



Mount Thorley Warkworth EPL Monitoring Data

Published 30 July 2024 FOR THE MONTH ENDING 30 June 2024

Name of Operation	Mount Thorley Coal Loader
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	http://app.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=89660&SYSUID=1&LICID=24
Name of Operation	Mount Thorley Operations
Environment Protection Licence	1976
Licensee	Mount Thorley Operations Pty Limited
Premises	Mount Thorley Operations Mount Thorley Road Mount Thorley NSW 2330
EPL Link	https://apps.epa.nsw.gov.au/prpoeoapp/ ViewPOEOLicence.aspx?DOCID=161559&S YSUID=1&LICID=1976
Name of Operation	Warkworth Coal Mine
Environment Protection Licence	1376
Licensee	Warkworth Mining Ltd
Premises	Warkworth Coal Mine Putty Road Mount Thorley NSW 2330
EPL Link	https://apps.epa.nsw.gov.au/prpoeoapp/ ViewPOEOLicence.aspx?DOCID=160262&S YSUID=1&LICID=1376

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 June 2024.

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_{10} monitors.

Results of Particulates (PM_{10}) monitoring are shown in **Table 1**. Results reported represent the 24hr average PM_{10} , derived from 10 minute PM_{10} values for the period midnight to midnight, for each calendar date during the reporting period. The last sampling date was 30 June 2024 and the data was obtained on 1 July 2024.

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TABLE 1: PARTICULATE MATTER < 10 µM MONITORING

		Monitoring			Monitoring Point		
Date	Unit of Measure	Frequency & Capture	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)
01/06/2024 00:00	μg/m³		#	4.0	6.7	8.8	6.7
02/06/2024 00:00	μg/m³		#	#	#	6.3	3.1
03/06/2024 00:00	μg/m³		#	#	12.4	#	4.0
04/06/2024 00:00	μg/m³		8.1	10.0	15.1	9.9	6.5
05/06/2024 00:00	μg/m³		#	13.1	25.4	23.9	16.7
06/06/2024 00:00	μg/m³		9.7	10.0	16.2	14.8	8.3
07/06/2024 00:00	μg/m³	1	9.6	10.5	11.4	7.9	7.1
08/06/2024 00:00	μg/m³	1	6.0	8.2	13.4	6.0	4.8
09/06/2024 00:00	μg/m³	1	8.4	11.1	21.9	10.6	7.3
10/06/2024 00:00	μg/m³	1	12.8	13.5	16.5	12.3	6.9
11/06/2024 00:00	μg/m³	1	8.1	8.1	19.1	12.8	9.0
12/06/2024 00:00	μg/m³	Continuous	2.9	2.6	13.7	4.3	2.7
13/06/2024 00:00	μg/m³	1	14.1	2.9	8.0	6.1	7.2
14/06/2024 00:00	μg/m³	1	14.0	3.8	14.5	10.6	8.9
15/06/2024 00:00	μg/m³		6.9	3.0	3.8	3.9	2.9
16/06/2024 00:00	μg/m³	1	2.6	1.6	13.1	7.5	3.1
17/06/2024 00:00	μg/m³		5.0	6.5	17.2	11.8	5.8
18/06/2024 00:00	μg/m³		4.4	10.0	23.7	20.1	13.0
19/06/2024 00:00	μg/m³		5.8	22.3	20.7	18.4	7.3
20/06/2024 00:00	μg/m³		16.8	9.7	19.0	17.3	12.2
21/06/2024 00:00	μg/m³		14.3	6.2	15.9	13.0	8.9
22/06/2024 00:00	μg/m³		5.2	5.1	14.6	12.5	7.1
23/06/2024 00:00	μg/m³		6.9	2.2	5.1	7.8	3.7

