



# Mount Thorley Warkworth EPL Monitoring Data

Published 23 December 2022  
FOR THE MONTH ENDING 30 November 2022

<b>Name of Operation</b>	<b>Mount Thorley Coal Loader</b>
Environment Protection Licence	24
Licensee	Mount Thorley Coal Loading Ltd
Premises	Mount Thorley Coal Loading Ltd Mount Thorley Road, Mount Thorley Via Singleton NSW 2330
EPL Link	<a href="http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=89660&amp;SYSUID=1&amp;LICID=24">http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=89660&amp;SYSUID=1&amp;LICID=24</a>
<b>Name of Operation</b>	<b>Mount Thorley Operations</b>
Environment Protection Licence	1976
Licensee	Mount Thorley Operations Pty Limited
Premises	Mount Thorley Operations Mount Thorley Road Mount Thorley NSW 2330
EPL Link	<a href="https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=161559&amp;SYSUID=1&amp;LICID=1976">https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=161559&amp;SYSUID=1&amp;LICID=1976</a>
<b>Name of Operation</b>	<b>Warkworth Coal Mine</b>
Environment Protection Licence	1376
Licensee	Warkworth Mining Ltd
Premises	Warkworth Coal Mine Putty Road Mount Thorley NSW 2330
EPL Link	<a href="https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=160262&amp;SYSUID=1&amp;LICID=1376">https://apps.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=160262&amp;SYSUID=1&amp;LICID=1376</a>

## 1 INTRODUCTION

This report provides a summary of environmental monitoring results for Mount Thorley Warkworth (MTW) in accordance with the requirements of the following Environment Protection Licences (EPL):

- EPL24 – Mount Thorley Coal Loader (MTCL);
- EPL1376 – Warkworth Mining Limited (WML); and
- EPL1976 – Mount Thorley Operations (MTO).

This report includes all monitoring data collected in accordance with the above licences for the period 1 to 30 November 2022.

Monitoring in this report includes:

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

Monitoring locations are shown in **Figure 1**.

## 2 AIR QUALITY

In accordance with the requirements of Condition M2.2 of WML EPL 1376 and MTO EPL 1976, MTW maintains a network of five PM<sub>10</sub> monitors.

Results of Particulates (PM<sub>10</sub>) monitoring 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 30 November 2022 and the data was obtained on 1 December 2022.

**TABLE 1: PARTICULATE MATTER <10µm MONITORING**

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Warkworth North (EPA ID # 9 - WML EPL 1376)	MTO Boundary (EPA ID # 13 - MTO EPL 1976)	Dragline Crossing (EPA ID # 10 - WML EPL 1376 & MTO EPL 1976)	Heavy Vehicle Bridge (EPA ID # 11 - WML EPL 1376 & MTO EPL 1976)	MTIE (EPA ID # 12 - WML EPL 1376 & EPA ID #19 - MTO EPL 1976)
1/11/2022	µg/m <sup>3</sup>	Continuous	2.0	1.5	6.6	2.1	2.0
2/11/2022	µg/m <sup>3</sup>		1.6	1.0	7.2	2.6	1.2
3/11/2022	µg/m <sup>3</sup>		4.9	3.4	8.8	4.3	2.6
4/11/2022	µg/m <sup>3</sup>		11.7	3.9	7.6	7.5	4.7
5/11/2022	µg/m <sup>3</sup>		11.5	3.3	6.3	6.1	4.3
6/11/2022	µg/m <sup>3</sup>		14.7	4.3	9.8	7.9	6.1
7/11/2022	µg/m <sup>3</sup>		10.3	3.8	9.7	12.2	4.8
8/11/2022	µg/m <sup>3</sup>		9.8	4.6	8.9	9.8	4.2
9/11/2022	µg/m <sup>3</sup>		10.5	2.7	7.1	7.4	3.5
10/11/2022	µg/m <sup>3</sup>		8.5	2.5	6.5	7.3	3.2
11/11/2022	µg/m <sup>3</sup>		8.5	5.0	16.2	9.8	7.8
12/11/2022	µg/m <sup>3</sup>		10.0	#	#	#	#
13/11/2022	µg/m <sup>3</sup>		17.4	#	#	#	#
14/11/2022	µg/m <sup>3</sup>		4.5	4.2	15.6	7.7	5.5
15/11/2022	µg/m <sup>3</sup>		2.4	3.9	15.3	6.2	3.4
16/11/2022	µg/m <sup>3</sup>		2.9	1.8	10.9	5.7	4.4
17/11/2022	µg/m <sup>3</sup>		3.6	2.2	12.3	5.2	5.1
18/11/2022	µg/m <sup>3</sup>		6.5	3.0	9.2	10.4	3.6
19/11/2022	µg/m <sup>3</sup>		8.1	4.6	19.2	5.9	5.0
20/11/2022	µg/m <sup>3</sup>		4.7	5.0	22.4	8.6	5.2
21/11/2022	µg/m <sup>3</sup>		3.0	3.4	17.3	5.2	3.9
22/11/2022	µg/m <sup>3</sup>		1.5	1.0	14.3	4.3	3.9

