/08/2017 16:32	dB(L)		115	120	91.6	88.6	94.5	84.9	99.9
w27-bfa-md2	24/08/2017 12:31	dB(L)		115	120	92.1	99.4	102.6	96.0	89.8
n32-bfa-ps1	24/08/2017 13:21	dB(L)		115	120	95.4	91.4	87.3	88.4	82.9
w31-wnb-ps2	25/08/2017 11:09	dB(L)		115	120	91.3	111.7	104.8	106.3	96.1
n35-wha-ptg2	26/08/2017 11:28	dB(L)		115	120	94.4	96.8	88.1	105.8	89.7
n35-whac-co11	29/08/2017 12:41	dB(L)		115	120	96.1	96.4	99.7	96.0	92.5
n30-bfbj-co2	30/08/2017 12:36	dB(L)		115	120	88.2	98.2	82.8	101.0	92.0
n35-whf-pr1 n35-whac-co12	31/08/2017 13:16	dB(L)		115	120	90.1	103.2	104.1	97.0	88.9

**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
w32-wba-ptg1	4/08/2017 10:30	mm/s		5	10	0.03	0.03	0.03	0.37	0.05
w36-wyc-pr4	7/08/2017 10:42	mm/s		5	10	0.17	0.13	0.04	0.10	0.13
n30-wwa-ptg2	8/08/2017 13:15	mm/s		5	10	0.04	0.06	0.03	0.08	0.07
n43-wba-ps5	9/08/2017 12:22			5	10	0.46	0.42	0.10	0.45	0.59
l46-whe-ptg1	9/08/2017 12:22	mm/s		5	10	0.46	0.42	0.10	0.45	0.59
l50-bla-pr2	10/08/2017 10:46	mm/s		5	10	2.49	1.18	0.32	0.45	2.66
n41-wba-pr5	10/08/2017 13:37	mm/s		5	10	1.52	1.25	0.20	1.07	0.56
n37-ble-ptg8	11/08/2017 9:47	mm/s		5	10	0.07	0.06	0.03	0.10	0.06
n30-wwa-ptg3 n35-whac-co10	12/08/2017 11:07	mm/s		5	10	0.06	0.10	0.03	0.15	0.07
n41-wna-ps2	14/08/2017 13:23	mm/s		5	10	0.46	0.48	0.09	0.20	0.58
n41-wna-ps3	15/08/2017 12:15	mm/s		5	10	0.60	0.38	0.12	0.27	0.34

w27-bfa-ps2	16/08/2017 12:52	mm/s		5	10	1.06	0.39	0.08	0.35	0.79
n43-wba-pr6 w31-wnb-ps1	17/08/2017 16:31	mm/s		5	10	2.09	1.76	0.24	0.92	2.11
s22-wwek-co4	19/08/2017 11:16	mm/s		5	10	0.05	0.03	0.06	0.12	0.05
l50-bla-pr3 l52-bla-ps1	21/08/2017 13:10	mm/s		5	10	2.21	0.82	0.12	0.29	1.73
s22-maaj-co1	22/08/2017 12:07	mm/s		5	10	0.05	0.02	0.05	0.13	0.05
n35-wha-ptg1	23/08/2017 12:47	mm/s		5	10	0.06	0.04	0.03	0.11	0.05
l46-whe-ptg2 l52-bla-ps2	23/08/2017 16:32	mm/s		5	10	0.39	0.22	0.10	0.11	0.76
w27-bfa-md2	24/08/2017 12:31	mm/s		5	10	1.69	0.81	0.22	1.01	1.29
n32-bfa-ps1	24/08/2017 13:21	mm/s		5	10	0.23	0.26	0.06	0.65	0.15
w31-wnb-ps2	25/08/2017 11:09	mm/s		5	10	0.43	0.34	0.13	0.31	0.39
n35-wha-ptg2	26/08/2017 11:28	mm/s		5	10	0.05	0.05	0.03	0.12	0.05
n35-whac-co11	29/08/2017 12:41	mm/s		5	10	0.07	0.05	0.03	0.08	0.05
n30-bfbj-co2	30/08/2017 12:36	mm/s		5	10	0.05	0.02	0.04	0.04	0.04
n35-whf-pr1 n35-whac-co12	31/08/2017 13:16	mm/s		5	10	0.21	0.19	0.04	0.40	0.12

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

# Mount Thorley Warkworth

Environmental Monitoring Locations

Date: 170920

Plan By: DF

Version: 3.1

## Legend

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



**COAL  
&  
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Figure 1 : Mount Thorley Warkworth Environmental Monitoring Locations