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		Monitoring					
Date	Unit of Measure	Frequency & Capture	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)
24/06/2024 00:00	μg/m³		7.8	6.9	12.3	12.6	10.6
25/06/2024 00:00	μg/m³		20.4	12.9	20.7	19.3	20.0
26/06/2024 00:00	μg/m³		22.8	17.3	27.2	26.8	22.9
27/06/2024 00:00	μg/m³		6.6	8.1	22.6	17.2	14.2
28/06/2024 00:00	μg/m³		11.7	11.4	20.6	16.5	13.6
29/06/2024 00:00	μg/m³		14.7	21.3	27.9	23.2	14.8
30/06/2024 00:00	μg/m³		12.3	14.4	15.5	17.9	11.6
			N	Nonthly Meaningful Data			
June	μg/m³	Minimum*	2.6	1.6	3.8	3.9	2.7
June	μg/m³	Mean*	10.1	9.0	16.2	13.1	9.0
June	μg/m³	Maximum*	22.8	22.3	27.9	26.8	22.9
June	μg/m³	Median*	8.4	8.2	15.7	12.5	7.3

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

MTIE denotes Mount Thorley Industrial Estate

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

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 7 June 2024 and the data was obtained on 11 June 2024.

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	5	5	4.7	24.3	66.9	6.9

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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
	Electrical	microsiemens per centimetre	-	0	0	-	-	-	-
Dam 1N Discharge / Point 1	Conductivity								
(WML EPL 1376)	рН	рН	6.5 - 9.5	0	0	-	-	-	-
Dam 1N Discharge Point	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	-	-	-	-
David Of Dischause / FDL Daint 4	Electrical Conductivity	microsiemens per centimetre	-	Continuous	Continuous	5961	6003	6023	6013
Dam 9S Discharge / EPL Point 4 (MTO EPL 1976)	рН	рН	6.5 - 9.5	5	5	9.0	9.1	9.2	9.1
Discharge pipe from Dam 9	Total Suspended Solids	milligrams per litre	120	5	5	15.0	17.8	23.0	17.0

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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 24 June 2024 and the data was obtained 17 July 2024. Next quarterly sampling will occur in September 2024.

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	Electrical Conductivity	microsiemens per centimetre	Once a month (min. of 4 weeks)	1	1	10190
(MTO EPL 1976) Coal preparation plant access road bridge	рН	pH units	Once a month (min. of 4 weeks)	1	1	7.8
	Total Suspended Solids	milligrams per litre	Once a month (min. of 4 weeks)	1	1	12
W1 – Hunter River / EPL Point 26	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	787
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	8.1
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	24
W2 – Hunter River / EPL Point 27	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	1574
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	8.0
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	14
W3 – Hunter River / EPL Point 28	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	785
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	8.2
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	23

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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 29 (WML EPL 1376)	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	10190
	рН	pH units	Once a quarter	1	1	7.8
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	12
WW5 – Dights Creek / EPL Point 30	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	1977
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	8.2
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	9
SW40 – Wollombi Brook Downstream / EPL Point 31	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	489
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	7.6
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	6
Wollombi Brook / EPL Point 32	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	513
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	7.6
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	8
Wollombi Brook Upstream / EPL Point 33	Electrical Conductivity	microsiemens per centimetre	Once a quarter	1	1	491
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	7.4
	Total Suspended Solids	milligrams per litre	Once a quarter	1	1	7

^{# -} Sample unable to be collected due to insufficient water or unsafe access

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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 September 2024.

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	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	1	1	240
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	6.7
Main Warkworth Staging Pond / EPL Point 15	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	1	1	100
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	7.4
Warkworth Admin Envirocycle / EPL Point 16	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	1	1	1800000
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	7.4
West Pit South Crib Hut Envirocycle / EPL Point 17	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	1	1	310
(WML EPL 1376)	рН	pH units	Once a quarter	1	1	7.0
Warkworth Medical Centre Envirocycle / EPL Point 18	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	1	0	#
(WML EPL 1376)	рН	pH units	Once a quarter	1	0	#
Dam 1S / EPL Point 18	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	1	1	290
(MTO EPL 1976)	рН	pH units	Once a quarter	1	1	9.4
WML - Workshop STP	Faecal Coliforms	Colony forming units per 100 millilitres	Once a quarter	1	1	~300
	рН	pH units	Once a quarter	1	1	4.9

Sample not collected as effluent now diverted from this point to the newly commissioned "WML - Workshop STP" for treatment (since 28 November 2023).