MTW EPL Monitoring Data  
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Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			Warkworth North (EPA ID # 9 - WML EPL 1376)	MTO Boundary (EPA ID # 13 - MTO EPL 1976)	Dragline Crossing (EPA ID # 10 - WML EPL 1376 & MTO EPL 1976)	Heavy Vehicle Bridge (EPA ID # 11 - WML EPL 1376 & MTO EPL 1976)	MTIE (EPA ID # 12 - WML EPL 1376 & EPA ID #19 - MTO EPL 1976)
23/11/2022	µg/m <sup>3</sup>		2.7	2.3	16.6	5.8	#
24/11/2022	µg/m <sup>3</sup>		4.2	3.3	13.7	8.3	6.8
25/11/2022	µg/m <sup>3</sup>		11.0	8.8	18.6	12.1	11.2
26/11/2022	µg/m <sup>3</sup>		14.8	10.1	16.9	13.2	14.0
27/11/2022	µg/m <sup>3</sup>		8.5	8.3	23.4	9.3	8.1
28/11/2022	µg/m <sup>3</sup>		15.7	12.5	16.0	14.4	14.3
29/11/2022	µg/m <sup>3</sup>		9.5	6.9	13.8	12.3	9.8
30/11/2022	µg/m <sup>3</sup>		9.8	7.3	11.8	10.2	7.8
Monthly Meaningful Data							
November	µg/m <sup>3</sup>	Minimum*	1.5	1.0	6.3	2.1	1.2
November	µg/m <sup>3</sup>	Mean*	7.8	4.6	13.3	8.2	6.0
November	µg/m <sup>3</sup>	Maximum*	17.4	12.5	23.4	16.4	14.6
November	µg/m <sup>3</sup>	Median*	8.5	3.9	13.7	7.7	4.8

# 24 hour data unavailable due to equipment or communications issue causing one or more missing 10 minute values

\*Data calculated with missing 10 minute value(s) due to equipment or communication issue

MTIE denotes Mount Thorley Industrial Estate

### 3 SURFACE WATER

#### 3.1 Mine Water Discharge Monitoring

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

Results of water monitoring undertaken in accordance with HRSTS requirements are detailed in **Table 2** and **Table 3**. The last sampling date was 30 November 2022 and the data was obtained on 1 December 2022.