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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 29 June 2024. The data was obtained on 30 June 2024.

TABLE 6: BLAST MONITORING (AIRBLAST OVERPRESSURE)

				EPL L	imits	Monitoring Point					
Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	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)	
w39-bla-pr2	11/06/2024 12:14	dB(L)		115	120	78.6	101.7	91.3	87.7	110.8	
n49-rcea-pr1 & n51- wbd-ps1b	11/06/2024 16:30	dB(L)		115	120	79.4	105.3	85.4	98.0	103.8	
n51-wbd-ps1c	12/06/2024 12:20	dB(L)		115	120	92.0	101.8	99.6	88.9	106.0	
w34-maa-j-co2	13/06/2024 11:35	dB(L)		115	120	98.9	90.4	94.5	90.9	97.4	
n42-bfb-ps1f	13/06/2024 14:33	dB(L)	All Blasts	115	120	78.1	87.3	82.6	91.7	75.7	
w48-wyc-pr8	17/06/2024 12:32	dB(L)	100%	115	120	109.9	97.4	102.9	93.1	103.2	
w36-bfa-j-co1	17/06/2024 12:33	dB(L)		115	120	96.8	93.9	101.4	101.2	94.6	
n45-gmb-pr4	20/06/2024 11:42	dB(L)		115	120	111.9	100.3	122.7	97.2	109.3	
w52-wya-ptg1	21/06/2024 13:07	dB(L)		115	120	112.3	96.8	94.9	94.7	109.8	
w35-bfa-ps1b	22/06/2024 12:38	dB(L)		115	120	86.2	89.7	96.2	86.0	98.7	

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				EPL L	imits			Monitoring Poin	t		
Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	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)	
w36-bfa-j-co2	24/06/2024 12:32	dB(L)		115	120	96.7	92.5	97.5	92.9	96.9	
n51-rce-pr1	24/06/2024 12:35	dB(L)		115	120	102.8	102.8	104.7	99.1	102.9	
n45-whc-ps2e	25/06/2024 12:13	dB(L)		115	120	101.0	96.5	88.8	92.2	93.8	
w35-bfa-md1	26/06/2024 13:41	dB(L)		115	120	102.8	93.2	98.0	85.6	102.2	
n51-wbd-ps1d	27/06/2024 12:15	dB(L)		115	120	104.0	98.1	101.1	88.5	93.7	
w50-wyc-ptg3	28/06/2024 12:45	dB(L)		115	120	85.2	101.9	90.9	88.2	99.5	
n42-bfb-ps1g	29/06/2024 13:31	dB(L)		115	120	75.3	100.1	83.3	81.9	103.5	
				Monthly	/ Meaningful	Data					
Minimum	June	dB(L)		115	120	75.3	87.3	82.6	81.9	75.7	
Mean	June	dB(L)		115	120	94.8	97.0	96.2	91.6	100.1	
Maximum	June	dB(L)		115	120	112.3	105.3	122.7	101.2	110.8	
Median	June	dB(L)		115	120	96.8	97.4	96.2	91.7	102.2	

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TABLE 7: BLAST MONITORING (GROUND VIBRATION)

				EPL L	mits			Monitoring Poin	t	
Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	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)
w39-bla-pr2	11/06/2024 12:14	mm/s		5	10	0.83	0.80	0.09	0.68	0.47
n49-rcea-pr1 & n51- wbd-ps1b	11/06/2024 16:30	mm/s		5	10	0.73	1.55	0.12	2.48	0.37
n51-wbd-ps1c	12/06/2024 12:20	mm/s		5	10	0.32	0.40	0.06	0.40	0.25
w34-maa-j-co2	13/06/2024 11:35	mm/s		5	10	0.10	0.10	0.04	0.66	0.06
n42-bfb-ps1f	13/06/2024 14:33	mm/s		5	10	0.79	1.74	0.17	2.35	0.95
w48-wyc-pr8	17/06/2024 12:32	mm/s		5	10	1.26	1.31	0.10	0.25	2.04
w36-bfa-j-co1	17/06/2024 12:33	mm/s	All Blasts 100%	5	10	0.15	0.19	0.05	0.68	0.13
n45-gmb-pr4	20/06/2024 11:42	mm/s		5	10	1.37	2.70	0.39	1.25	0.96
w52-wya-ptg1	21/06/2024 13:07	mm/s		5	10	0.20	0.11	0.03	0.14	0.11
w35-bfa-ps1b	22/06/2024 12:38	mm/s		5	10	1.01	0.50	0.09	0.40	0.48
w36-bfa-j-co2	24/06/2024 12:32	mm/s		5	10	0.13	0.15	0.03	0.15	0.10
n51-rce-pr1	24/06/2024 12:35	mm/s		5	10	0.48	0.81	0.09	2.75	0.31
n45-whc-ps2e	25/06/2024 12:13	mm/s		5	10	0.52	1.70	0.21	1.29	0.43

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				EPL Li	mits	Monitoring Point					
Blast ID	Date and Time	Unit of Measure	Monitoring Frequency & Capture	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)	
w35-bfa-md1	26/06/2024 13:41	mm/s		5	10	1.32	1.05	0.18	0.65	0.83	
n51-wbd-ps1d	27/06/2024 12:15	mm/s		5	10	0.62	0.40	0.09	0.40	0.57	
w50-wyc-ptg3	28/06/2024 12:45	mm/s		5	10	0.17	0.20	0.04	0.16	0.11	
n42-bfb-ps1g	29/06/2024 13:31	mm/s		5	10	0.77	1.00	0.19	2.29	0.75	
				Monthly	Meaningful I	Data					
Minimum	June	mm/s		5	10	0.10	0.10	0.03	0.14	0.06	
Mean	June	mm/s		5	10	0.63	0.87	0.12	1.00	0.52	
Maximum	June	mm/s		5	10	1.37	2.70	0.39	2.75	2.04	
Median	June	mm/s		5	10	0.62	0.80	0.09	0.66	0.43	

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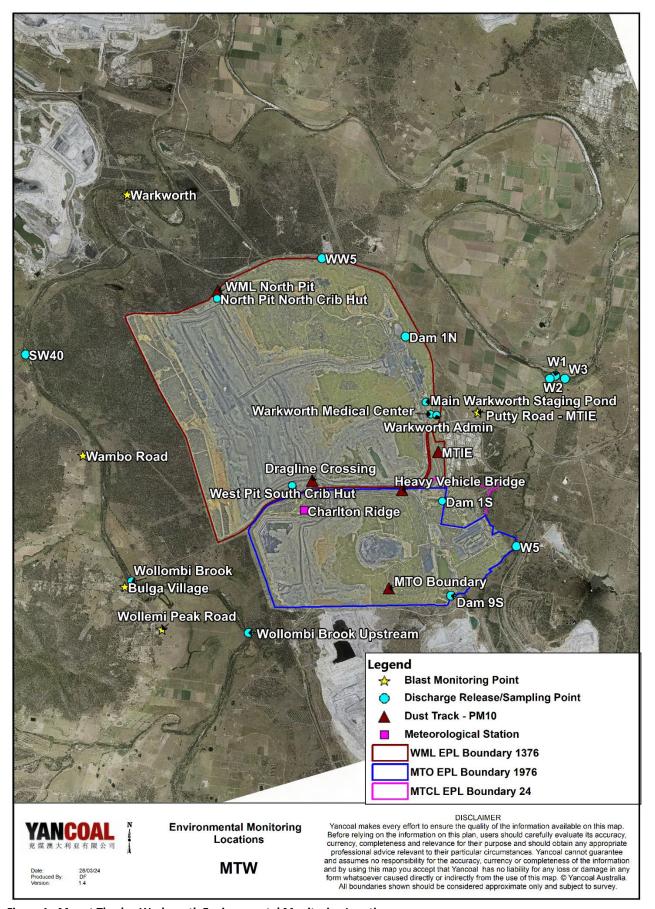


Figure 1: Mount Thorley Warkworth Environmental Monitoring Locations

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