**TABLE 2: MINE WATER DISCHARGE MONITORING - VOLUME AND MASS LIMITS**

Monitoring Location	Unit of measure	Volume/mass Limit	No. of samples required by licence	No. of samples you collected and analysed	Lowest Sample Value	Mean of sample	Highest sample value	Median
Dam 1N Discharge / Point 1 (WML EPL 1376) Dam 1N Discharge Point	Megalitres per day	100	0	0	-	-	-	-
Dam 9S Discharge / EPL Point 4 (MTO EPL 1976) Discharge pipe from Dam 9S	Megalitres per day	100	13	13	1.6	32.8	69.7	21.8

**TABLE 3: MINE WATER DISCHARGE MONITORING- CONCENTRATION LIMITS**

Discharge Point	Pollutant	Unit of measure	Licence limits	No. of samples required by licence	No. of samples you collected and analysed	Lowest Sample Value	Mean of sample	Highest sample value	Median
Dam 1N Discharge / Point 1 (WML EPL 1376) Dam 1N Discharge Point	Electrical Conductivity	microsiemens per centimetre	-	0	0	-	-	-	-
	pH	pH	6.5 - 9.5	0	0	-	-	-	-
	Total Suspended Solids	milligrams per litre	120	0	0	-	-	-	-
Dam 1N Discharge Turbidity Monitoring / Point 25 (WML EPL 1376) Continuous turbidity monitor	Turbidity	nephelometric turbidity units	-	0	0	-	-	-	-
Dam 9S Discharge / EPL Point 4 (MTO EPL 1976) Discharge pipe from Dam 9	Electrical Conductivity	microsiemens per centimetre	-	Continuous	Continuous*	4129	4384	4896	4319
	pH	pH	6.5 - 9.5	13	13	8.9	9.0	9.0	9.0
	Total Suspended Solids	milligrams per litre	120	13	13	8.0	21.2	38.0	21.0

\*2 missing 5-minute values over 13 discharge blocks due to equipment issue. Data calculated with missing 5-minute value(s).

### 3.2 Water Quality Monitoring

MTW undertakes monitoring in accordance with Condition M2.3 of WML EPL 1376 and MTO EPL 1976 as detailed in **Table 4**. Monthly sampling occurred on 11 November 2022 and the data was obtained 13 December 2022. Next quarterly sampling will occur in December 2022.

**TABLE 4: WATER QUALITY MONITORING**

Monitoring Location	Pollutant	unit of measure	Monitoring frequency required by licence	No. of samples required by licence	No. of samples collected and analysed	Value(s)
W5 – Loders Creek / EPL Point 3 (MTO EPL 1976) Coal preparation plant access road bridge	Electrical Conductivity	microsiemens per centimetre	Once a month (min. of 4 weeks)	1	1	7420
	pH	pH units	Once a month (min. of 4 weeks)	1	1	8.0
	Total Suspended Solids	milligrams per litre	Once a month (min. of 4 weeks)	1	1	<5
W1 – Hunter River / EPL Point 26 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-
W2 – Hunter River / EPL Point 27 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-
W3 – Hunter River / EPL Point 28 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-
W5 – Loders Creek / EPL Point 29 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-
WW5 – Dights Creek / EPL Point 30 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-

Monitoring Location	Pollutant	unit of measure	Monitoring frequency required by licence	No. of samples required by licence	No. of samples collected and analysed	Value(s)
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-
SW40 – Wollombi Brook Downstream / EPL Point 31 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-
Wollombi Brook / EPL Point 32 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-
Wollombi Brook Upstream / EPL Point 33 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
	Total Suspended Solids	milligrams per litre	Once a quarter	0	0	-



### 3.3 Effluent Quality Monitoring

Monitoring is undertaken in accordance with Condition M2.3 of WML EPL 1376 and MTO EPL 1976 as detailed in **Table 5**. Next quarterly sampling will occur in December 2022.

**TABLE 5: EFFLUENT QUALITY MONITORING**

Monitoring Location	Pollutant	unit of measure	Monitoring frequency required by licence	No. of samples required by licence	No. of samples collected and analysed	Value
North Pit North Crib Hut Envirocycle / EPL Point 14 (WML EPL 1376)	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
Main Warkworth Staging Pond / EPL Point 15 (WML EPL 1376)	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
Warkworth Admin Envirocycle / EPL Point 16 (WML EPL 1376)	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
West Pit South Crib Hut Envirocycle / EPL Point 17 (WML EPL 1376)	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
Warkworth Medical Centre Envirocycle / EPL Point 18 (WML EPL 1376)	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-
Dam 1S / EPL Point 18 (MTO EPL 1976)	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	0	0	-
	pH	pH units	Once a quarter	0	0	-

#### 4 BLAST MONITORING

In accordance with the requirements of Conditions M7.1 (WML EPL 1376) and M8.1 (MTO EPL 1976), MTW maintains a network of blast monitors to measure airblast overpressure and ground vibration for all blasts carried out at MTW. Blast monitoring results are detailed in **Table 6** (Airblast Overpressure) and **Table 7** (Ground Vibration). The last date sampled was on 30 November 2022. The data was obtained on 1 December 2022.

**TABLE 6: BLAST MONITORING (AIRBLAST OVERPRESSURE)**

Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point				
				95% of Blasts	100% of Blasts	Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976)	Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976)	Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976)	Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976)	Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976)
w32-wwe-maj-co1	3/11/2022 11:30	dB(L)	All Blasts 100%	115	120	102.6	104.1	107.7	108.6	104.2
w37-blc-pr1 & w37-wnd-ps1g	3/11/2022 11:31	dB(L)		115	120	102.5	105.9	108.5	98.2	100.4
n39-wwa-ptg5	8/11/2022 12:34	dB(L)		115	120	98.0	97.1	109.3	110.3	91.5
w37-wnb-pr5	9/11/2022 12:59	dB(L)		115	120	104.5	102.0	101.6	96.6	104.4
n47-wnb-pr3 & n47-wnd-ps1f	10/11/2022 13:02	dB(L)		115	120	97.0	102.0	107.3	103.6	102.9
w34-bfa-d-co3	11/11/2022 12:04	dB(L)		115	120	104.1	95.9	96.4	82.3	106.0
w37-wnb-pr6	15/11/2022 13:09	dB(L)		115	120	97.9	102.3	106.5	96.6	96.6
n45-blh-ptg3	16/11/2022 9:20	dB(L)		115	120	89.9	100.4	113.9	94.1	98.9
w45-rcd-ps1c	17/11/2022 12:06	dB(L)		115	120	103.9	96.4	90.7	95.3	104.1

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Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point				
				95% of Blasts	100% of Blasts	Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976)	Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976)	Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976)	Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976)	Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976)
n47-wna-pr1	18/11/2022 12:02	dB(L)		115	120	94.4	96.1	89.9	103.0	86.4
n40-bfb-ps1c	19/11/2022 11:39	dB(L)		115	120	94.1	90.1	86.4	90.5	93.0
n49-rcd-ps1b north	23/11/2022 12:30	dB(L)		115	120	96.0	104.7	103.7	99.1	103.8
n49-rcd-ps1b south	23/11/2022 12:31	dB(L)		115	120	99.6	103.1	104.4	94.6	98.5
w45-rcd-pr3	24/11/2022 12:34	dB(L)		115	120	118.4	113.6	97.6	98.7	113.7
n47-wna-pr2	25/11/2022 12:11	dB(L)		115	120	99.4	97.3	88.6	100.4	94.5
n47-wnb-pr4 & n47-wnd-ps1g	28/11/2022 13:13	dB(L)		115	120	101.0	101.9	94.3	95.5	93.2
n39-wwg-ptg1	29/11/2022 12:18	dB(L)		115	120	95.3	98.0	92.2	102.7	89.7
n49-wyf-pr3	30/11/2022 12:24	dB(L)		115	120	99.8	106.1	99.4	102.8	99.0
<b>Monthly Meaningful Data</b>										
<b>Minimum</b>	<b>November</b>	<b>dB(L)</b>		115	120	89.9	90.1	86.4	82.3	86.4
<b>Mean</b>	<b>November</b>	<b>dB(L)</b>		115	120	99.9	100.9	99.9	98.5	98.9
<b>Maximum</b>	<b>November</b>	<b>dB(L)</b>		115	120	118.4	113.6	113.9	110.3	113.7
<b>Median</b>	<b>November</b>	<b>dB(L)</b>		115	120	99.5	101.9	100.5	98.4	99.0

**TABLE 7: BLAST MONITORING (GROUND VIBRATION)**

Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point				
				95% of Blasts	100% of Blasts	Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976)	Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976)	Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976)	Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976)	Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976)
w32-wwe-maj-co1	3/11/2022 11:30	mm/s	All Blasts 100%	5	10	0.21	0.12	0.04	0.76	0.15
w37-blc-pr1 & w37-wnd-ps1g	3/11/2022 11:31	mm/s		5	10	2.24	1.80	0.26	0.76	1.90
n39-wwa-ptg5	8/11/2022 12:34	mm/s		5	10	0.06	0.14	0.03	0.30	0.06
w37-wnb-pr5	9/11/2022 12:59	mm/s		5	10	0.37	0.29	0.05	0.30	0.34
n47-wnb-pr3 & n47-wnd-ps1f	10/11/2022 13:02	mm/s		5	10	0.96	1.18	0.21	1.74	0.72
w34-bfa-d-co3	11/11/2022 12:04	mm/s		5	10	0.14	0.09	0.03	0.13	0.08
w37-wnb-pr6	15/11/2022 13:09	mm/s		5	10	0.42	0.29	0.05	1.07	0.39
n45-blh-ptg3	16/11/2022 9:20	mm/s		5	10	0.03	0.04	0.03	0.18	0.03
w45-rcd-ps1c	17/11/2022 12:06	mm/s		5	10	0.55	1.37	0.06	1.25	0.48
n47-wna-pr1	18/11/2022 12:02	mm/s		5	10	0.67	1.08	0.10	1.18	0.34
n40-bfb-ps1c	19/11/2022 11:39	mm/s		5	10	0.49	1.22	0.14	2.36	0.67
n49-rcd-ps1b north	23/11/2022 12:30	mm/s		5	10	0.17	0.33	0.07	0.94	0.19
n49-rcd-ps1b south	23/11/2022 12:31	mm/s		5	10	0.10	0.23	0.03	0.25	0.09

Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point				
				95% of Blasts	100% of Blasts	Bulga Village EPA ID # 6 (EPL 1376) & EPA ID # 7 (EPL 1976)	Wambo Road EPA ID # 5 (EPL 1376) & EPA ID # 6 (EPL 1976)	Putty Rd MTIE EPA ID # 8 (EPL 1376) & EPA ID # 9 (EPL 1976)	Warkworth EPA ID # 4 (EPL 1376) & EPA ID # 5 (EPL 1976)	Wollemi Peak Road EPA ID # 7 (EPL 1376) & EPA ID # 8 (EPL 1976)
w45-rcd-pr3	24/11/2022 12:34	mm/s		5	10	2.50	1.61	0.13	1.36	1.21
n47-wna-pr2	25/11/2022 12:11	mm/s		5	10	0.33	0.46	0.04	1.42	0.22
n47-wnb-pr4 & n47-wnd-ps1g	28/11/2022 13:13	mm/s		5	10	0.91	0.90	0.15	1.14	0.93
n39-wwg-ptg1	29/11/2022 12:18	mm/s		5	10	0.12	0.13	0.04	0.39	0.08
n49-wyf-pr3	30/11/2022 12:24	mm/s		5	10	0.61	0.89	0.07	0.56	0.29
<b>Monthly Meaningful Data</b>										
<b>Minimum</b>	<b>November</b>	<b>mm/s</b>		5	10	0.03	0.04	0.03	0.13	0.03
<b>Mean</b>	<b>November</b>	<b>mm/s</b>		5	10	0.60	0.68	0.09	0.89	0.45
<b>Maximum</b>	<b>November</b>	<b>mm/s</b>		5	10	2.50	1.80	0.26	2.36	1.90
<b>Median</b>	<b>November</b>	<b>mm/s</b>		5	10	0.40	0.40	0.06	0.85	0.32

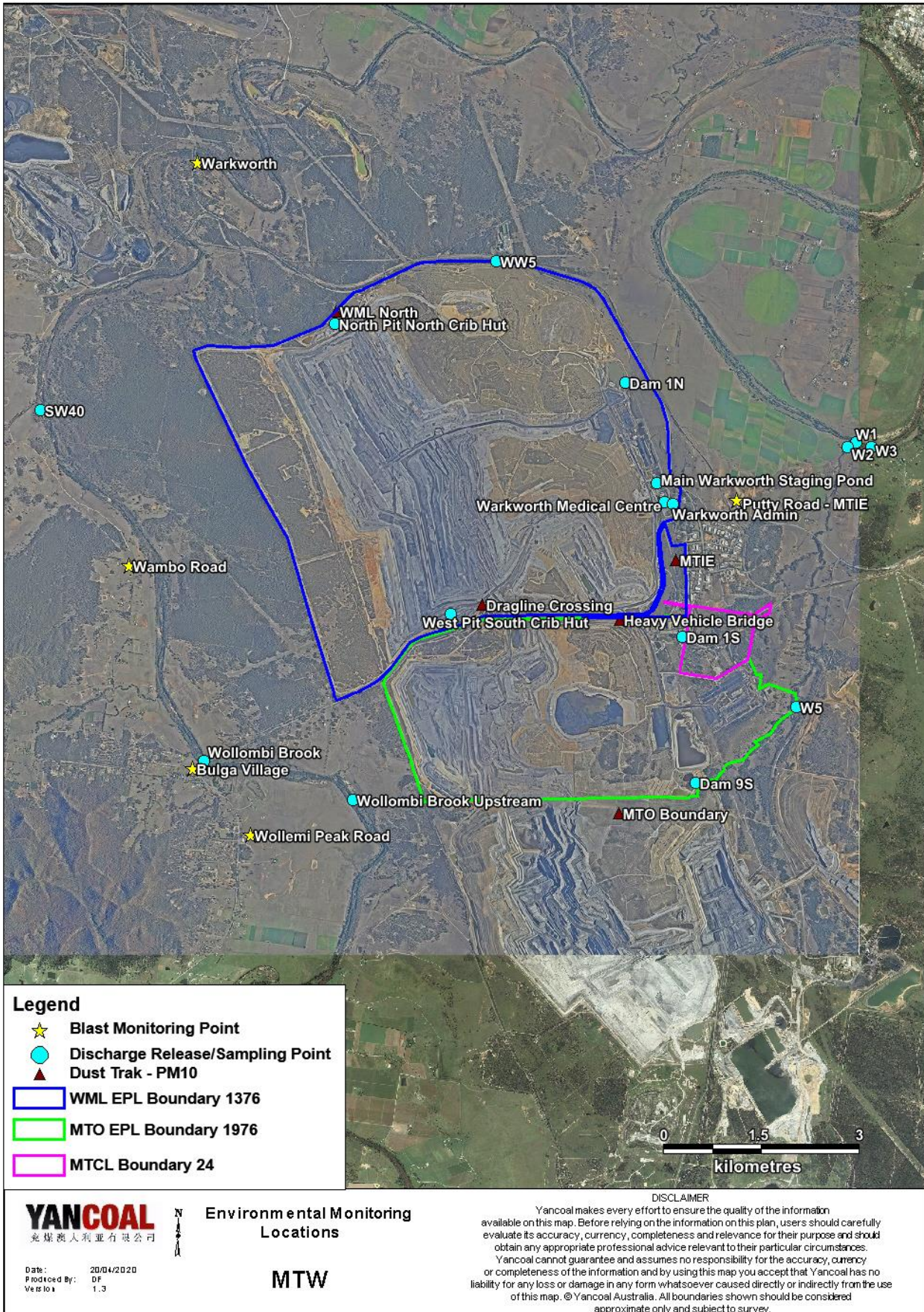


Figure 1 : Mount Thorley Warkworth Environmental Monitoring Locations